ECM 高效节能电机
Electronically Commutated Motor

ECM电机负载选型图
Matching motor–fan

Speed	FAN					
	154	172	200	230	254	300
Aluminium fan 1300 r/min	22°	22°	22°	22°	22°	22°
	25°	25°	25°	25°	25°	25°
	28°	28°	28°	28°	28°	
	31°	31°	31°	31°	31°	
	34°	34°	34°	34°	34°	
Aluminium fan 1450 r/min	22°	22°	22°	22°	22°	22°
	25°	25°	25°	25°	25°	
	28°	28°	28°	28°	28°	
	31°	31°	31°	31°	31°	
	34°	34°	34°	34°	34°	
Aluminium fan 1550 r/min	22°	22°	22°	22°	22°	
	25°	25°	25°	25°	25°	
	28°	28°	28°	28°	28°	
	31°	31°	31°	31°		
	34°	34°	34°	34°		
Aluminium fan 1800 r/min	22°	22°	22°	22°	22°	
	25°	25°	25°	25°		
	28°	28°	28°	28°		
	31°	31°	31°	31°		
	34°	34°	34°			

ECM7108
ECM7112
ECM7120

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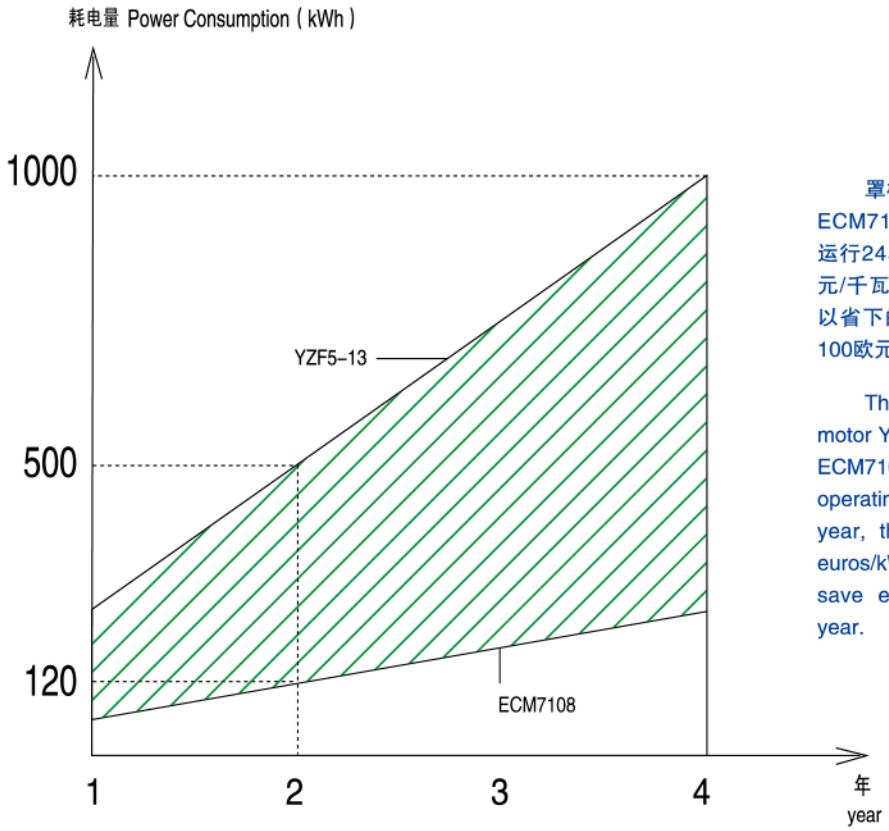
微光全新一代ECM系列电机的设计采用了先进的电子控制技术，使电机的能效得到大幅度提高，ECM系列电机的外部结构设计与微光YZF系列电机的外部结构基本保持一致，电机的附件如风叶，风圈，网罩，支架等均可通用，可以实现YZF系列电机与ECM系列电机的无差异替换。与YZF系列电机相比ECM系列电机的节能优势非常明显，ECM系列电机节能可高达70%，大幅度减少了需要支付电机运行的电费和二氧化碳的排放，不仅如此，由于ECM系列电机本身的发热非常小从而使整个制冷系统更加高效和电机运行更加稳定可靠。

The newest generation of ECM series motors are designed with advanced electronic control technology, make the motor efficiency greatly increased, the external structure design of ECM series motors will maintain the similar external structure design as YZF series motors, motor accessories such as fan blades, rings or grids, brackets for ECM motors are the same as YZF series', therefore ECM series motors can completely replace the YZF series motors without any other changes. Comparing with YZF series motors, ECM motors display an obvious advantage in energy saving, saving up to 70%, it can greatly reduce the electricity cost for motor operation and carbon dioxide emissions. Not only that, due to the heating of ECM series motors themselves are very low, it would lead to the entire refrigeration system works more efficient and make motor running more stable and reliable.



罩极电机YZF5-13额定输入29W，ECM7108额定输入7W，假设电机每天运行24小时，一年365天，电价0.13欧元/千瓦时，那么一台ECM7108每年可以省下的电费达25欧元，4年累计达到100欧元。

The input power of shaded pole motor YZF5-13 is 29W, input power for ECM7108 is 7W, assuming the motor operating 24 hours/day and 365 days a year, the cost for electricity is 0.13 euros/kWh, thus each ECM 7108 can save electricity about 25 euros per year.

ECM电机概览　Overview of ECM motors

安装尺寸	与罩极电机完全一致	Installation dimension	Totally same as traditional shaded-pole motors
电压	AC100V-120V; AC220V-240V;DC24V	Voltage	AC100V-120V; AC220V-240V; DC24V
额定输出功率	5W; 15W; 22W	Output power	5W; 15W; 22W
外壳材料	塑料	Cover	Thermoplastic
转向	单转向CCW 上电反转 可控制正反转	Rotation direction	Single rotation CCW Reverse on start Reverse on demand
转速	单一转速，两档转速	Speed	Single speed, 2 Speeds
绝缘等级	B/F	Insulation class	B/F
环境温度	-30℃~50℃	Working ambient temperature	-30℃~50℃
保护等级	Class II	Protection class	Class II
安装角度	任意	Mounting position	Any
工作方式	连续（S1）	Operating mode	Continuous operating (S1)
防护等级	IP 65	Type of protection	IP 65
电磁兼容标准	EN61000,EN55014	EMC/EMI	EN61000,EN55014
轴承	免维护滚珠轴承	Bearing	Maintenance-free ball bearing
电机保护	软件保护	Motor protection	Via electronics
运行寿命	50,000小时	Service life	50,000 hours
认证	VDE,CE,CCC,ATEX,UL	Certifications	VDE,CE,CCC,ATEX,UL

ECM电机型号介绍　Illustration of ECM

ECM 71 08 B BA 2 DA XXX

① 产品编号 / Product ID

② 转速 / Speed

③ 电压 / Voltage
0-DC; 1-100~120V; 2-220~240V; 3-100~240V

④ 机械信息 / Key for mechanical design

⑤ 电子信息 / Key for electrical design
A-标准; B-正反转; C-上电反转; D-双速; E-无级调速
A-Standard; B-CW&CCW; C-Timed reverse; D-2 Speeds; E-Vari-speed

⑥ 定子冲片叠厚 / Thickness of laminated core

⑦ 定子冲片外径 / Diameter of laminated core

⑧ 高效节能电机 / Electronically Commutated Motor

ECM 高效节能电机
Electronically Commutated Motor

主要特点 Main features

1 高安全等级

电机外壳材料采用工程塑料，电机保护等级达到Class II的高安全等级，接地线也因此不再需要，从而可以节省额外开销。

High safety class

ECM motors adopt thermoplastic for housing and the protection level has achieved class II, therefore the earth conductor will be unnecessary and the cost will be reduced.

2 高IP防护等级 IP65

电机的全密封设计获得了更好的防潮效果，可以工作在高湿度、多灰尘的环境中。

High protection class IP65

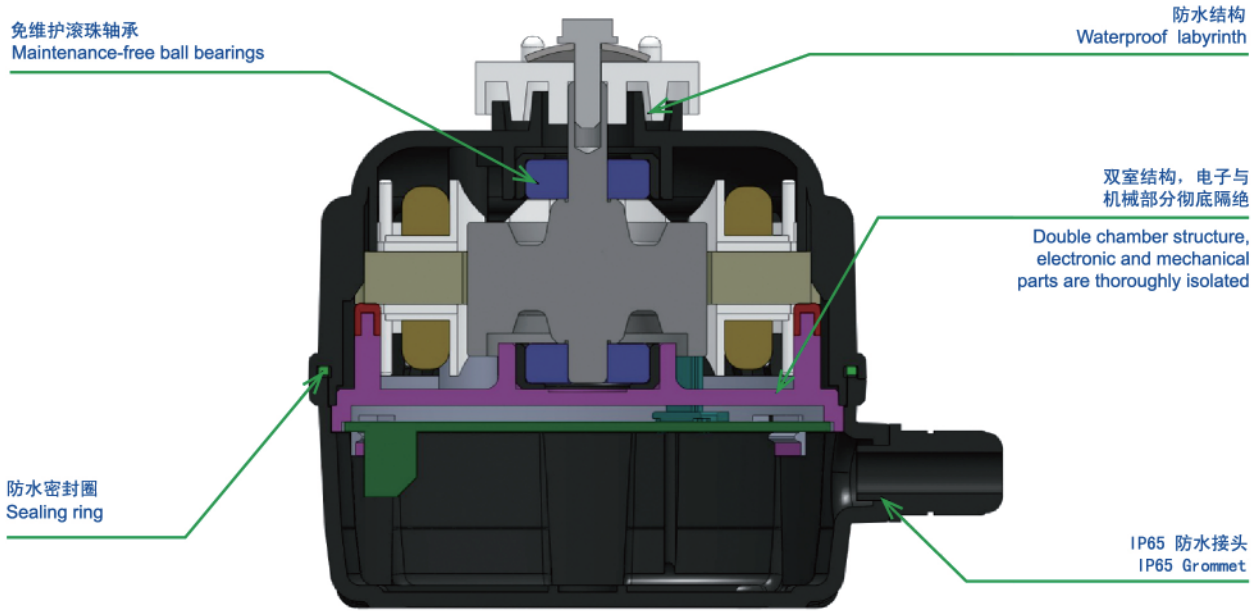
Enclosed motor design will have a better moisture-proof effect and make it possible to work in the high humidity and dust environment.

3 高可靠性

双室绝缘设计使电子控制部分和电机有效隔离，防止水汽和灰尘进入电子控制部分。

High reliability

The dual-chamber design leads the motor can be effectively separated from electronic control area in order to avoid dust and humidity enter into the cavity of control board.



器件的选型上，我们与世界领先的供应商紧密合作，严格保证产品的品质。

我们的研发人员，模拟电机真实的工况，做了各种测试，如温度、振动、寿命测试等，这使我们的设计更加可靠。

每一个器件，每一种结构，每一个细节，我们都精心考虑。这样，电机和控制板实现了最佳的匹配，在实际工况下，我们得到的寿命远高于50,000小时。

Regarding components selection, we cooperate with the world's leading suppliers in order to offer the best quality.

Our R&D department has done various of tests to simulate the real working conditions of the fans (such as temperature, vibration, lifetime, etc.) in order to make the design more reliable.

All of our products are designed with high quality and long lifetime. We work over every part of our ECM motor, carefully choose devices and materials, together with suitable control board and intelligent protection system, our motors had achieved a life expectancy over 50,000 hours in continuous working conditions.

4 恒速控制

由于采用了恒转速控制技术，即使在电网电压频繁波动和负载叶片变换的情况下，电机转速基本保持不变，确保制冷系统正常工作，避免了由于转速波动产生的噪声。

Constant speed control

Constant speed control means the motor maintains a constant speed across a wide range of voltages and fan blades, it will help the cooling system work properly and avoid the noise generated by the fluctuation of motor speed.

5 上电反转

通过工厂设定的程序实现每次电机通电工作时先反转程序预设的时间，然后再进入正常运转，这一重要的功能可以保持冷凝器更干净，减少积灰，使制冷系统更高效。并且，实现该功能不需要额外的信号控制。

Reverse on start

ECM motors can run backwards automatically when start–up through pre–set of the programme. This important function can help to blow away dust from the heat exchanger of the condenser in order to make the refrigeration system more efficient. Further more, there is no extra signal control needed to achieve this function.

6 可控制反转

通过此特性，您可以自己决定反转的时机和持续时间。比如，在压缩机停止或者除霜期间，您可以启动电机反转进行除尘。重要的是，不需要额外的继电器，可以节省更多成本。

Reverse on demand

With this feature, you can determine the time and duration of reverse running. For example, during the compressor “off” period or the defrost cycle, you can start reverse running to blow away dust. Moreover, without needs of extra relays can save more cost.

7 两档转速

通过工厂设定的程序可以使ECM电机分别在高速和低速两种状态下工作，这种功能通常在具有白天和夜间模式的制冷系统应用中非常有用，为此可以节省更多能源和降低噪声。

Two speeds

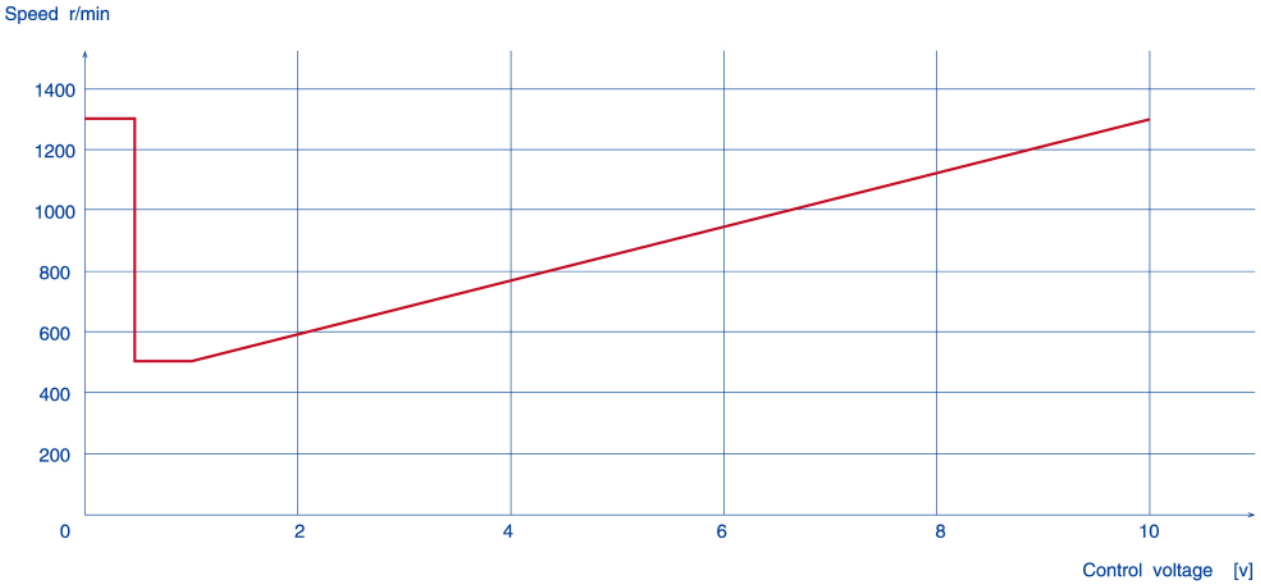
ECM motors can run both in high–speed and low–speed through pre–set programme by Supplier, this function would be very useful in the refrigeration system application which has daytime and nighttime modes, thus to save more energy and reduce the noise.

8 0–10V 无级调速

0–10V无级调速电机可以通过0–10Vdc控制信号进行无级调速，从而实现对控制系统的智能控制，达到更好的节能效果。

0–10Vdc full speed control

ECM 0–10V step–less speed regulation motors operators can control the 0–10Vdc to control the signal lineto process step–less speed regulation.It will intelligently control the control system and result in better energy saving effect.



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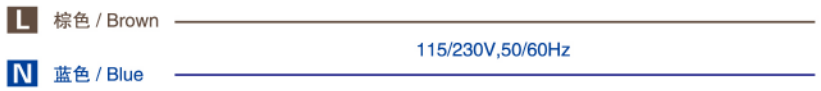
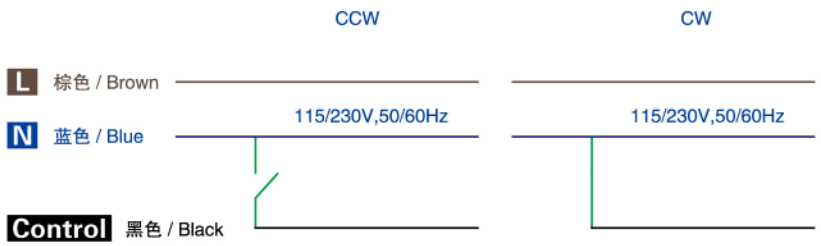
ECM电机接线图 Connection diagram



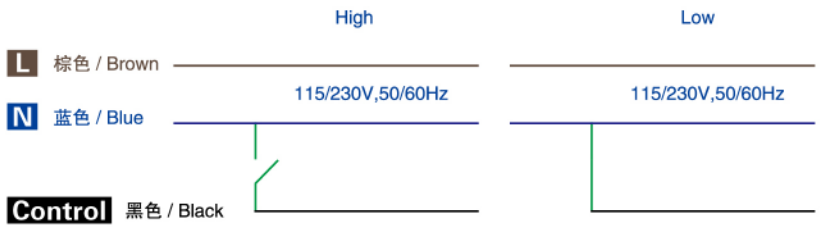


标准型 Standard



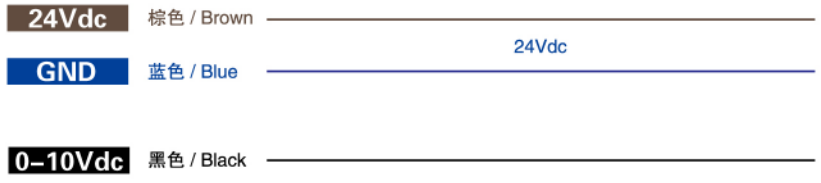


正反转 Reversible





双速 2 Speeds





24Vdc

技术参数
Technical specifications

Nominal data		Voltage	Frequency	Speed	Output capacity	Perm.amb.temp	Dimensions		
Type	Features	V	Hz	r/min	W	℃	a	b	c
7108	Standard CW&CCW 2 Speeds	AC115 or 230	50/60	500~2300	5	-30℃~50℃	83	43.5	32.5
		AC100-240	50/60	500~2300	5	-30℃~50℃	74	43.5	32.5
7112	Standard CW&CCW 2 Speeds	AC115 or 230	50/60	500~2300	15	-30℃~50℃	87	43.5	32.5
	Vari-speed	DC24	——	500~2300	15	-30℃~50℃			
	Standard CW&CCW 2 Speeds	AC100-240	50/60	500~2300	15	-30℃~50℃	78	43.5	32.5
7120	Standard CW&CCW 2 Speeds	AC115 or 230	50/60	500~2300	22	-30℃~50℃	95	43.5	32.5
	Vari-speed	DC24	——	500~2300	20	-30℃~50℃			

安装尺寸
Installation dimensions

