

Sales and Distribution:

Shaded-pole Motor

Airvent 2018

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Engineering For Future



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Engineering For Future

AirVent Fan Motor Industry Co., Ltd
冷通机电工业有限公司

一、介绍 (Introduce) :

为了促进产品的节能、环保、高效等特点, ECM71系列小电机采用了先进的电子控制技术,使电机的效率得到大幅度的提高,在达到高效率的同时,又保证了与原先YZF系列罩极电机外部安装尺寸一致,电机的附件如风叶,网罩,法兰,支架等均可通用,实现了YZF系列电机与ECM71系列电机的无差异替换。采用电子控制的电机相比原先YZF系列电机的节能优势非常明显,最高效率能达到70%,大幅度减少了电能的消耗,不仅如此,由于采用了电子控制技术,使得电机本身发热非常小从而使整个制冷系统更加高效,电机运行更加稳定可靠。

Emphasizing on energy saving, environmental protection and high efficiency, EC shaded-pole motor(ECM71 series) are designed with advanced electronic control unit. The electronic control technology increase the motor efficiency greatly, while it maintains the similar external dimensions as the original YZF Shaded-pole motor. The accessories such as grid, fan blades, flange and bracket are the same as original YZF series', therefore EC motor could completely replace YZF series without any changes. Compare with previous products, EC motor could be 70% more efficient, reduce the electric consumption greatly. Meanwhile, with help from electric control technology, the heating of EC motor itself is very low, it could help the entire refrigeration system works more efficient and stable.

二、型号说明 (Model specification) :

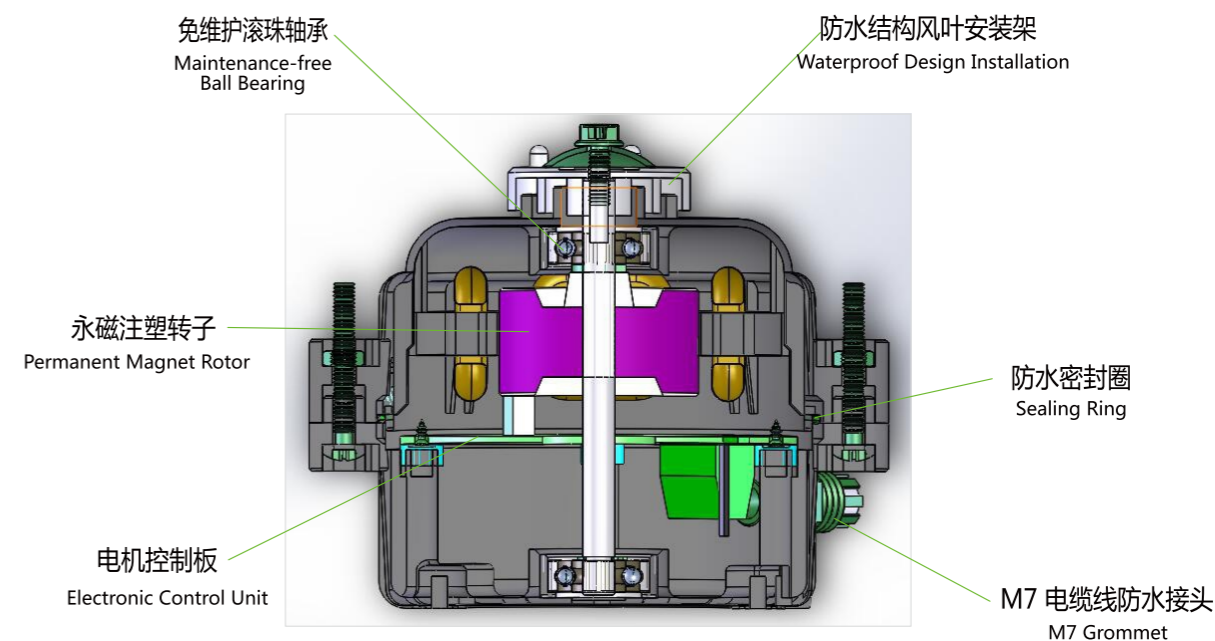
ECM 71 08 12 B 2

① ② ③ ④ ⑤ ⑥

- ① 风机系列编号/Fan series number
ECM: 塑料外壳节能电机/Electronically Commutated with Plastic Cover
- ② 电机定子冲片外径/Diameter of Laminated core
- ③ 定子冲片叠厚/Thickness of laminated core
- ④ 额定输入功率/Related input Power
- 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-无极调速
A: standard B: CW&CCW C: Timed Reverse D: Dual Speed E: Step Speed variation
- ⑥ 电压/Voltage

安装尺寸 /Mounting dimensions	与 AV 罩极电机一致 /Totally same as traditional shaded-pole motors
电压 /Voltage	AC100V-120V;AC160V-250V;DC24V
额定输出功率 /Output Power	7W; 12W; 25W
转向 /Rotation direction	单转向 CCW 上电反转 /Reverse on start 可控制正反转 /Reverse on demand
转速 /Speed	单一转速, 两档转速 /Single speed, 2 speeds.
绝缘等级 /Insulation class	B/F
使用环境温度 /Working ambient temperature	-40 ° C~50 ° C
安装方式 /Mounting Option	网罩、法兰、支架、端盖 /Grid,Flange,Bracket
工作方式 /Operating mode	连续 (S1)
防护等级 /Type of Protection	IP65
轴承 /Bearings	免维护滚珠轴承 /Maintenance-free ball bearing
电机保护 /Motor protection	软件保护 /Via electronics
运行寿命 /Service life	50000 小时 /50000 hours

四、电机结构图



Main Features

1. 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. High protection class IP 65

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

3. High reliability

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

Regarding componencs selection. We cooperale 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 temperalure, 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 everypart of our AVM motor, carefully cloose devices and materials, together with suitablecontrol board and intelligent protection system, our motors had achieved a life expectancy over50,000 hours in continuous working conditions.

4. Constant speed control

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

5. Reverse on start

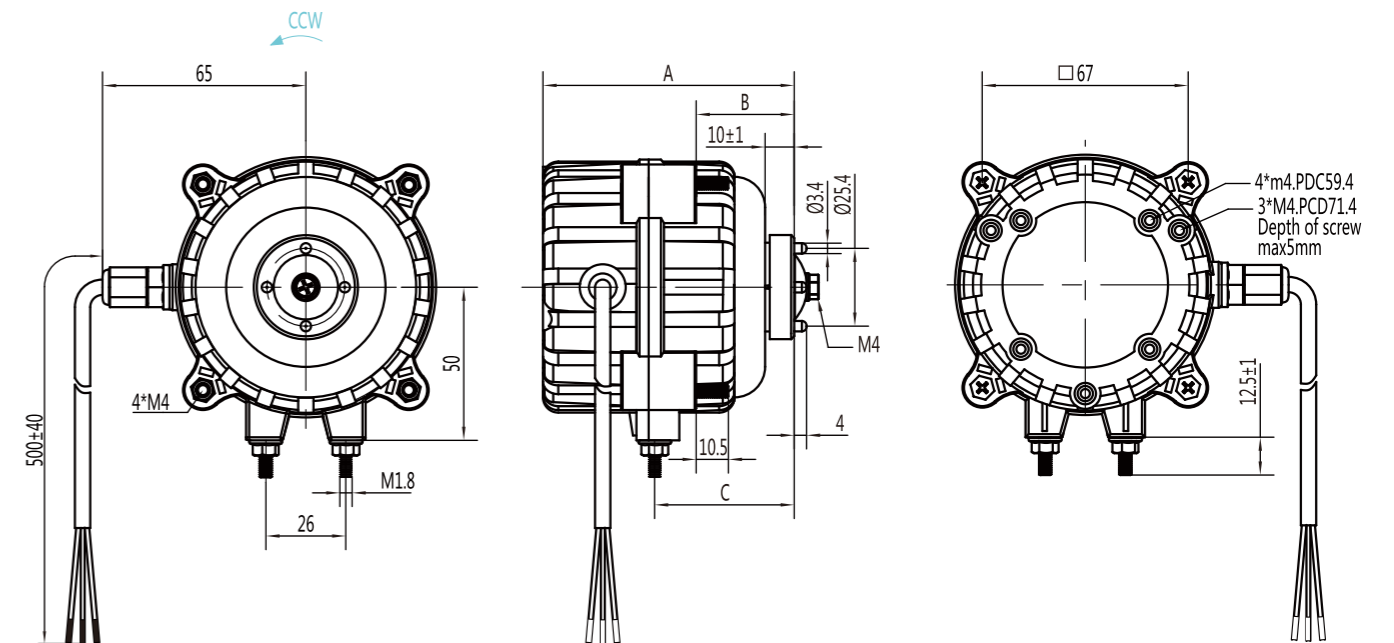
ECM motors an run backwards automatically when start-up through pre-set of the programme This important funclon can help to blow away dust from the heat exchanger of the condenser in order to make the refrigeration system more efficient. Further more, there is no extra signal control needed to achieve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

Technical date

技术参数 Technical data



Nominal data		Voltage	Frequency	Speed	Output capacity	Perm.amb.temp	Dimensions		
Type	Features	V	Hz	r/min	W	° C	A	B	C
ECM7108	Standard CW/CCW 2 Speeds Vari-speed	AC110/220	50/60	1300-1800	7	-40 ~ +50	83	32.5	43.5
	Vari-speed	DC24	—	1300-1800	7	-40 ~ +50			
ECM7112	Standard CW/CCW 2 Speeds Vari-speed	AC110/220	50/60	1300-1800	12	-40 ~ +50	87	32.5	43.5
	Vari-speed	DC24	—	1300-1800	12	-40 ~ +50			
ECM7120	Standard CW/CCW 2 Speeds Vari-speed	AC110/220	50/60	1300-1800	25	-40 ~ +50	95	32.5	43.5
	Vari-speed	DC24	—	1300-1800	25	-40 ~ +50			



Technical date

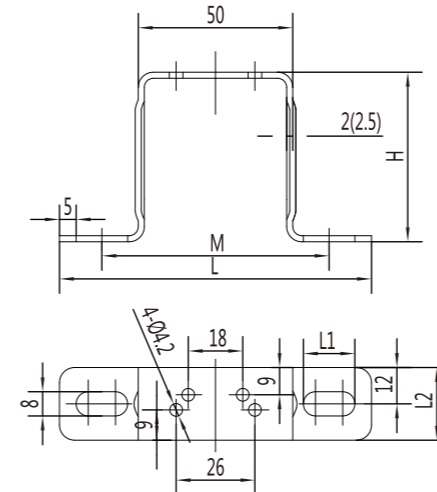
Speed	FAN				
	Ø170	Ø200	Ø230	Ø250	Ø300
1300r/min	19°	19°	19°	19°	19°
	22°		22°	22°	22°
	25°	25°	25°	25°	25°
	28°	28°	28°	28°	28°
	31°	31°	31°	31°	31°
1550r/min	34°	34°	34°	34°	34°
	19°	19°	19°	19°	19°
	22°	22°	22°	22°	22°
	25°	25°	25°	25°	25°
	28°	28°	28°	28°	28°
	31°	31°	31°	31°	31°
	34°	34°	34°	34°	34°

ECM7108	
ECM7112	
ECM7120	

电机型号 Motor Model	许用电压范围 Nominal voltage range	频率 Frequency	额定转速 Speed	额定输入功率 Input Power	额定输出功率 Output Power	额定电压 Voltage	电 流 Current	适用环境温度 Permissible temp.	风叶尺寸 Blade size	风叶角度 Angle of blade
	(VAC)	(Hz)	(rpm)	(W)	(W)	(V)	(A)	(°C)	(mm)	(°)
ECM7108	160 ~ 250	50/60	1300	4.5	2	230	0.12	-40 ~ +50	170	28
	160 ~ 250	50/60	1300	7.8	3.5	230	0.12	-40 ~ +50	200	25
	160 ~ 250	50/60	1300	8.8	4	230	0.12	-40 ~ +50	200	28
	160 ~ 250	50/60	1300	7	3.2	230	0.12	-40 ~ +50	230	19
	160 ~ 250	50/60	1300	9	4.2	230	0.12	-40 ~ +50	230	22
	160 ~ 250	50/60	1300	13	6.2	230	0.12	-40 ~ +50	230	25
	160 ~ 250	50/60	1300	16	7.8	230	0.12	-40 ~ +50	230	28
	160 ~ 250	50/60	1300	8	3.6	230	0.12	-40 ~ +50	250	19
ECM7112	160 ~ 250	50/60	1300	10	4.7	230	0.12	-40 ~ +50	250	22
	160 ~ 250	50/60	1300	11.5	6.2	230	0.16	-40 ~ +50	230	28
	160 ~ 250	50/60	1300	14	7.5	230	0.16	-40 ~ +50	250	25
ECM7120	160 ~ 250	50/60	1300	19.5	9	230	0.16	-40 ~ +50	250	28
	160 ~ 250	50/60	1300	21.5	9.5	230	0.16	-40 ~ +50	300	19
	160 ~ 250	50/60	1300	15.5	9	230	0.29	-40 ~ +50	250	28
	160 ~ 250	50/60	1300	15	9.5	230	0.29	-40 ~ +50	300	19
	160 ~ 250	50/60	1300	23	14.5	230	0.29	-40 ~ +50	300	22
	160 ~ 250	50/60	1300	26.5	17.5	230	0.29	-40 ~ +50	300	25
	160 ~ 250	50/60	1300	38	25	230	0.29	-40 ~ +50	300	28

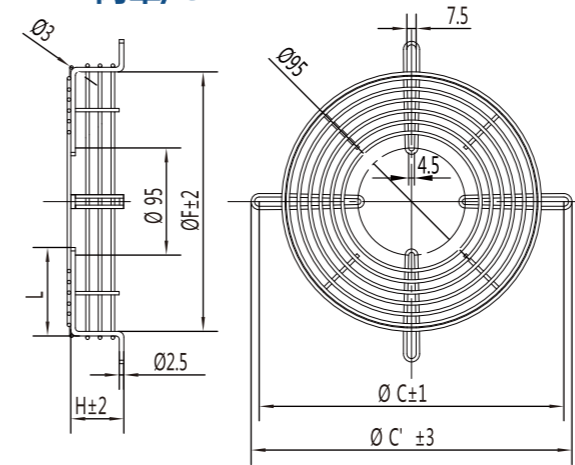
Technical date

• 支架/BACKET



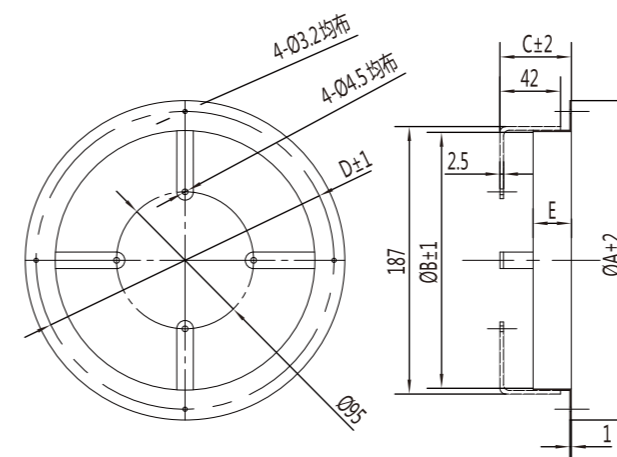
MODEL	H	L	L1	L2	M
H56	56	105	17	24	75
H72	72	105	13	24	75
H84	84	105	20	24	75
H84	84	166	18	25	126
H90	90	110	17	24	80
H110	110	106	14	42	83
H110	110	106	14	50	83

• 网罩/GRID



MODEL	C'	C	F	H	L
40W	277	264	222	39	70
60W	327	314	272	49	96
75W	337	324	280	49	100
90W	377	364	319	49	120

• 法兰/FLANGE



SIZE	ØA	ØB	C	ØD	E
172	223	180	49	208	25
200	246	208	49	236	25
230	278	238	49	266	25
254	300	262	49	290	25
300	378	308	49	365	30

Technical date

我厂生产的冷柜罩极电机制作工艺精良，产品采用优质的材料，性能稳定，有多种外观形式的电机供客户挑选。电机工作适用环境温度 $-25^{\circ}\text{C} \sim +50^{\circ}\text{C}$ ，绝缘等级为B级，防护等级为IP42,被广泛运用于冷柜冷凝器、蒸发器以及其他设备配套。

根据客户的使用要求，我厂电机有含油轴承和滚珠轴承两种供客户挑选。

电机的安全保护:

接地保护: 每台电机均接有接地线。

热保护: 输出功率在10W以下的电机采用电机自身阻抗保护; 输出功率在10W以上的电机均接入热保护器 ($135^{\circ}\text{C} \pm 5^{\circ}\text{C}$) 保护。

电机安装方式: 电机后端盖自带螺纹孔; 支架安装; 网罩安装; 法兰安装, 也可根据客户要求来图定做。

非标定做:

对于客户需求的不同的电压; 频率; 引出线长度; 轴承; 特殊的使用环境等均能按要求设计定做。

Introductuion of shaded- motor:

Our products is excellent technics, stable performance. we are high quality mateials and there are several forms for choose. The ambient temperature of the shaded-pole motor is used from $-25^{\circ}\text{C} \sim +50^{\circ}\text{C}$, the insulation rating is class B, protection grade is IP42, and it has widely used in condensers, evaporators and other equipment.

Safety protection:

Ground protection: there is a ground line in each motor.

Thermal protection: Motor has impedance protection if the output is blow 10W, And we install thermal protection ($135^{\circ}\text{C} \pm 5^{\circ}\text{C}$) to protect the motor if the output is more than 10W.

Installation:

There are screw holes on the end cover; bracket installion; grid installation; flange installation, also we can according to the customer request.

Non-stangard custom-made:

We can custom-made motor with different voltage; frequency; wire length; bearing; special use of the environment etc as the customer request.

Technical date

AV-5-13-00

电机安装脚问题.....The distance Of the installation between the foot

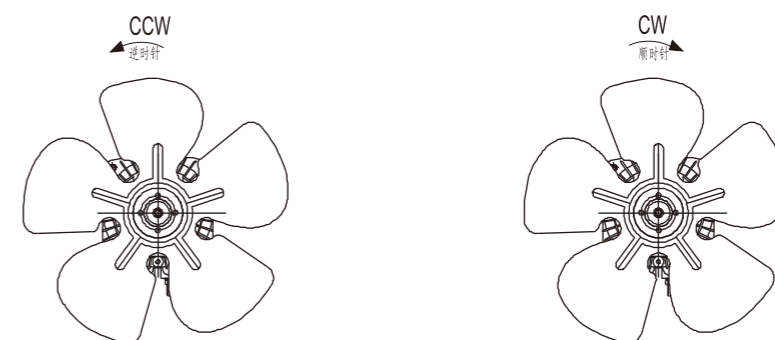
硅钢片叠厚(mm)...Silicon steel sheet thickness in mm

额定输出功率.....Rated outputpower

单相交流罩极电机...Single-phase Ac shade-pole motor

冷柜风机的方向、风向示意图:

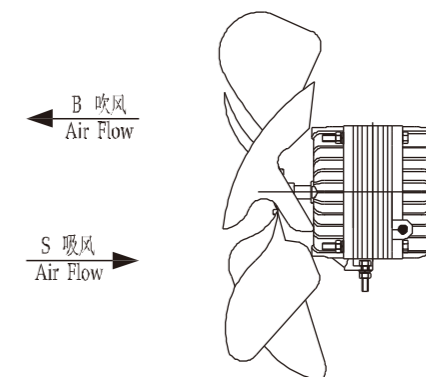
Rotation direction wind direction and introduction of shaded-pole motor



(从电机的轴端观察风叶的旋转方向)
(observe rotation direction of fan blade from the shaft)

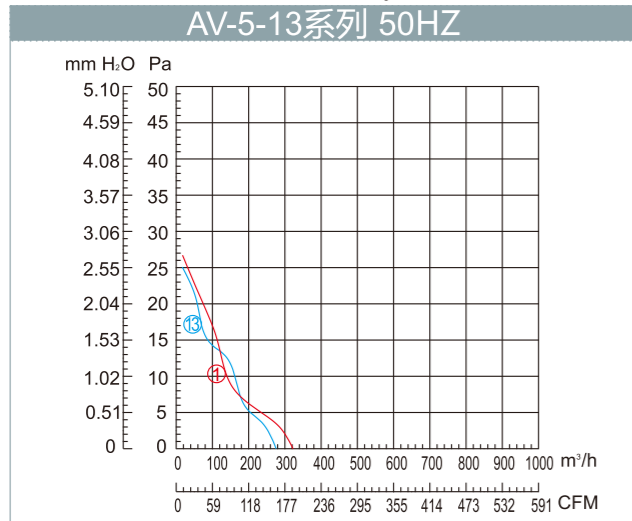
冷柜风机的风向

wind direction of shaded-pole motor

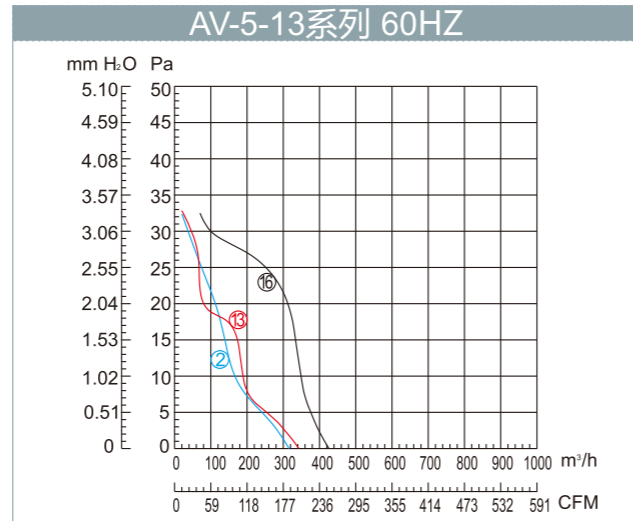


罩极电机
Shaded-pole Motor

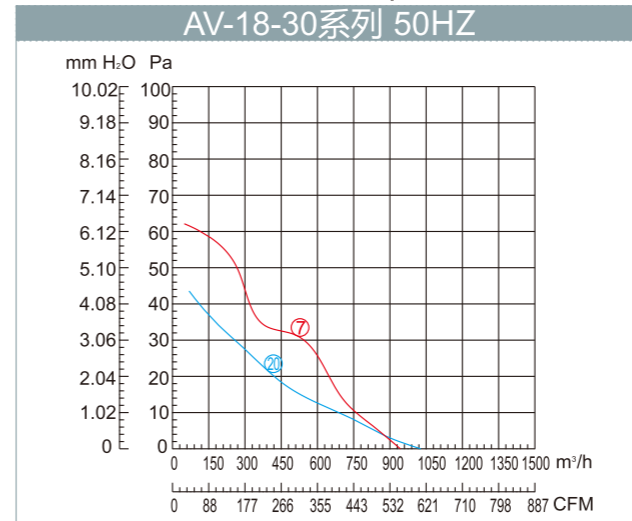
罩极电机 Shaded-pole motor



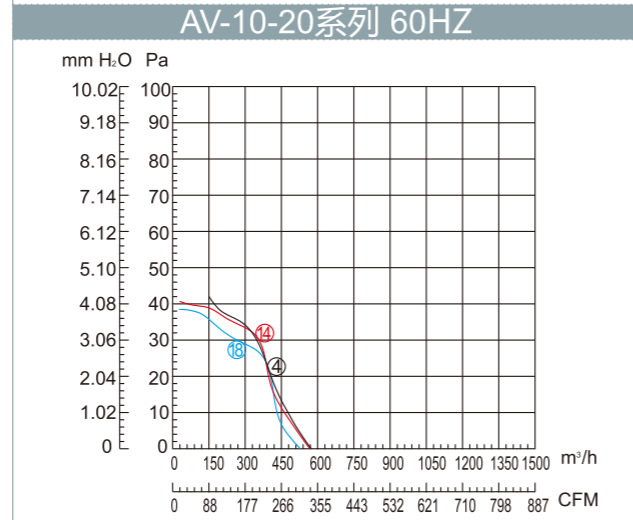
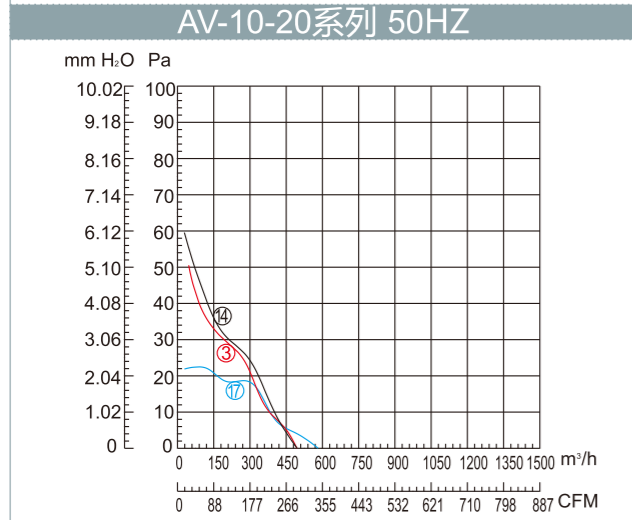
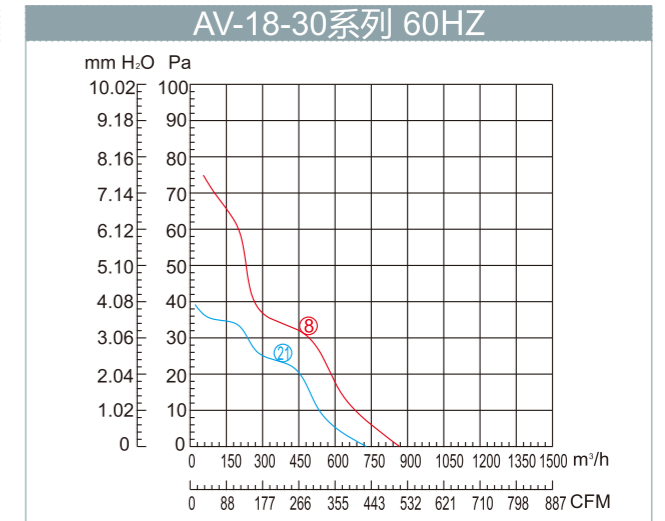
AV系列风量曲线 AV series air flow



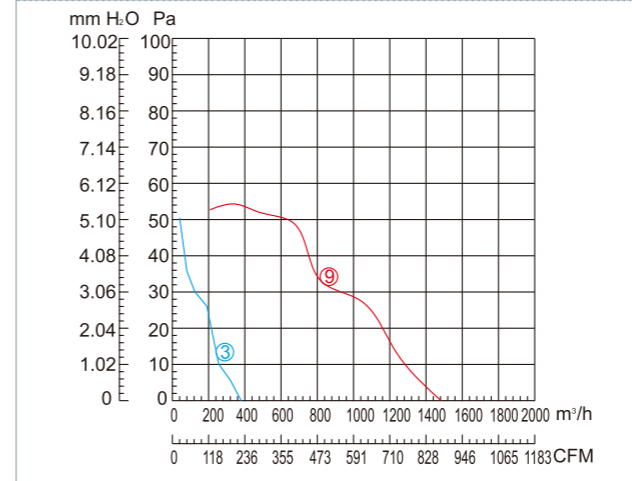
罩极电机 Shaded-pole motor



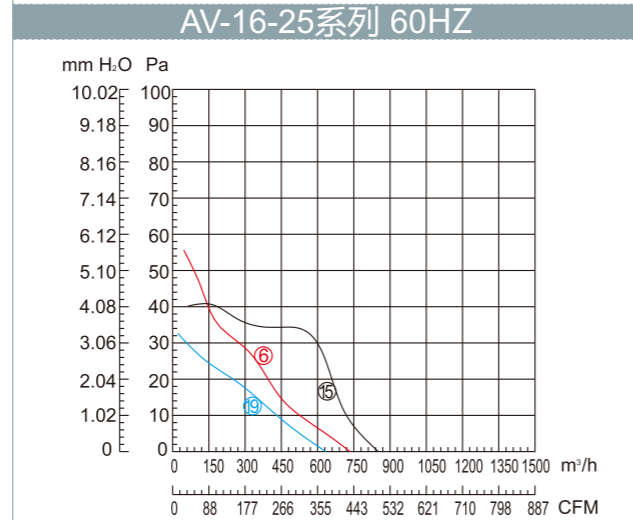
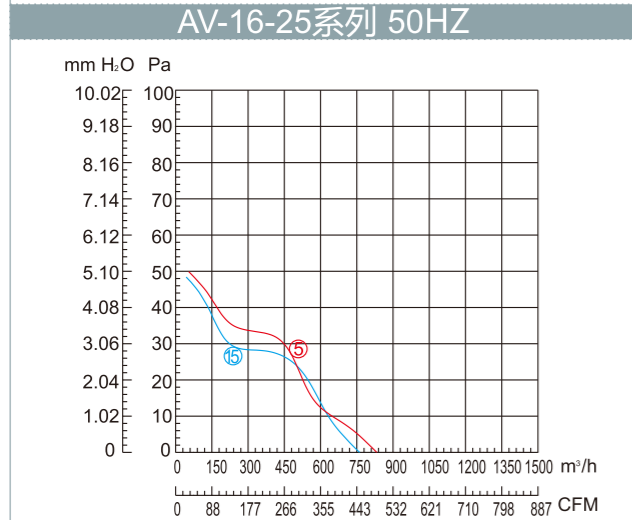
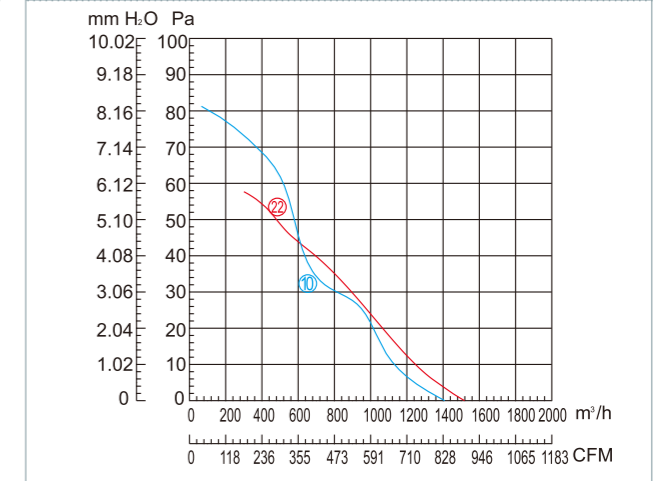
AV系列风量曲线 AV series air flow



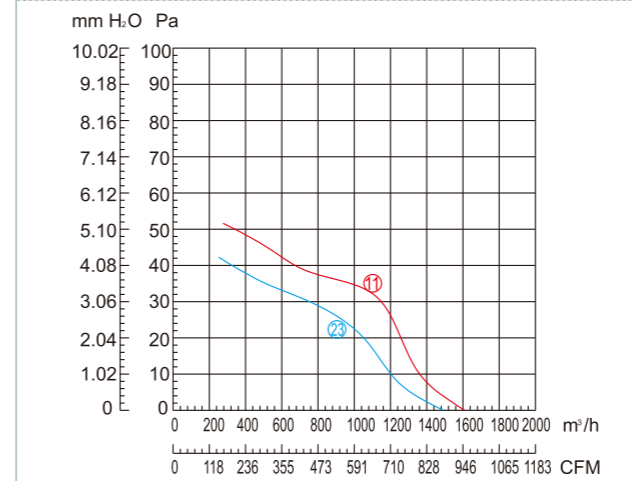
AV- (25-40) / (7-16) 系列 50HZ



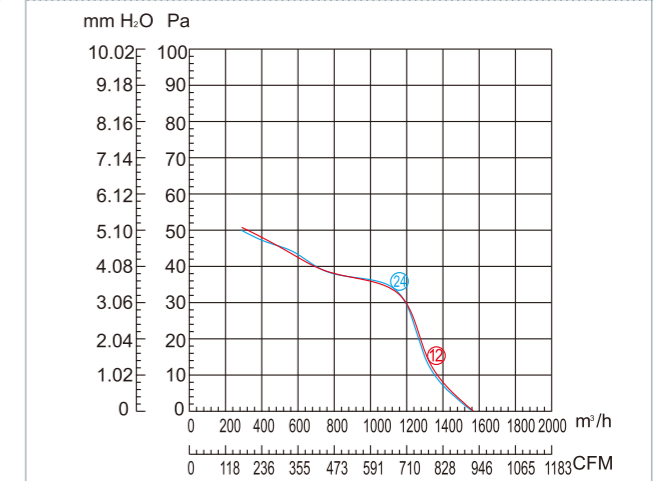
AV- (25-40) / (7-16) 系列 60HZ



AV-34-45系列 50HZ

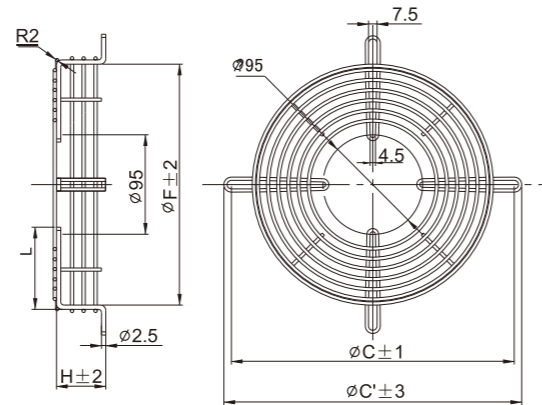
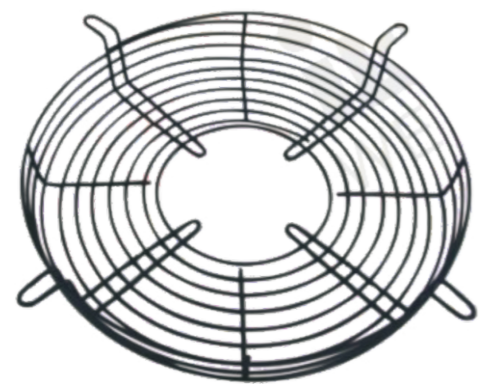


AV-34-45系列 60HZ



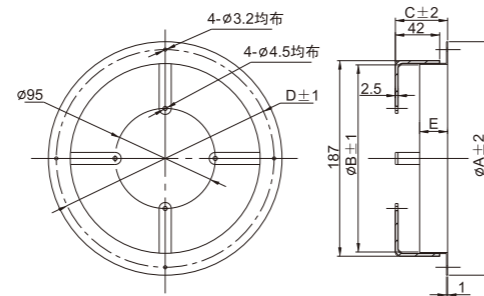
Technical date

网罩/Grid



FANTYPE	C'	C	F	H	L
40W	277	264	222	39	70
60W	327	314	272	49	96
75W	337	324	280	49	100
90W	377	364	319	49	120

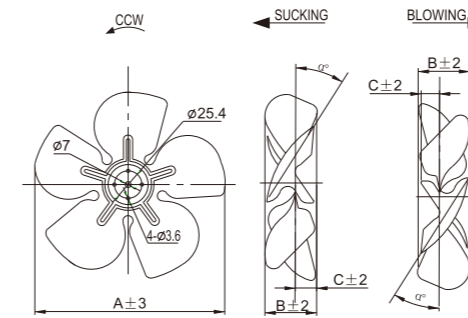
法兰/Flange



FAN TYPE	ϕA	ϕB	C	ϕD	E
172	223	180	49	208	25
200	246	208	49	236	25
230	278	238	49	266	25
254	300	262	49	290	25
300	378	308	49	365	30

Technical date

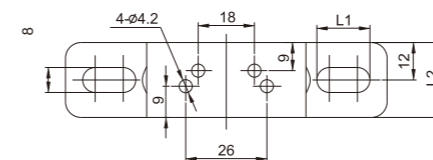
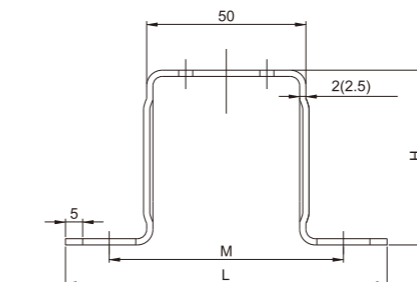
风叶/Fan blade



MODEL	FAN					
	YZF5-13	YZF10-20	YZF16-25	YZF18-30	YZF25-40	YZF34-45
150	28					
170	28	31				
200	25	28	28			
230		22	22	25		
250			22	22	25	
300				19	19	22 25 25 28

FANTYPE	α°											
	A	BC	B	C	B	C	B	C	B	C		
150	150							33	17			
172	170		25	13	28	14	31	16	34	17	38	19
200	196		27	14	30	15	33	17	36	18	40	20
230	228		30	16	33	17	36	18	39	20	42	21
250	244		31	16	34	17	37	19	40	20	43	22
300	298		37	18	41	21	44	22	48	24	52	26

支架/Bracket



MODEL	H	L	L1	L2	M
H56	56	105	17	24	75
H72	72	105	13	24	75
H84	84	105	20	24	75
H84	84	166	18	25	126
H90	90	110	17	24	80
H110	110	106	14	42	83
H110	110	106	14	50	83

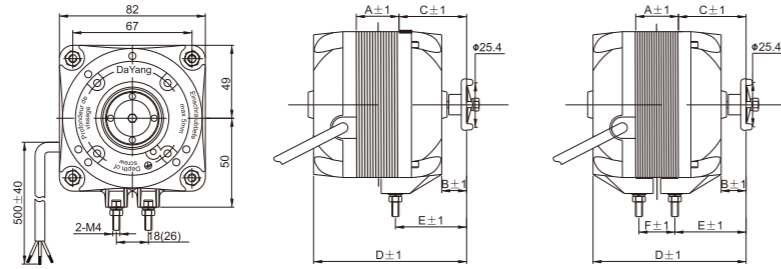
罩极电机 Shaded-pole Motor

Technical data



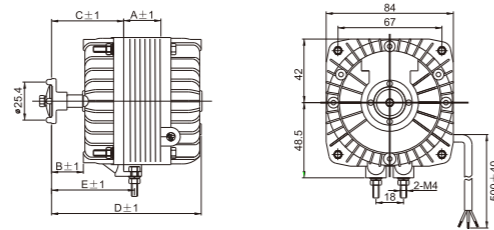
Type 1

型号 MODEL	AV-5-13	AV-7-16	AV-10-20	AV-16-25	AV-18-30	AV-25-40	AV-34-45
A	13	16	20	25	30	40	45
B	16	17	19	22	22	22	16
C	41	42	43	48	48	48	43
D	80	83	88	98	103	113	116
E	46	47	48	52	52	52	50
F	-	-	-	-	26	31	36



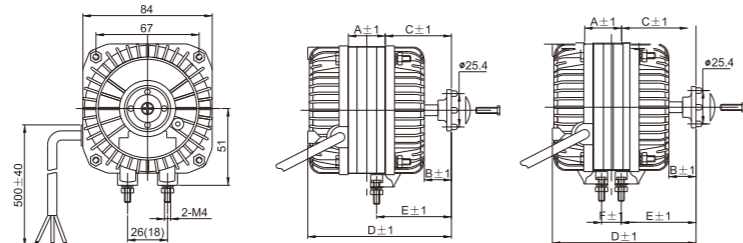
Type 2

型号 MODEL	AV-5-13	AV-7-16	AV-10-20	AV-16-25	AV-18-30	AV-25-40	AV-34-45
A	13	16	20	24	30	40	45
B	16	17	19	22	22	22	16
C	41	42	43	48	48	48	43
D	80	83	88	98	103	113	116
E	46	47	48	52	52	52	50



Type 3

型号 MODEL	AV-5-13	AV-7-16	AV-10-20	AV-16-25	AV-18-30	AV-25-40	AV-34-45
A	13	16	20	25	30	40	45
B	16	17	19	22	22	22	16
C	41	42	43	48	48	48	43
D	80	83	88	98	103	113	116
E	46	47	48	52	52	52	50
F	-	-	-	-	26	31	36



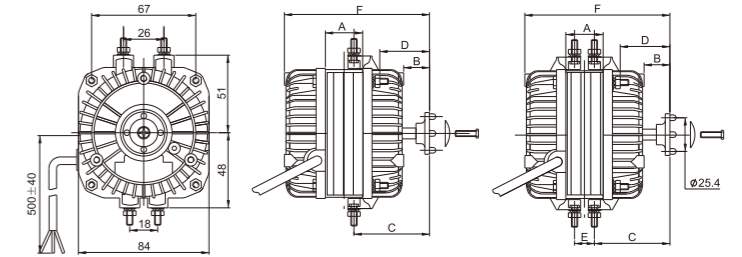
罩极电机 Shaded-pole Motor

Technical data



Type 4

型号 MODEL	AV-5-13	AV-7-16	AV-10-20	AV-16-25	AV-18-30	AV-25-40	AV-34-45
A	13	16	20	25	30	40	45
B	11	14	15	16	19	19	18
C	44	45	48	49	52	52	51
D	25	28	29	30	33	33	32
E	-	-	-	-	18	26	32
F	78	84	89	94	102	111	116



技术参数 Technical data

型号 MODEL	额定电压 VOLTAGE V	额定频率 FREQUENCY HZ	额定电流 CURRENT A	输入功率 INPUT W	输出功率 OUTPUT W	额定转速 SPEED r/min	额定风量 AIR VOLUME m ³ /h	风叶尺寸 BLADE SIZE (mm)	风叶角度 ANGLE OF BLADE (°)	应用范围 SCOPE OF APPLICATION Pa	证书 LICENSE	曲线序号 CURVE NUMBER
AV-5-13	220	50	0.20	33	5	1300	280	170	28°	0~25	CCC	①
	220	60	0.20	33	5	1500	320	170	31°	0~30	CCC	②
AV-7-16	220	50	0.23	40	7	1300	380	200	28°	0~35	CCC	③
AV-10-20	220	50	0.23	40	10	1300	500	200	28°	0~45	CCC	④
	220	60	0.25	40	10	1500	570	200	28°	0~55	CCC	⑤
AV-16-25	220	50	0.43	60	16	1300	830	230	25°	0~40	CCC	⑥
	220	60	0.48	60	16	1500	730	230	22°	0~50	CCC	⑦
AV-18-30	220	50	0.48	75	18	1300	940	250	25°	0~40	CCC	⑧
	220	60	0.50	75	18	1500	870	250	22°	0~50	CCC	⑨
AV-25-40	220	50	0.65	100	25	1300	1480	300	25°	0~45	CCC	⑩
	220	60	0.90	155	25	1500	1400	300	19°	0~55	CCC	⑪
AV-34-45	220	50	0.75	120	34	1300	1610	300	28°	0~45	CCC	⑫
	220	60	1.00	160	34	1500	1560	300	25°	0~55	CCC	⑬
AV-5-13	220	50/60	0.20	33	5	1300/1500	320/340	170	28°	0~25	CCC	⑭
AV-10-20	220	50/60	0.23	40	10	1300/1500	500/570	200	28°	0~30	CCC	⑮
AV-16-25	220	50/60	0.46	60	16	1300/1500	760/850	230	25°	0~45	CCC	⑯
AV-5-13	110	60	0.45	33	5	1500	420	200	25°	0~25	CCC	⑰
	110	50	0.45	40	10	1300	580	230	22°	0~20	CCC	⑱
AV-10-20	110	60	0.50	40	10	1500	530	200	28°	0~30	CCC	⑲
	110	60	0.80	60	16	1500	630	230	22°	0~25	CCC	⑳
AV-18-30	110	50	0.90	75	18	1300	1030	300	19°	0~30	CCC	㉑
	110	60	0.95	75	18	1500	730	250	22°	0~30	CCC	㉒
AV-34-45	110	60	2.10	120	34	1500	1570	300	25°	0~40	CCC	㉓

• 表中参数如有更改恕不另行通知 We will not inform you if we change the data in the form