

# 5-Phase Stepper Motor

## Ordering Information

Application model: shaft type, hollow shaft type, built-in brake type

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

※1: Built-in brake type provides single shaft type only.

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

## Ordering Information

Application model: geared type, geared+built-in brake type, rotary actuator type, rotary actuator+built-in brake type

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

※1: Built-in brake type provides single shaft type only.

# 5-Phase Stepper Motor

## Specifications of Motor

Motor		Model	Rated current (A/Phase)	Max. holding torque (kgf·cm)	Max. allowable torque (kgf·cm)	Rotor moment of inertia (gf·cm <sup>2</sup> )	Winding resistance (Ω)	Motor length (mm)
Frame size	Type							
24mm	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	Shaft type/ Built-in brake type	A1K-S543(W)-B	0.75	1.3	—	35	1.7	33/56
		A2K-S544(W)-B	0.75	1.8	—	54	2.2	39/62
		A2K-M544(W)	1.4	1.8	—	54	2.2	39
		A3K-S545(W)-B	0.75	2.4	—	68	2.2	47/70
		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	2.2	74.5
	Geared 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
		A10K-S545-GB5	0.75	—	10	68	2.2	97.5
	Geared+ built-in brake type	A15K-S545-GB7.2	0.75	—	15	68	2.2	97.5
A15K-S545-GB10		0.75	—	15	68	2.2	97.5	
A4K-S564(W)-B		0.75	4.2	—	175	2.6	48.5/75	
60mm	Shaft type/ Built-in brake type	A4K-M564(W)-B	1.4	4.2	—	175	0.8	48.5/75
		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
	Hollow shaft type	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
		A35K-M566(W)-G5	1.4	—	35	280	1.1	94.5
	Geared type	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
		A35K-M566-GB5	1.4	—	35	280	1.1	121
	Geared+ built-in brake type	A40K-M566-GB7.2	1.4	—	40	280	1.1	121
		A50K-M566-GB10	1.4	—	50	280	1.1	121
		A35K-M566(W)-R5	1.4	—	35	280	1.1	93.5
	Rotary actuator type	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
		A35K-M566-RB5	1.4	—	35	280	1.1	120
	Rotary actuator+ built-in brake type	A40K-M566-RB7.2	1.4	—	40	280	1.1	120
A50K-M566-RB10		1.4	—	50	280	1.1	120	
A21K-M596(W)-B		1.4	21	—	1400	1.76	68/103	
85mm	Shaft type/ Built-in brake type	A21K-G596(W)-B	2.8	21	—	1400	0.4	68/103
		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
	Hollow shaft type	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
		A140K-M599(W)-G5	1.4	—	140	2700	2.6	145
	Geared type	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
		A140K-M599-GB5	1.4	—	140	2700	2.6	180
A140K-G599-GB5		2.8	—	140	2700	0.58	180	
A200K-M599-GB7.2		1.4	—	200	2700	2.6	180	
Geared+ built-in brake type	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	
	A200K-G599-GB10	2.8	—	200	2700	0.58	180	

※(W) stands for dual shaft of motor. (the built-in brake 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.)

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/ Connector Cables/ Sensor Distribution Boxes/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 24mm

Model	<b>02K-S523(W)</b>	<b>04K-S525(W)</b>
Max. holding torque <sup>※1</sup>	0.18kgf·cm (0.018N·m)	0.28kgf·cm (0.027N·m)
Rotor moment of inertia	4.2gf·cm <sup>2</sup> (4.2×10 <sup>-7</sup> kgf·m <sup>2</sup> )	8.2gf·cm <sup>2</sup> (8.2×10 <sup>-7</sup> kgf·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 temp.	-10 to 50°C, storage: -25 to 85°C
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH
Protection structure	IP30 (IEC34-5 standard)	
Weight <sup>※2</sup>	Approx. 0.10kg (approx. 0.08kg)	Approx. 0.16kg (approx. 0.12kg)
Reference	<b>Q-29 to 31</b>	

※1: Max. holding torque is maintenance torque in stopping the motor when supply the rated current and is standard method for comparing the performance of motors.

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

※Environment resistance is rated at no freezing or condensation.

### ● Frame size 42mm

Model	Shaft type	<b>A1K-S543(W)</b>	<b>A2K-S544(W)</b>	<b>A2K-M544(W)</b>	<b>A3K-S545(W)</b>	—	—	—
	Hollow shaft type	<b>AH1K-S543</b>	<b>AH2K-S544</b>	—	<b>AH3K-S545</b>	—	—	—
	Built-in brake type	<b>A1K-S543-B</b>	<b>A2K-S544-B</b>	—	<b>A3K-S545-B</b>	—	—	—
	Geared type	—	—	—	—	<b>A10K-S545(W)-G5</b>	<b>A15K-S545(W)-G7.2</b>	<b>A15K-S545(W)-G10</b>
	Geared + built-in brake type	—	—	—	—	<b>A10K-S545-GB5</b>	<b>A15K-S545-GB7.2</b>	<b>A15K-S545-GB10</b>
Max. holding torque <sup>※1</sup>	1.3kgf·cm (0.13N·m)	1.8kgf·cm (0.18N·m)	—	2.4kgf·cm (0.24N·m)	—	—	—	
Max. allowable torque <sup>※1</sup>	—	—	—	—	10kgf·cm (1.0N·m)	15kgf·cm (1.5N·m)	—	
Rotor moment of inertia	35gf·cm <sup>2</sup> (35×10 <sup>-7</sup> kgf·m <sup>2</sup> )	54gf·cm <sup>2</sup> (54×10 <sup>-7</sup> kgf·m <sup>2</sup> )	—	68gf·cm <sup>2</sup> (68×10 <sup>-7</sup> kgf·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°)			
Electro-Magnetic Brake <sup>※3</sup>	Rated excitation voltage	24VDC= ±10% (no-polarity)						
	Rated excitation current	0.2A						
	Static friction torque	1.8kgf·cm						
	Rotation part inertia	3×10 <sup>-7</sup> kgf·cm <sup>2</sup>						
	B type brake	Power on: brake is released, power off: brake is operating						
	Operating time	Max. 25ms				Max. 15ms		
	Releasing time	Max. 15ms				Max. 25ms		
Insulation class	B type (130°C)							
Insulation resistance	Over 100MΩ (at 500VDC megger) between motor coil-case							
Dielectric strength	1kVAC (at 0.75A/Phase is 0.5kVAC) 50/60Hz for 1 minute between motor coil-case							
Environment	Ambient temp.	-10 to 50°C, storage: -25 to 85°C						
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH						
Protection structure	IP30 (IEC34-5 standard)							
Weight <sup>※3</sup>	Shaft type : approx. 0.34kg (approx. 0.25kg), Hollow shaft type : approx. 0.35kg (approx. 0.25kg), Built-in brake type : approx. 0.44kg (approx. 0.39kg)	Shaft type : approx. 0.39kg (approx. 0.3kg), Hollow shaft type : approx. 0.4kg (approx. 0.3kg), Built-in brake type : approx. 0.49kg (approx. 0.44kg)	Shaft type : approx. 0.49kg (approx. 0.4kg), Hollow shaft type : approx. 0.5kg (approx. 0.4kg), Built-in brake type : approx. 0.59kg (approx. 0.54kg)	Shaft type : approx. 0.49kg (approx. 0.4kg), Hollow shaft type : approx. 0.5kg (approx. 0.4kg), Built-in brake type : approx. 0.59kg (approx. 0.54kg)	Geared type : approx. 0.68kg (approx. 0.58kg), Geared+built-in brake type : approx. 0.78kg (approx. 0.72kg)			
	Reference	<b>Q-29 to 39</b>						

※1: Max. holding torque/Max. allowable torque is maintenance torque in stopping the motor when supply the rated current and is standard method for comparing the performance of motors.

※2: It is only available for built-in brake type, geared+built-in brake type.

※3: The weight includes packaging. The weight in parenthesis is for unit only. ※Environment resistance is rated at no freezing or condensation.

# 5-Phase Stepper Motor

## Specifications

### ● Frame size 60mm

Model	A4K-S564(W)	A4K-M564(W)	A4K-G564(W)	A8K-S566(W)	A8K-M566(W)	A8K-G566(W)	A16K-M569(W)	A16K-G569(W)
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)
Built-in brake type	A4K-S564-B	A4K-M564-B	—	A8K-S566-B	A8K-M566-B	—	A16K-M569-B	A16K-G569-B
Max. holding torque <sup>*1</sup>	4.2kgf·cm (0.41N·m)			8.3kgf·cm (0.81N·m)			16.6kgf·cm (1.63N·m)	
Rotor moment of inertia	175gf·cm <sup>2</sup> (175×10 <sup>-7</sup> kgf·m <sup>2</sup> )			280gf·cm <sup>2</sup> (280×10 <sup>-7</sup> kgf·m <sup>2</sup> )			560gf·cm <sup>2</sup> (560×10 <sup>-7</sup> kgf·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)							
Electro-Magnetic Brake <sup>*2</sup>	Rated excitation voltage	24VDC $\pm$ 10% (no-polarity)						
	Rated excitation current	0.33A						
	Static friction torque	8kgf·cm						
	Rotation part inertia	29×10 <sup>-7</sup> kgf·cm <sup>2</sup>						
	B type brake	Power on: brake is released, power off: brake is operating						
	Operating time	Max. 25ms						
Releasing time	Max. 20ms							
Insulation class	B type (130°C)							
Insulation resistance	Over 100M $\Omega$ (at 500VDC megger) between motor coil-case							
Dielectric strength	1kVAC (at 0.75A/Phase is 0.5kVAC) 50/60Hz for 1 minute between motor coil-case							
Environment	Ambient temp.	-10 to 50°C, storage: -25 to 85°C						
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH						
Protection structure	IP30 (IEC34-5 standard)							
Weight <sup>*4</sup>	Standard type : approx. 0.85kg (approx. 0.6kg), Hollow shaft type : approx. 0.87kg (approx. 0.6kg), Built-in brake type : approx. 1.03kg (approx. 0.95kg)			Standard type : approx. 1.05kg (approx. 0.8kg), Hollow shaft type : approx. 1.07kg (approx. 0.8kg), Built-in brake type : approx. 1.33kg (approx. 1.25kg)			Standard type : approx. 1.55kg (approx. 1.3kg), Hollow shaft type : approx. 1.57kg (approx. 1.3kg), Built-in brake type : approx. 1.73kg (approx. 1.65kg)	
	Reference							
	Q-29 to 35							

\*Environment resistance is rated at no freezing or condensation.

### ● Frame size 60mm

Model	A35K-M566(W)-G5	A40K-M566(W)-G7.2	A50K-M566(W)-G10
Geared type	A35K-M566(W)-G5	A40K-M566(W)-G7.2	A50K-M566(W)-G10
Geared type+	A35K-M566-GB5	A40K-M566-GB7.2	A50K-M566-GB10
Built-in brake type	A35K-M566(W)-R5	A40K-M566(W)-R7.2	A50K-M566(W)-R10
Rotary actuator type	A35K-M566(W)-R5	A40K-M566(W)-R7.2	A50K-M566(W)-R10
Rotary actuator+	A35K-M566-RB5	A40K-M566-RB7.2	A50K-M566-RB10
Built-in brake type	A35K-M566-RB5	A40K-M566-RB7.2	A50K-M566-RB10
Max. allowable torque <sup>*1</sup>	35kgf·cm (3.4N·m)	40kgf·cm (3.9N·m)	50kgf·cm (4.9N·m)
Rotor moment of inertia	280gf·cm <sup>2</sup> (280×10 <sup>-7</sup> kgf·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]	$\pm$ 20' (0.33°)		
Electro-Magnetic Brake <sup>*2</sup>	Rated excitation voltage	24VDC $\pm$ 10% (no-polarity)	
	Rated excitation current	0.33A	
	Static friction torque	Min. 8kgf·cm	
	Rotation part inertia	29×10 <sup>-7</sup> kgf·cm <sup>2</sup>	
	B type brake	Power on: brake is released, power off: brake is operating	
	Operating time	Max. 20ms	
Releasing time	Max. 25ms		
Absolute position error <sup>*3</sup>	$\pm$ 20' (0.33°)		
Lost motion <sup>*3</sup>	$\pm$ 20' (0.33°)		
Insulation class	B type (130°C)		
Insulation resistance	Over 100M $\Omega$ (at 500VDC megger) between motor coil-case		
Dielectric strength	1kVAC 50/60Hz for 1 minute between motor coil-case		
Environment	Ambient temp.	-10 to 50°C, storage: -25 to 85°C	
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH	
Protection structure	IP30 (IEC34-5 standard)		
Weight <sup>*4</sup>	Geared type: approx. 1.57kg (approx. 1.3kg), geared+built-in brake type: approx. 1.65kg (approx. 1.57kg), rotary actuator type: approx. 1.4kg (approx. 1.3kg), rotary actuator+built-in brake type: approx. 1.7kg (approx. 1.6kg)		
Reference	Q-36 to 39		

\*1: Max. holding torque/Max. allowable torque is maintenance torque in stopping the motor when supply the rated current and is standard method for comparing the performance of motors.

\*2: It is only available for built-in brake type, geared+built-in brake type.

\*3: It is only available for Rotary actuator type, Rotary actuator+built-in brake type.

\*4: The weight includes packaging. The weight in parenthesis 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/ Connector Cables/ Sensor Distribution Boxes/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

# 5-Phase Stepper Motor

## ■ Specifications

### ● Frame size 85mm

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)
	Built-in brake type	A21K-M596-B	A21K-G596-B	A41K-M599-B	A41K-G599-B	A63K-M5913-B	A63K-G5913-B
	Max. holding torque*1	21kgf·cm (2.1N·m)		41kgf·cm (4.0N·m)		63kgf·cm (6.2N·m)	
	Rotor moment of inertia	1,400gf·cm <sup>2</sup> (1,400×10 <sup>-7</sup> kgf·m <sup>2</sup> )		2,700gf·cm <sup>2</sup> (2,700×10 <sup>-7</sup> kgf·m <sup>2</sup> )		4,000gf·cm <sup>2</sup> (4,000×10 <sup>-7</sup> kgf·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)					
Electro-Magnetic Brake*2	Rated excitation voltage	24VDC= ±10% (no-polarity)					
	Rated excitation current	0.62A					
	Static friction torque	40kgf·cm					
	Rotation part inertia	153×10 <sup>-7</sup> kgf·cm <sup>2</sup>					
	B type brake	Power on: brake is released, power off: brake is operating					
	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					
Environment	Ambient temp.	-10 to 50°C, storage: -25 to 85°C					
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH					
	Protection structure	IP30 (IEC34-5 standard)					
Weight*3	Shaft type	: approx. 2.15kg (approx. 1.7kg), Hollow shaft type		: approx. 3.25kg (approx. 2.8kg), Hollow shaft type		: approx. 4.25kg (approx. 3.8kg), Hollow shaft type	
	Built-in brake type	: approx. 2.18kg (approx. 1.7kg), Built-in brake type		: approx. 3.28kg (approx. 2.8kg), Built-in brake type		: approx. 4.28kg (approx. 3.8kg), Built-in brake type	
		: approx. 2.74kg (approx. 2.64kg)		: approx. 3.84kg (approx. 3.74kg)		: approx. 4.84kg (approx. 4.74kg)	
	Reference	<b>Q-29 to 35</b>					

\*2: Environment resistance is rated at no freezing or condensation.

### ● Frame size 85mm

Model	Geared 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+	A140K-M599-GB5	A140K-G599-GB5	A200K-M599-GB7.2	A200K-G599-GB7.2	A200K-M599-GB10	A200K-G599-GB10
	Built-in brake type						
	Max. allowable torque*1	140kgf·cm (13.7N·m)		200kgf·cm (19.6N·m)			
	Rotor moment of inertia	2,700gf·cm <sup>2</sup> (2,700×10 <sup>-7</sup> kgf·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°)					
Electro-Magnetic Brake*2	Rated excitation voltage	24VDC= ±10% (no-polarity)					
	Rated excitation current	0.62A					
	Static friction torque	40kgf·cm					
	Rotation part inertia	153×10 <sup>-7</sup> kgf·cm <sup>2</sup>					
	B type brake	Power on: brake is released, power off: brake is operating					
	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					
Environment	Ambient temp.	-10 to 50°C, storage: -25 to 85°C					
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH					
	Protection structure	IP30 (IEC34-5 standard)					
	Weight*3	Geared type: approx. 4.88kg (approx. 4.4kg), geared+built-in brake type: approx. 5.5kg (approx. 5.2kg)					
	Reference	<b>Q-36 to 39</b>					

\*1: Max. holding torque/Max. allowable torque is maintenance torque in stopping the motor when supply the rated current and is standard method for comparing the performance of motors.

\*2: It is only available for built-in brake type, geared+built-in brake type.

\*3: The weight includes packaging. The weight in parenthesis is for unit only. \*2: Environment resistance is rated at no freezing or condensation.