

# 型号的阅读方法

## PRODUCT MODEL EXPLANATION

### ●电动机 Motor

**5**    **I**    **K**    **40**    **R**    **GN**    -    **C**    **T**

①    ②    ③    ④    ⑤    ⑥    ⑦    ⑧

①	电动机的尺寸 Motor Frame Size	0: 42mm 2: 60mm 3: 70mm 4: 80mm 5: 90mm 6: 104mm
②	机型名称 Motor Type	I: 感应电动机 Induction Motor R: 可逆电动机 Reversible Motor T: 转矩电动机 Torque Motor
③	系列名称 Series	K: K系列 K Series
④	输出功率 Output Power (W) (例 e.g.)	40: 40W
⑤	R: 表示带调速电动机; 无: 表示未带	The Suffix "-R" after the Output Power Means Speed Adjustable Motor.
⑥	转轴形状 Motor Shaft Type	GN: GN型齿轮轴 GN Type Pinion Shaft GU: GU型齿轮轴 GU Type Pinion Shat A: 圆轴型/铣扁型 Round Shaft A1: 键槽型 Keyway
⑦	电源电压·极数 Voltage-Poles	A: 单相Single-Phase100V 50/60Hz 4P B: 单相Single-Phase110V 50/60Hz 2P C: 单相Single-Phase110V 50/60Hz 4P D: 单相Single-Phase110V 50/60Hz 2P E: 单相Single-Phase110V、120V 60Hz 4P H: 单相Single-Phase220V、120V 60Hz 4P S: 三相Three-Phase200/220/230V 50/60Hz 4P S3: 三相Three-Phase380/415V 50/60Hz 4P T: 三相Three-Phase200/220/230V 50/60Hz 2P T3: 三相Three-Phase380/415V 50/60Hz 2P
⑧	T: 带端子箱型 Terminal Box Type F: 带风扇 W/Fan FF: 带强制风扇 W/Forced Fan M: 无励磁动作型电磁制动电动机 Power Off Activated Type Electromagnetic Brake Motor	

注: 对于单相电机同一电源代号不同电压所配置的电容器可能有所不同, 以铭牌标识为准。

Notes: The capacitor may be different of a sigle phase motor with same power code and different voltage. Please check nameplate first.

### ●减速机 Gearhead

**5**    **GN**    **50**    **K**

①    ②    ③    ④

①	电动机的尺寸 Motor Frame Size	0: 42mm 2: 60mm 3: 70mm 4: 80mm 5: 90mm 6: 104mm
②	类型 Gear Type	GN: GN型齿轮轴 GN Type Gear GU: GU型齿轮轴 GU Type Gear
③	减速比 Gear Ratio	(例 Example) 50: 减速比 Gear Ratio of 1: 50 10X 仅限减速器 1: 10 的中间减速比 10X denotes the decimal gearhead of ratio 1: 10
④	轴承种类 Bearing Type	K: 滚珠轴承 (对GU型方箱体标注为KB) Ball bearing (Make KB for type GU square case)

# 电动机的一般规格

## GENERAL SPECIFICATIONS OF MOTORS

### ● 1W~180W型、2极·高速型1W~150W、2P·High Speed

项目Items	规格Specifications
绝缘电阻 Insulation Resistance	于常温·常湿下的电动机额定运行后，以DC500V电阻表测量线圈·外壳间时，测量值为100MΩ以上。 In the circumstance of normal ambient temperature and humidity, the resistance can be up to 100MΩ or more when 500VDC megger is applied between the windings and the frame after rated motor operations.
绝缘耐压 Dielectric Withstanding	于常温·常湿下电动机额定运行后，在线圈·外壳间施加一分钟50Hz或60Hz、1.5kV(三相380V为1.8kV)的电压，亦无异常。 In the circumstance of normal ambient temperature and humidity, there will be no problem to withstand 1.5kV (three phase380v: 1.8kV) at 50/60hz between the windings and the frame for 1 minute after rated motor operation.
温度上升 Temperature Rise	在装上减速器或同等散热板※并于常温·常湿下进行额定运行时，以电阻法测定其线圈温度上升值为80℃以下(三相型为70℃以下)。 The temperature rise of winding are 80℃ or less measured by the resistance change method after rated motor operation under normal ambient temperature and humidity, with connecting a gear head or equivalent heat radiation plate※.
绝缘等级 Insulation Class	UL/CSA规格: A种(105℃)、EN规格: B种(130℃)、F种(155℃) UL/CSA Standards: Class A(105℃) EN Standards: Class B(130℃)、Class F(155℃)
过热保护装置 Overheat Protection	内藏热保护装置(自动复位型) B种(开放: 120℃±5℃、80℃±15℃) F种(开放: 145℃±5℃、95℃±15℃) Thermal Protector inside(automatic return)opening: Class B(opening120℃±5℃、80℃±15℃) Class F(opening145℃±5℃、95℃±15℃)
使用环境温度 Ambient Temperature	单相100V、三相200V: -10~+50℃(无结冰), 其他电压: -10~+40℃(无结冰) Single-Phase100VAC、Three-Phase200VAC: -10~+50℃(Nonfreezing) Others: -10~+40℃(Nonfreezing)
使用环境湿度 Ambient Humidity	85%以下(无结露) 85% or less (Noncondensing)
保护等级 Protection Class	导线型Lead Wire Type: IP20 带端子箱型Terminal Box Type 单相Single-phase 100V50/60Hz、110/120V60Hz、220/230V50Hz、220/230V60Hz 25W~180W IP54: (不包括圆轴型安装面 excluding the installation surface of around shaft type) 三相Three-phase 220/220/230V50/60Hz、380/400/415V50/60Hz 25W~180W IP54: (不包括圆轴型安装面 excluding the installation surface of around shaft type)

### ● 散热板尺寸 (材质: 铝) Heat Radiation Plate Dimension (Material: Aluminum)

电动类型 Motor Type	尺寸Size(mm)	厚度Thickness(mm)
1W、3W Type	80x80	5
6W Type	115x115	
15W Type	125x125	
25W(2极·高速4IK40型) (2P·High-Speed 4IK40 Type)	135x135	
40W、60W Type	165x165	
60W、90W、120W、 (2极·高速5IK150型) (2P·High-Speed 5IK150 Type)Type	200x200	
120W、140W、180W Type	230x230	

# 电动机的特性

## MOTOR FEATURES

### ● 感应电动机的特性 Induction Motor Features

1. 一般来说，微型感应电动机所指的是感应运转型感应电动机。这种电动机不只在启动时，在运转当中也使用电磁线圈和电容器。虽然启动转矩不是很大，但其结构简单，信赖度高，效率也比较高，可连续运转。

2. 单相电动机运转时，产生与运转方向逆方向的转矩，因此不可能在短时间内改变方向。请在电动机完全停止以后，再转换其运转方向。

3. 三相电动机以三相电源驱动感应电动机，其效率很高，启动力矩也比较大，信赖义高。

1. Generally, Micro Induction Motor refers to the motor rotated by the induction. Induction Motor relies on capacitor and electromagnetism when starting and rotating. Though its starting torque is not very high, it has a simple structure, high efficiency and can rotate continue.

2. The single-phase motor have a reverse direction with the rotating's when operated. Pls change the direction of single-phase motor rotation only after bring the motor to a stop.

3. Three-phase motor relies on three-phase supply. It has a high efficiency and can get a high starting torque.

### ● 可逆电动机的特性 Reversible Motor Features

1. 可逆电动机，在电动机后部设有简易制动器，是适用于短时间内频繁正反转用途的电机。简易制动器的构造，如图1所示，带弹簧压力的制动柱作用在转动的制动盘上并保持连续压力。可逆电动机的简易制动器如下作用。

1. Reversible Motor has a friction brake at the back of the motor body, which is designed for applications where reversal of direction is frequently required. For the friction brake, pls check Draw 1. The damp with spring impacts the rotating brake disk and supplies with continuous press. The functions of the friction brake are as following:

① 加摩擦负荷，提高瞬间可逆特性。

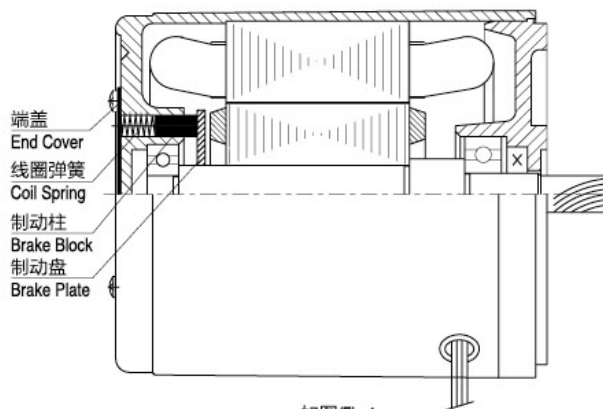
With friction load, increasing the instant reversal.

② 缩小超程。

Shorten over-run.

③ 具有某种程度的保持力矩 (额定力矩10%左右)

Keep the torque in some way. (about 10% of the rated torque)



如图/Fig.1

2. 简易制动器的保持力矩及超程表示在表1，但随着运转时间的长短或温度高低，也会有变化，仅供参考。且初期使用，其保持力矩比表1的值低的情况也会发生，请注意。

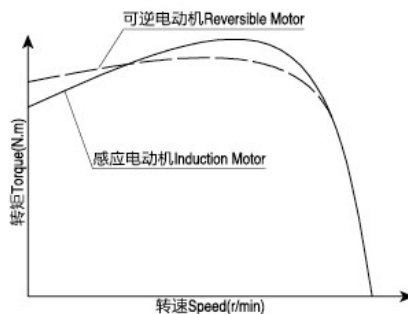
3. 可逆电动机和感应电动机相同，都是电容动转单相电机，转矩力矩特性与感应电机特性相同。但是，为了提高瞬间可逆特性，如图2所示，设计为加大起动力矩。受此影响，加大了输入的损耗，温升比感应电动机高，因此，时间定额为30分钟。特性表中的额定力矩，起动力矩，电流特性等是在电机上装上有制动柱状态下的特性值。

2. The keeping torque or more of the friction brake and over-run are listed in the table 1. It is only for reference. As it will change according to the rotating period as well as the temperature. Pls also note that the torque may be a little lower than the one listed in the table when being operated initially.

3. The Reversible Motor, like Induction Motor, is started by the capacitor and has a same torque characteristic with the Induction Motor. But the Reversible Motor is designed with a higher starting torque to increase the instant reversal features. Pls check drawing 2.

### ● 表1. 保持力矩和超程 Table 1. Keep Torque and Over-run

相数 Phase	尺寸 Size mm	输出功率 Output W	电机型号 Motor Model	保持力矩 Keep Torque		超程 Over-run 圈数Cycles
				N.cm	Kgf.cm	
单相 Sing-phase	60	6	2RK6	0.5	0.051	4
	70	15	3RK15	1.3	0.133	5
	80	25	4RK25	1.5	0.153	5
	90	40	5RK40	4.0	0.40	6
		60	5RK60			
		90	5RK90			
120		5RK120				



如图/Fig.2

## ● 无励磁动作型电磁制动电动机特性 Power Off Activated Type Electromagnetic Brake Motor Features

### 1. 构造及运行原理

图3是带电磁制动的电机的构造图。本公司生产的电磁制动电动机是无励磁动作型，在线圈上施加电压，则立即吸引被弹簧压着的可动衔铁，在可动衔铁和制动衬垫之间产生间隙，使电机处于运转状态。一旦线圈电压被切断，在弹簧力的作用下，可动衔铁压向制动衬垫，产生制动力，电机停止。

### 2. 电磁制动器的特点

该制动器是交流无励磁动作型电磁制动器，与电机直接连接。在切断电源的同时，即瞬间停止，保持负荷。保持力矩0.05~2.0N.m（参照表2）。由于是电源切断时的保持力动作型，故最适合于作为无意间切断电源时的安全制动器使用。电磁可以进行频繁的瞬间正反转。简单的切换，1分钟内可停止6次。但是时间必须确保3秒以上。

电机和制动器可以使用同一个电源。制动器内设置整流回路，可和电机使用同一个交流电源。

※这个数值是标准的，根据使用条件的不同，以这个频度连续使用不能进行制动器操作的情况也有，实际使用时，必须在电机表面温度为90度以下的条件下使用。

### 3. 起动时间，制动时间的特性

电磁制动电动机的起动时间是电机自身的起动时间加上电磁制动器的释放时间，制动时间是从电源切断开始至电机完全停止的时间。电磁制动电动机的超程、起动时间、制动时间应用场合而不同。

#### 1. Structure and Operation Principle

Table 3 is the structure for the Electromagnetic Brake Motor. We produce the Power Off Activated Type. Exerting the voltage on the winding, it will magnetize the armature pressed by the spring. The motor will be in a stage of rotating, when there is a backlash between the armature and brake rim. Once the winding voltage is cut down, under the influence of spring, the armature press the brake rim, which will create a brake force. Then the motor gets to a stop.

#### 2. The Characteristics of the Electromagnetic Brake

It is an AC Power Off Activated Type Electromagnetic Brake which is connected directly with the motor. It will get to a blink stop and keep load when the supply is power off. It will keep the torque between 0.05-2.0Nm. It is especially suitable for the safety brake in the circumstance of unconsciously power off. The electromagnetic can change its direction frequently. It can be stopped 6 times in a minute. But be sure that it lasts for 3 seconds or more.

After we set a commutating loop in the brake, it can share the power supply with the motor.

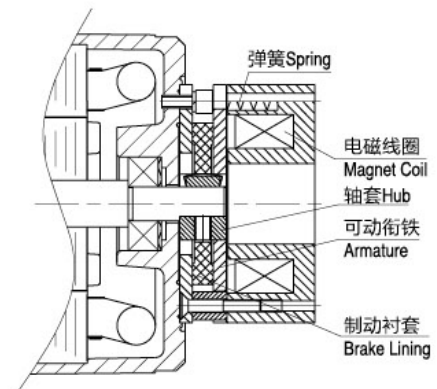
The value is standard. It will be change in different condition. When actually used, be sure to make the surface temperature of the motor less than 90 °C.

#### 3. The Features for the Starting Time and Brake Time

The starting time means the time for the motor's starting time plus the electromagnetic brake release time. The brake time means the time from power cut off to the time of motor completely stop. The over-run, starting time and brake time will be different according to the different applications.

● 表2 电磁制动部分(无励磁动作型) Electromagnetic Brake (Power off Activated)

相数 Phase	基座尺寸 Size mm	输出功率 Output W	电压 Voltage V	频率 Frequency Hz	电流 Current A	输出功率 Output W	保持力矩 Keep Torque N.m Kgf.cm	超程 Over-run 圈数Cycles
1 Phase	70	15	110 120 220 230	50/60	0.191	8.2	0.5 5	3.5
	80	25						
	90	40						
		60						
		90						
		120						
	100	120						
		140						
		180						
		0.144						
0.073		6.6	0.25	2.5				
0.037		6.6	0.25	2.5				
3 Phase	60	6	200~230	50/60	0.091 0.046	8.2 8.2	5.0 5	3.5
	70	15	380~415					
	80	25	200~230					
	90	40	380~415					
		60						
		90						
		120						
	100	120	200~230					
		140	380~415					
		180	200~230					
0.111		10.0	1.0	10				
0.056		10.0	1.0	10				
0.072		13.0	2.0	20				



如图/ Fig.3

## ● 调速电机特性 The Features of the Speed Control Motor

1.是控制器和电机组合的单元产品，由于电机和控制器只需一次连接，故不需要单独接线。速度调节由安装在外部的电位器便可简单进行。在控制器上安装了速度控制器回路、电机用的电容，速度设定器等。其中单元式速度控制器无瞬间停止功能。

2.用控制器的速度调节器进行速度调节。可以在50Hz为90~1400的r/min，60Hz为90~1700r/min范围内，调节电机的速度。

3.电机不允许长时间在低转速下运行，以免电机过热。

1.It is a unit of the controller and motor. It only needs to connect one time. The speed can be easily adjusted by the potentiometer. The controller is fixed with speed-control loop, capacitor, speed enactment etc. There is no function of instant stop in the unit.

2.The controller can make the speed variable between 90-1400rpm at 50 Hz and 90-1700rpm at 60Hz.

3.Please don't run motor at low speed for long time avoiding overheat.