How to Read Specifications Table

	Model	Single-Phase 100-115 VAC	Single Shaft	RK566AA	RK566AMA	RK566AA-N5
			Double Shaft	RK566BA	—	RK566BA-N5
		Single-Phase 200-230 VAC	Single Shaft	RK566AC	RK566MC	RK566AC-N5
			Double Shaft	RK566BC	—	RK566BC-N5
①	Maximum Holding Torque	N·m kgfcm		0.83 8.3	0.83 8.3	3.5 35
②	Rotor Inertia	J: kg·m² gfcm²		280×10⁻⁷ 280	440×10⁻⁷ 440	280×10⁻⁷ 280
③	Rated Current	A/Phase		1.4		
④	Basic Step Angle			0.72°	0.72°	0.144°
⑤	Gear Ratio			—	—	1:5
⑥	Permissible Torque	N·m kgfcm		—	—	3.5 35
⑦	Maximum Torque	N·m kgfcm		—	—	7 70
⑧	Backlash	min		—	—	2(0.034°)
⑨	Permissible Speed Range	r/min		—	—	0~600
⑩	Power Source Input			Single-Phase 100-115 VAC±15% 50/60 Hz 4.5 A Single-Phase 200-230 VAC +10% −15% 50/60 Hz 3.5 A		
⑪	Excitation Mode			Microstep: Basic Angle/n *2 (/Step)		
⑫	Electromagnetic Brake	Type		—	Active when power is off	—
		Power Source Input		—	24 VDC	—
		Power Supply Input	A	—	0.25	—
		Static Friction Torque	N·m kgfcm	—	0.8 8	—
		Brake Time	ms	—	20	—
		Brake Release Time	ms	—	30	—
		Time Rating		—	Continuous	—
	Mass	kg Motor		0.8	1.1	1.5
		Driver		0.85		
	Dimension No.	Motor		2	5	14
		Driver		20		

①Maximum Holding Torque

The holding torque (5-Phase : 5-Phase Excitation, 2-Phase: 2-Phase Excitation) is the maximum holding power (torque) the stepping motor has when power (rated current) is being supplied but the motor is not rotating (with consideration given to the permissible strength of the gear when applicable). At motor standstill, the driver's "Automatic Current Cutback" function reduces the maximum holding torque by approximately 50% (approximately 40% for **UMK** and 2-phase **CSK** series).

②Rotor Inertia

This refers to the inertia of rotor inside the motor. This is necessary when the required torque (acceleration torque) for the motor needs is calculated.

③Rated Current

The rated current is determined by motor temperature rise. It is the current value that can flow to the motor coils continuously at motor standstill. As a general rule, the current must be set to the rated current.

④Basic Step Angle

The step angle is the angular distance (in degrees) that the motor moves at the input of one pulse from the driver. It differs depending on the motor structure and excitation system.

⑤Gear Ratio

This is the ratio in rotation speed between the input speed from the motor and the speed of the gear output shaft. For example, the gear ratio 1:10 is that when the input speed from the motor is 10 r/min, the gear output shaft is 1 r/min.

⑥Permissible Torque

The permissible torque represents the torque value limited by the mechanical strength of the gear when operated at a constant speed. For the types excluding **PN** and Harmonic geared type, the total torque including acceleration/deceleration torque should not exceed this value.

⑦Maximum Torque (PN Geared, Harmonic Geared Type only)

This is the maximum torque that can be used instantaneously (for a short time). During acceleration/ deceleration, the motor can be operated up to this value.

⑧Backlash

The play of gear output shaft when the motor shaft is fixed. When positioning in bi-direction, the positioning accuracy is affected.

⑨Permissible Speed Range

This is the rotation speed that the motor can be operated at with the gear output shaft.

⑩Power Source

The current value of the power input is the maximum input current value. (The input current varies according to the rotation speed.)

⑪Excitation Mode

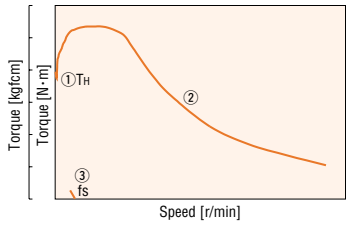
The driver has a function that can change the motor's step angle. Shown in the table is the step angle value at which the motor can be operated. (For the step angle value of microstep, see "Connection and Operation".)

⑫Static Friction Torque

The electromagnetic brake specifications. This is the maximum holding torque at which the electromagnetic brake can hold the position.

How to Read Speed–Torque Characteristics

The graph below is the characteristics that indicate the relationship between the speed and torque when a stepping motor is driven. The required speed and torque is always used when selecting a stepping motor. On the graph, the horizontal axis expresses the speed at motor output shaft while the vertical axis expresses the torque.



The speed-torque characteristics are determined by the motor and driver, so they vary greatly based upon the type of the driver used.

①Maximum Holding Torque

The holding torque (5-Phase : 5-Phase Excitation, 2- Phase : 2-Phase Excitation) is the maximum holding power (torque) the stepping motor has when power is being supplied but the motor shaft is not rotating (rated current). At motor standstill, the driver's "Automatic Current Cutback" function reduces the maximum holding torque by approximately 50% (approximately 40% for **UMK** and 2-phase **CSK** series).

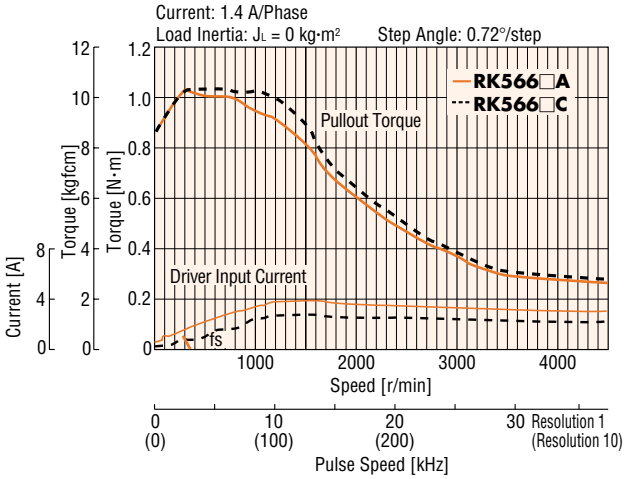
②Pullout Torque

Pullout torque is the maximum torque that can be output at a given speed. When selecting a motor, be sure the required torque falls within this curve.

③Maximum Starting Frequency (fs)

This is the maximum pulse speed at which the motor can start or stop instantly (without an acceleration or deceleration period) when the frictional load and inertial load of the stepping motor are 0. Driving the motor at greater than this pulse speed requires gradual acceleration or deceleration. This frequency drops when there is a load inertia on the motor. (Refer to **Load Inertia- Maximum Starting Frequency Characteristics** in Technical Reference ➜ Page G-31)

The following figure shows the speed-torque characteristics of the 5-phase stepping motor/driver package **RK566BA**.



- Pay attention to heat dissipation from the motor and driver. The motor will produce a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C. (Under 75°C is required to comply with UL or CSA standards.)
- In order to prevent fatigue of the gear grease in the harmonic gear, keep the temperature of the gear case under 70°C.