深圳腾凯特种机电有限公司
SHENZHEN TENKAI GROUP LIMITED

SPECIFICATION FOR APPROVAL

规格承认书

To: 1905241299

产品型号 Par No. : DA9238H12B

类别 Category: ☑Fan ☐Blower ☐Centrifugal

认证 Certification: ☑CE ☑ROHS ☐ UL ☐ TUV

编号 SpecNo: DA9238H12B-E250422 版次 Version: 01

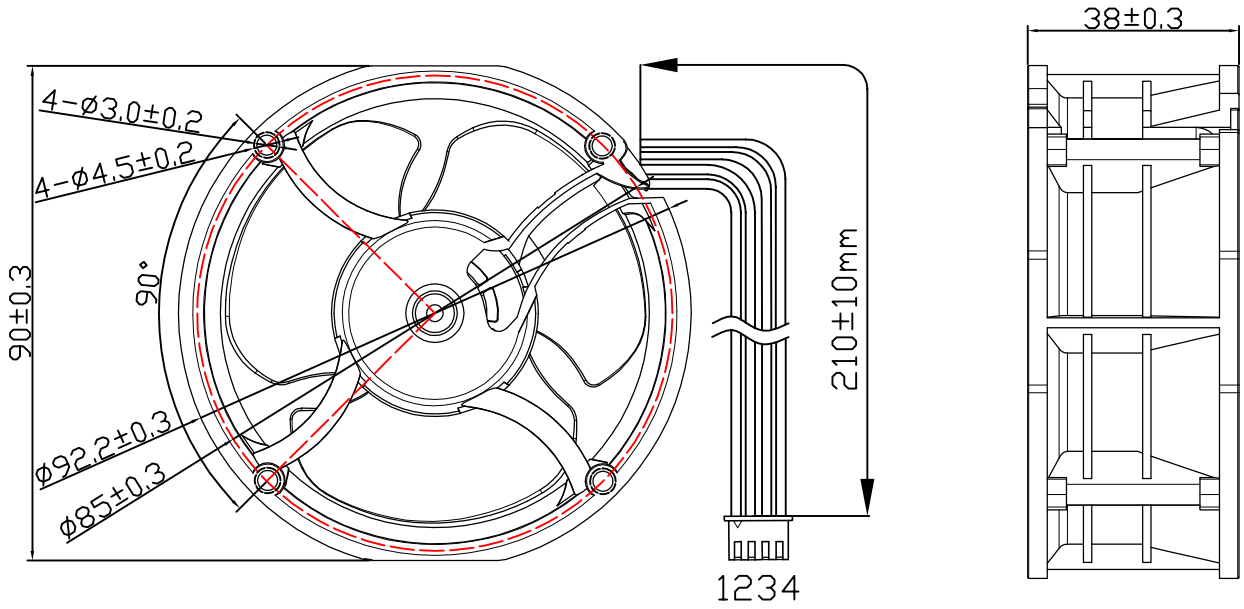
样品数 Quantity: 3PCS 日期 Date: 2025-05-24

Company Stamp	CUSTOMER APPROVAL Stamp
深圳市腾凯特种机电有限公司 工程部	
制作：张友桥	承认：
复核：张宇濠	核准：
核准：	日期：

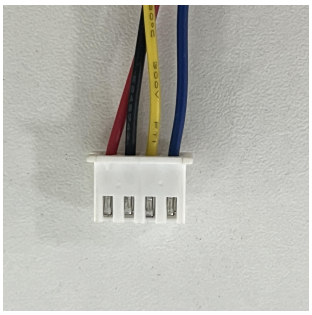
电话(TEL): 86-0755-23126453 传真(FAX): 86-0755-23129135
邮箱(MAIL): sales@tenkai-group.com
网址(WEB): Http://www.tkfan.com
地址(ADD): 深圳市龙华区观澜格澜 9 路金雄达科技园 C 栋 5 楼

版本更改历史
Version change history

REV. 版本	DESCRIPTION 描述	DRAWN 绘制	CHECKED 检查	APPROVED 批准	ISSUE DATE 签发日期
01	产品发布	张友桥	张宇濠	刘海波	2025.05.24
02	增加了引线并线的要求	周珍莲	蔡继国	刘海波	2026.07.02



UNIT: mm (INCH)



LEAD WIRE :
UL1007#24AWG OR EQUIVALENT
1: RED WIRE---(+)
2: BLACK WIRE---(-)
3: YELLOW WIRE---(FR)
4: BLUE WIRE---(PWM)

BSK Havalandırma Ekipmanları A.Ş. - www.bskhvac.com.tr

BSK

ZephyrMini/SP/FAN - 12VDC - 0.2A - 5500rpm

白底黑字

30mm

Mark 记号	REASON 变更原因

PROJECTION

单位 UNIT mm

比例 SCALE 1:1

公差 TOL	LINEAR .X .XX	ANGULAR
	(0,50] ±0.10 ±0.05	X. ±0.5°
	(50,100] ±0.20 ±0.10	X.X ±0.1°
	(100,+∞] ±0.30 ±0.15	

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深圳市腾凯特种机电有限公司
SHEN ZHEN TENKAI GROUP LIMITED

型号 Model NO.	DA9238H12B			图号 Drawing NO.		
				DA9238H12B-E250422		
制图 Drawing	张友桥	日期 Date	2025.05.24	描述 Description		
				DC BRUSHLESS FAN		
检查 Check	张宇濠	日期 Date	2025.05.24	材质 Material	页数 Page	1/1
批准 Approved		日期 Date		表面 Finish	版次 Rev	A0

顺时针

規格參數
SPECIFICATION

Model 型号:			
Item 项目	Unit 单位	Specification 參數	Condition 條件
Dimension 尺寸	Mm 毫米	92X90X38	LxWxThickness 长宽高
Bearing System 轴承类型	----	Two Ball Bearing	----
Rated Voltage 额定电压	VDC	12	----
Operating Voltage Range 操作电压范围	VDC	7.5~13.5	At 25℃
Start-up Voltage 启动电压	VDC	≤7.5	At 25℃
Rated Current 额定电流	Amp 安培	0.12	At Rated 在额定电压下
Lock Rotor Current 锁定电流	Amp 安培	0	Locked 锁死
Rated Power 额定功耗	Watt 瓦特	1.44	At Rated 在额定电压下
Rated Speed 额定转速	RPM 圈/分钟	5500±10%	AT Rated Voltage 30℃
Air Flow 风量	CFM	44.0	In Free Air 无风阻条件
Static Air Pressure 静压	mmH_2O	8.1	When Air Flow=0
Noise Level 噪音	dBA	47.5	At Rated Speed 额定速
Polarity protection 反向保护	--	Reverse protection	YES
Other Spec.	Tachometer Output 转速反馈	NO	
	Soft-restart function 软启动	YES	
	Lock Protection 锁定保护	YES	
	Lock Rotor Alarm 锁定报警	NO	
	PWM Control 速度控制	YES	
	Thermal Control 过热保护	NO	
	Over voltage protection 过压保护	NO	
	Over current protection 过流保护	NO	
	fixed constant speed Function 恒速功能	NO	
Connection Lead Type 连接方式	Lead Wire 导线型号	210mm1007#24AWG	See Page 3 见图纸
	Connector 端子	XH2.54-4P	See Page 3 见图纸
Life Expectancy 预期寿命	Hours 小时	50000hrs	At 25℃ 在 25℃条件下
Net Weight 净重	g 克	125g	1PCS
备注 Note	1.PWM+正反转控制线 黄线与黑线短接为顺时针旋转(从扇叶面看) 2.引线要求并线		

絕緣耐壓 Dielectric Strength	5Ma Max./導線与外框間測量，500VAC/min 5Ma Max./Measured between lead wire(+)and frame at 500VAC/min
極數 Number of Pole	6 極 6 Poles
EMC	
運轉溫/濕度範圍 Operating temp. Range	溫度/temperature: -40℃~+80℃ 濕度/Humidity: 35%~85%RH
絕緣阻抗 Insulation Resistance	10MΩ/裸線与外框間測量，500VDC/min 10MΩ/between unshackled wire and frame at 500VDC/min
耐濕性 Humidity	電器規格依據 MIL-STD 202F Method 103B 濕度：95%RH，溫度：40±2℃ According to MIL-STD 202F Method 103B Humidity: 95%RH,Temp.: 40±2℃
熱衝擊 Thermal Shock	電器規格依據 MIL-STD 202F Method 107D According to MIL-STD 202F Method 107D
絕緣階段 Insulation Shock	UL: A 種 UL: Class A
包裝耐振試驗 Packing Vibration Test	包裝后，XYZ 施 1.1KG 測試 30 分鐘無損壞 Load Vibration test for 30min,No serious damage

顺时针

SHENZHEN TENKAI GROUP	MODEL NO.	DA9238H12B

MTBF REPOPT

STARTED DATE: 2020.5.16			FINISHED DATE: 2020.10.20	
TEST CONDITIONTEST （1） VOLTAGE:12VDC （2） TEMPERATURE: 75℃	ITEM	SPECIFICATION	TEST SAMPLES	20
	OPERATION VOLTAGE	12VDC	TEST HRS/EA	2,200
	CUPPENT DPAIN	MAX ≤0.12A±10%	TOTAL TEST HRS	44,000
	SPEED	5500RPM±10%	FAILURE Q'TY	0
	ACOUSTICAL NOISE		CONFIDENCE LEVEL	90%
			MTBF	53905hours

FAILURE DEFINITION	ITEM	CHECK POINT AT THE HOURS							
(1) CURRENT:= Over 10%/-30%of Original value	TEST DURATION(HRS)	250	500	1k	1.5k	2k	2.2k		
	ACCUMULATED FAILURE Q'TY	0	0	0	0	0	0		
	SURVIVAL Q'TY	20	20	20	20	20	20		
	ACCUMULATED FAILURE RATIO	0%	0%	0%	0%	0%	0%		
(2) RPM: Over 30%/-15%of Original value	FAILNO.TEST TIME(HRS)SURVIVAL Q'TY ACCUMULATED FAIL RATIO DESCRIPTION								
(3) NOISE LEVEL: Over±10% of origin	TEST RESULT: 1. FORMULA OF FIGURING OUT ACCELERATION FACTOR: Tu: Required Temp（25℃） Ta：Experiment Temp.(75℃) AF =2∧[(Ta-Tu)] =2∧[(75-25)/10] =32 MTBF=[ACTUAL TEST TIME*SAMPLE Q'TY]*AF]/TR/SAMPLE Q'TY MTBF=[(2200*20)*32]/1.3026/20=53905HOURS								
	2. CONFIDENCE LEVEL: ACCORDING TO GEM TABLE90% ZERO FAILURE TR=1.3026								

APPROVED BY: BOPING GONG	CHECKED BY: SHU LIN XIE	TESTED BY: JUN ZHANG

风扇特性曲线风量风压测试报告

The Report of Fan Performance P-Q Curve Test

1. 产品特性依照 AMCA-210 标准在双箱里包括风量与风压的测试。

The performance including air flow and air pressure measured in Double Chamber is measured according to AMCA210-92 standard。

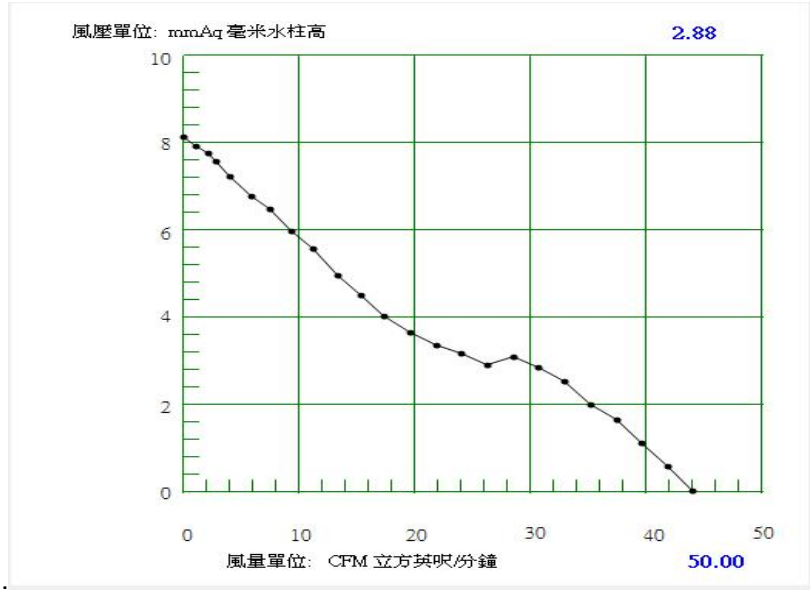
测试编号(No.): 6661 测试日期(Date) : 2025/05/23

2.测试数据：

序号 No.	项目 Item	规格 Specification	单位 Unit
1	测试电压 Test Voltage	12	VDC
2	转速 Speed	0	RPM
3	大气压力 Barometric Pressure	761.5	mmHg
4	相对湿度 Relative Humidity	50	%
5	最大风量(零静压时)Max.Air Flow(At Zero Static Pressure)	44.0	CFM
6	最大风压（零风量时）Max. Air Pressure(At Zero Air Flow)	8.1	mmH_2O

3.P-Q 数据及曲线 P-Q Data and Curve

序号	mmAq	CFM	A	Watt	RPM
1	8.11	0	0.2	2.4	
2	6.45	7.52	0.17	2.1	
3	4.94	13.3	0.16	1.9	
4	3.64	19.56	0.14	1.7	
5	2.88	26.21	0.13	1.6	
6	2.49	32.92	0.12	1.5	
7	1.09	39.62	0.1	1.2	
8	0	44.03	0.09	1.1	



顺时针

噪 音 测 试 报 告

The Report of Acoustic Noise Test

报告编号 Report No.TN1511309

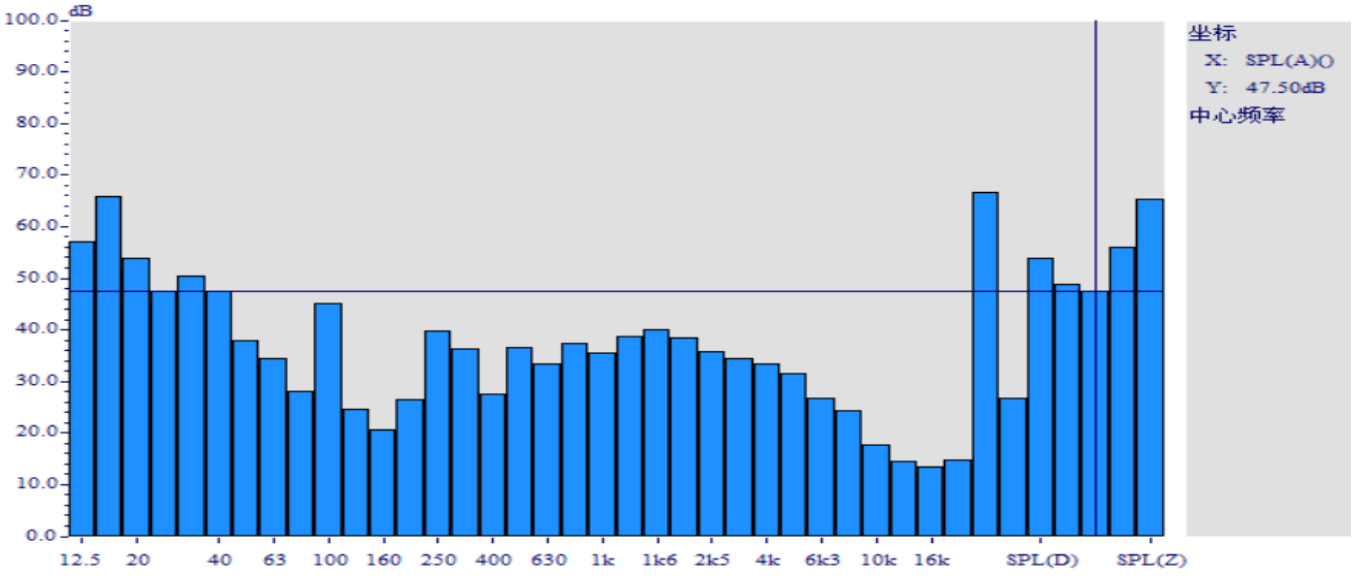
样品名称 Sample Name	Brushless Fan / Blower
测试条件 Test Condition	测试方法 Test Method
1.温度 Temperature: 31 ℃ 2.湿度 Humidity: 75 %RH	1.测试位置 Test Position： 180° 2.测试距离 Test Distance:1.0M From the fan intake 3.背景噪音 Background Noise: 16.1dB(A) 4.测试依照标准 ISO3745 执行 This test executes according to ISO3745 standard

测试设备 Test Equipment:

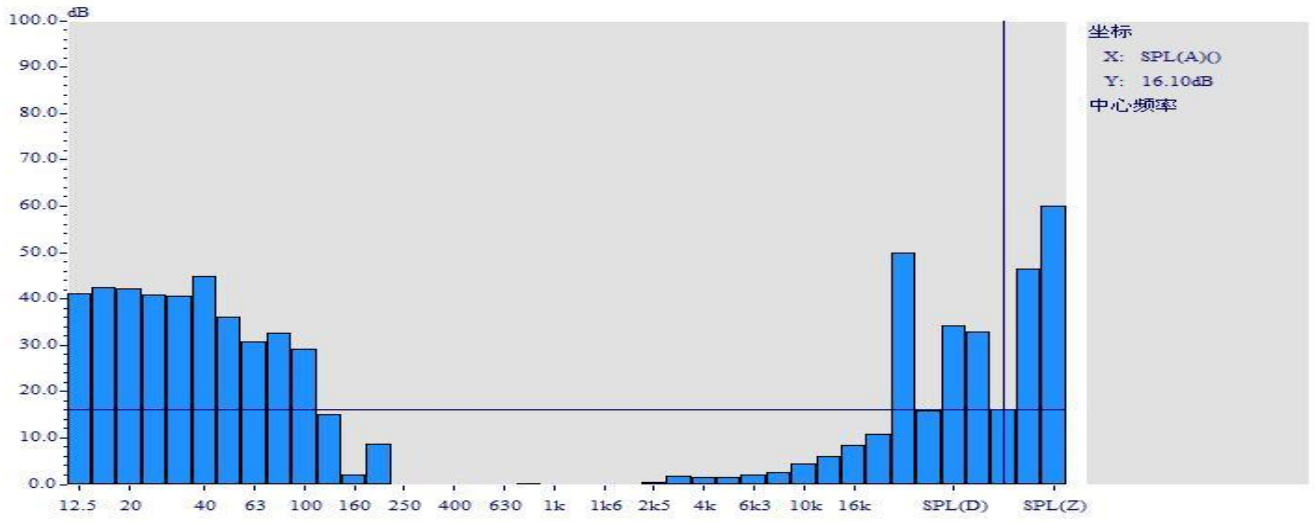
声望 VA-Lab2 二通道噪声频谱分析仪 BSWA VA-Lab2 double channels noise Spectrum Analyzer

测试结果 Test Result: Leq:47.5dB(A); 测试距离 Test distance: 1 meter

倍频段频谱图 Octave-Band(1m)



测试结果 Test Result: Leq:16.1dB(A); 背景噪音 Background Noise



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※报告无主检、审核人签字无效 The test report is invalid without the signatures of Author and Reviewer。

逆时针

規格參數
SPECIFICATION

Model 型号:				
Item 项目		Unit 单位	Specification 參數	Condition 條件
Dimension 尺寸		Mm 毫米	92X90X38	LxWxThickness 长宽高
Bearing System 轴承类型		----	Two Ball Bearing	----
Rated Voltage 额定电压		VDC	12	----
Operating Voltage Range 操作电压范围		VDC	7.5~13.5	At 25℃
Start-up Voltage 启动电压		VDC	≤7.5	At 25℃
Rated Current 额定电流		Amp 安培	0.12	At Rated 在额定电压下
Lock Rotor Current 锁定电流		Amp 安培	0	Locked 锁死
Rated Power 额定功耗		Watt 瓦特	1.44	At Rated 在额定电压下
Rated Speed 额定转速		RPM 圈/分钟	5500±10%	AT Rated Voltage 30℃
Air Flow 风量		CFM	41.6	In Free Air 无风阻条件
Static Air Pressure 静压		mmH_2O	8.6	When Air Flow=0
Noise Level 噪音		dBA	46.2	At Rated Speed 额定速
Polarity protection 反向保护		--	Reverse protection	YES
Other Spec.	Tachometer Output 转速反馈		NO	
	Soft-restart function 软启动		YES	
	Lock Protection 锁定保护		YES	
	Lock Rotor Alarm 锁定报警		NO	
	PWM Control 速度控制		YES	
	Thermal Control 过热保护		NO	
	Over voltage protection 过压保护		NO	
	Over current protection 过流保护		NO	
	fixed constant speed Function 恒速功能		NO	
Connection Lead Type 连接方式		Lead Wire 导线型号	210mm1007#24AWG	See Page 2 见图纸
		Connector 端子	XH2.54-4P	See Page 2 见图纸
Life Expectancy 预期寿命		Hours 小时	50000hrs	At 25℃ 在 25℃条件下
Net Weight 净重		g 克	125g	1PCS
备注 Note		PWM+正反转控制线 黄线与黑线短接为顺时针旋转(从扇叶面看)		

絕緣耐壓 Dielectric Strength	5Ma Max./導線与外框間測量，500VAC/min 5Ma Max./Measured between lead wire(+)and frame at 500VAC/min
極數 Number of Pole	6 極 6 Poles
EMC	
運轉溫/濕度範圍 Operating temp. Range	溫度/temperature: -40℃~+80℃ 濕度/Humidity: 35%~85%RH
絕緣阻抗 Insulation Resistance	10MΩ/裸線与外框間測量，500VDC/min 10MΩ/between unshackled wire and frame at 500VDC/min
耐濕性 Humidity	電器規格依據 MIL-STD 202F Method 103B 濕度：95%RH，溫度：40±2℃ According to MIL-STD 202F Method 103B Humidity: 95%RH,Temp.: 40±2℃
熱衝擊 Thermal Shock	電器規格依據 MIL-STD 202F Method 107D According to MIL-STD 202F Method 107D
絕緣階段 Insulation Shock	UL: A 種 UL: Class A
包裝耐振試驗 Packing Vibration Test	包裝后，XYZ 施 1.1KG 測試 30 分鐘無損壞 Load Vibration test for 30min,No serious damage

逆时针

SHENZHEN TENKAI GROUP	MODEL NO.	DA9238H12B

MTBF REPOPT

STARTED DATE: 2020.5.16			FINISHED DATE: 2020.10.20	
TEST CONDITIONTEST （3） VOLTAGE:12VDC （4） TEMPERATURE: 75℃	ITEM	SPECIFICATION	TEST SAMPLES	20
	OPERATION VOLTAGE	12VDC	TEST HRS/EA	2,200
	CUPPENT DPAIN	MAX ≤0.12A±10%	TOTAL TEST HRS	44,000
	SPEED	5500RPM±10%	FAILURE Q'TY	0
	ACOUSTICAL NOISE		CONFIDENCE LEVEL	90%
			MTBF	53905hours

FAILURE DEFINITION	ITEM	CHECK POINT AT THE HOURS							
Over (4) CURRENT:= 10%/-30%of Original value	TEST DURATION(HRS)	250	500	1k	1.5k	2k	2.2k		
	ACCUMULATED FAILURE Q'TY	0	0	0	0	0	0		
	SURVIVAL Q'TY	20	20	20	20	20	20		
	ACCUMULATED FAILURE RATIO	0%	0%	0%	0%	0%	0%		
Over (5) RPM: 30%/-15%of Original value	FAILNO.TEST TIME(HRS)SURVIVAL Q'TY ACCUMULATED FAIL RATIO DESCRIPTION								

(6) NOISE LEVEL: Over±10% of origin

TEST RESULT:

3. FORMULA OF FIGURING OUT ACCELERATION FACTOR:

Tu: Required Temp（25℃） Ta：Experiment Temp.(75℃)

AF =2∧[(Ta-Tu)]

=2∧[(75-25)/10]

=32

MTBF=[ACTUAL TEST TIME*SAMPLE Q'TY]*AF]/TR/SAMPLE Q'TY

MTBF=[(2200*20)*32]/1.3026/20=53905HOURS

4. CONFIDENCE LEVEL: ACCORDING TO GEM TABLE90%

ZERO FAILURE TR=1.3026

APPROVED BY: BOPING GONG	CHECKED BY: SHU LIN XIE	TESTED BY: JUN ZHANG

风扇特性曲线风量风压测试报告

The Report of Fan Performance P-Q Curve Test

1. 产品特性依照 AMCA-210 标准在双箱里包括风量与风压的测试。

The performance including air flow and air pressure measured in Double Chamber is measured according to AMCA210-92 standard。

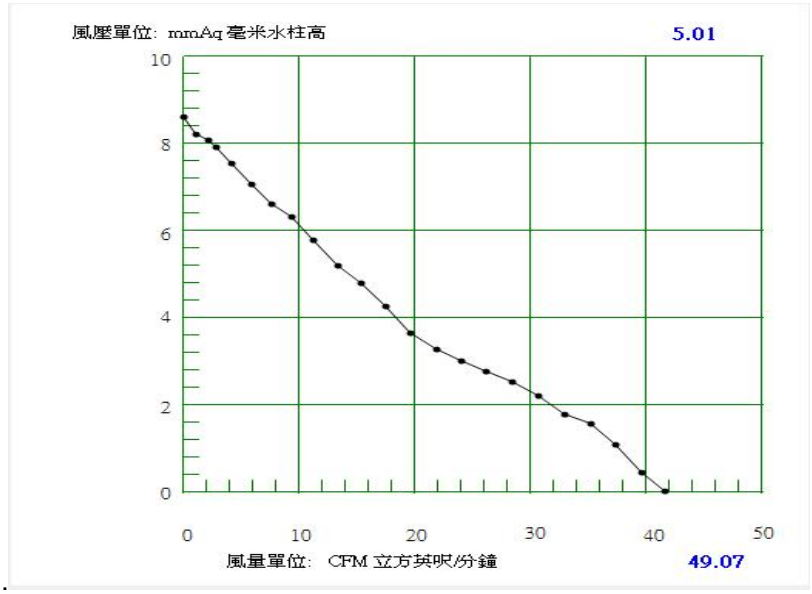
测试编号(No.): 6660 测试日期(Date) : 2025/05/23

2.测试数据：

序号 No.	项目 Item	规格 Specification	单位 Unit
1	测试电压 Test Voltage	12	VDC
2	转速 Speed	0	RPM
3	大气压力 Barometric Pressure	761.5	mmHg
4	相对湿度 Relative Humidity	50	%
5	最大风量(零静压时)Max.Air Flow(At Zero Static Pressure)	41.6	CFM
6	最大风压（零风量时）Max. Air Pressure(At Zero Air Flow)	8.6	mmH_2O

3.P-Q 数据及曲线 P-Q Data and Curve

序号	mmAq	CFM	A	Watt	RPM
1	8.59	0	0.18	2.2	
2	6.57	7.55	0.16	1.9	
3	5.18	13.32	0.15	1.8	
4	3.64	19.58	0.13	1.6	
5	3	24.03	0.13	1.5	
6	2.18	30.66	0.12	1.4	
7	1.06	37.35	0.1	1.2	
8	0	41.63	0.09	1	



逆时针

噪 音 测 试 报 告

The Report of Acoustic Noise Test

报告编号 Report No.TN1511309

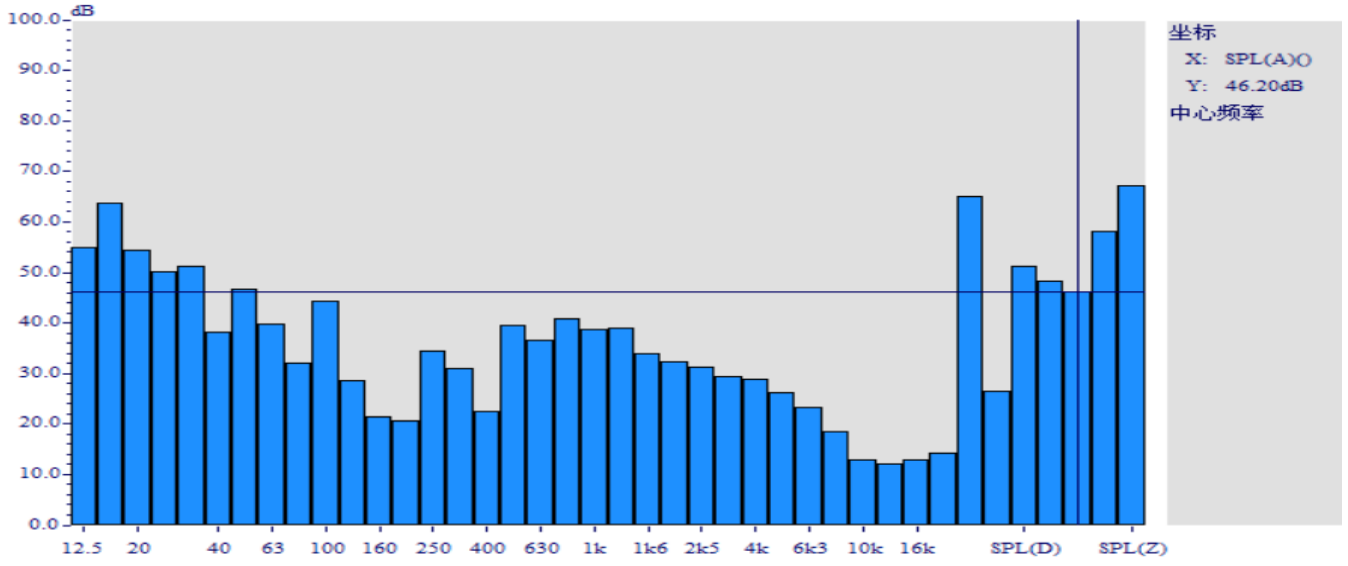
样品名称 Sample Name	Brushless Fan / Blower
测试条件 Test Condition	测试方法 Test Method
1.温度 Temperature: 31 ℃ 2.湿度 Humidity: 75 %RH	1.测试位置 Test Position： 180° 2.测试距离 Test Distance:1.0M From the fan intake 3.背景噪音 Background Noise: 19.1dB(A) 4.测试依照标准 ISO3745 执行 This test executes according to ISO3745 standard

测试设备 Test Equipment:

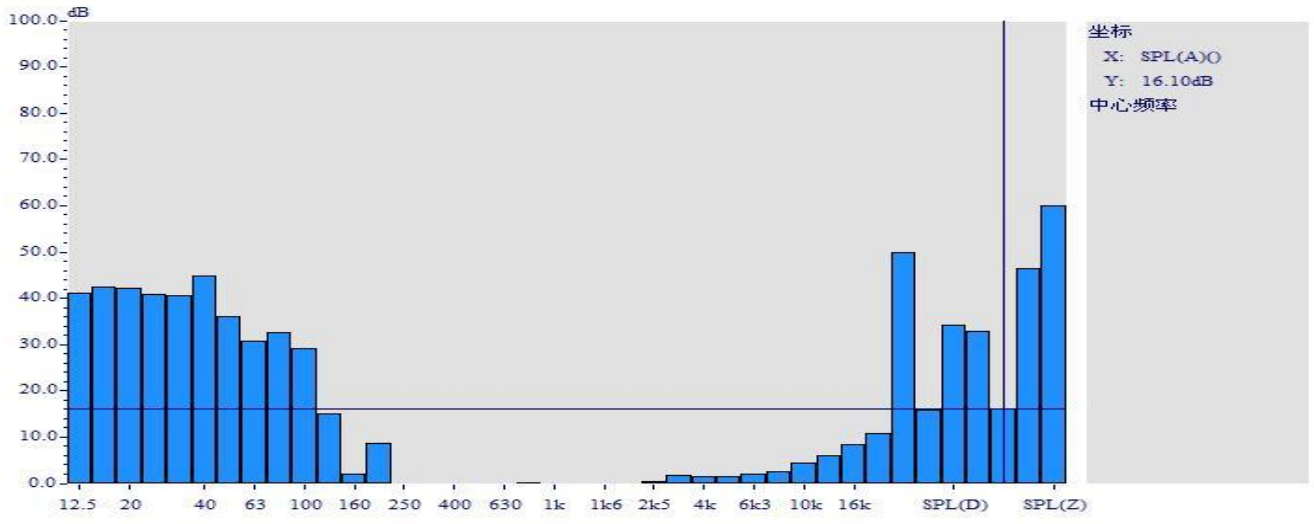
声望 VA-Lab2 二通道噪声频谱分析仪 BSWA VA-Lab2 double channels noise Spectrum Analyzer

测试结果 Test Result: Leq:46.2dB(A); 测试距离 Test distance: 1 meter

倍频段频谱图 **Octave-Band(1m)**



测试结果 Test Result: Leq:16.1dB(A); 背景噪音 Background Noise



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※报告无主检、审核人签字无效 The test report is invalid without the signatures of Author and Reviewer。

风扇特性曲线 PWM 测试报告

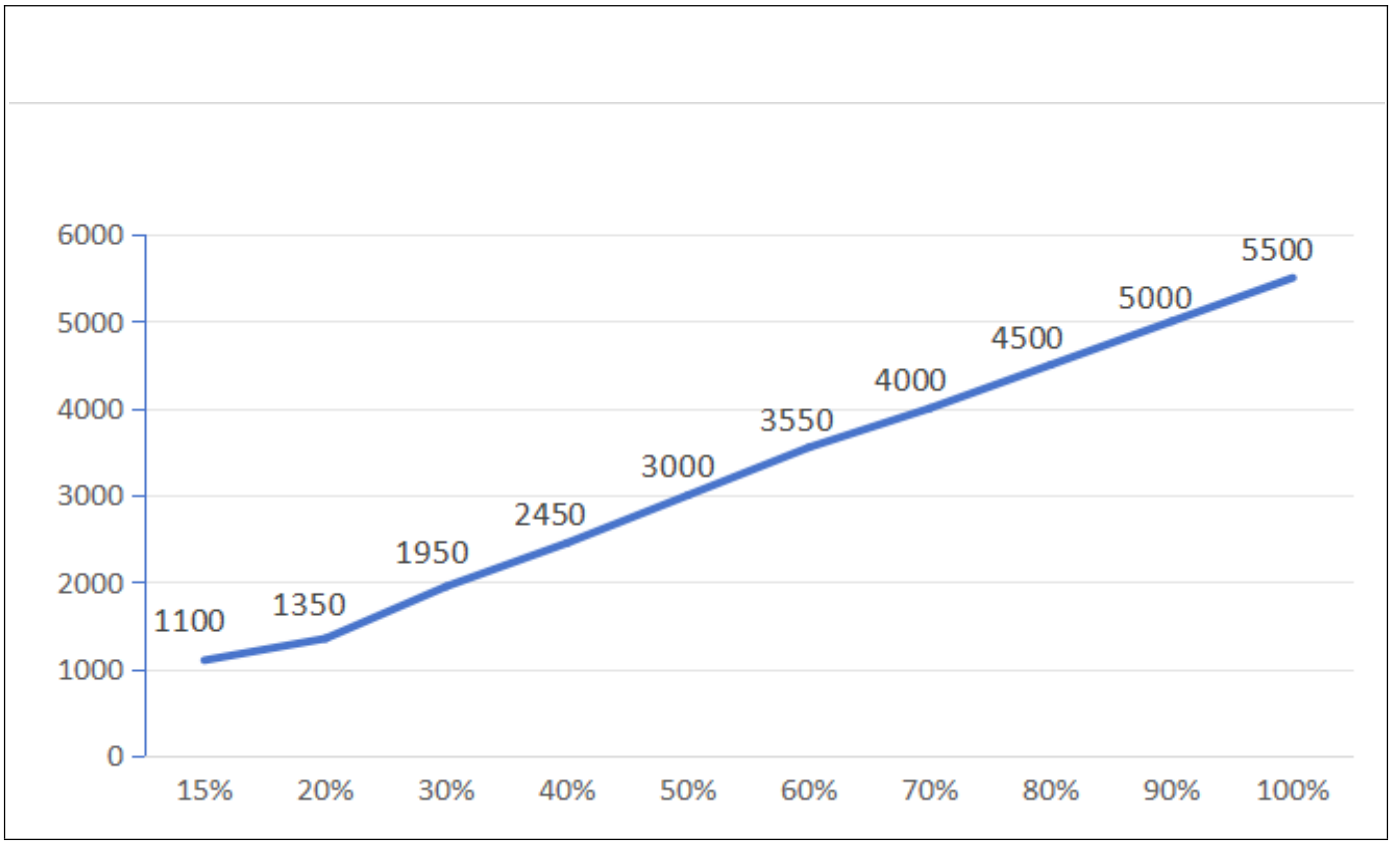
The Report of Fan Perfermance PWM Curve Test

测试编号(No.): 6760　　测试日期(Date) : 2025-05-24

1.测试数据：

序号	百分比	转速	单位 Unit
1	15％	1100	RPM
2	20％	1350	RPM
3	30％	1950	RPM
4	40％	2450	RPM
5	50％	3000	RPM
6	60％	3550	RPM
7	70％	4000	RPM
8	80％	4500	RPM
9	90％	5000	RPM
10	100％	5500	RPM

2.PWM 数据及曲线　PWM Data and Curve



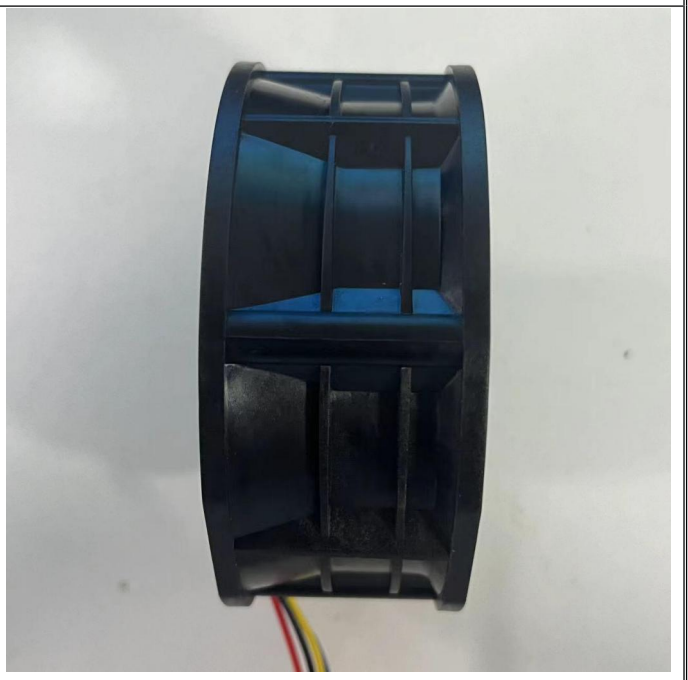
实物图
The pictures



通电时(黄线断开)



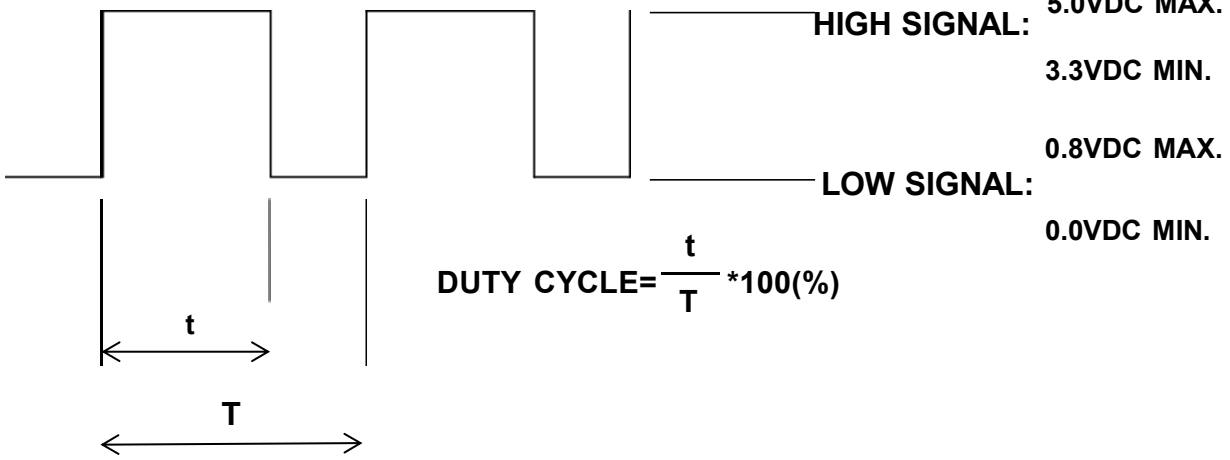




功能描述
Functional description

一. PWM CONTROL SIGNAL　PWM 控制信号:

SIGNAL VOLTAGE RANGE 控制电压输入范围:0.0～+5.0VDC



- THE FREQUENCY FOR CONTROL SIGNAL OF THE FAN SHALL BE ABLE TO ACCEPT 16K~32 KHZ.
- THE PREFERRED OPERATING POINT FOR THE FAN IS 25K HZ.
- AT 100% DUTY CYCLE,THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- AT 0% DUTY CYCLE,THE ROTOR WILL STOP.
- WHEN CONTROL SIGNAL LEAD DISCINNECTED,THE FAN WILL MAXIMUM SPEED.
- AT 25K 10%~ 14% DUTY CYCLE,THE FAN WILL BE ABLE TO START FROM A DEAD STOP.
- THE FAN SPEED CONTROL IS CLOSED-LOOP.