



马达出厂规格 (MOTOR OUTGOING SPECIFICATION)

客户 (CUSTOMER) : _____
型号 (MODEL) : RBE-533236-005X
版本号 (REV.) : A
日期 (DATE) : 2017. 12. 24

客户确认/日期 CONFIRM BY CUSTOMER/DATE	
编制 (PREPARED) : _____	
审核 (CHECKED) : _____	
批准 (APPROVED) : _____	

1. 适用范围 (SCOPE)

本文规定的测试条件和技术要求适用于深圳市中驱电机有限公司交付的 RBE-533236-005X 直流无刷电机。

This document defines the test standard and specification for RBE-533236-005X BLDC motor which is delivered by CHINA DRIVE MOTORS (SHENZHEN) CO., LTD.

2. 标准工作条件 (STANDARD OPERATING CONDITIONS)

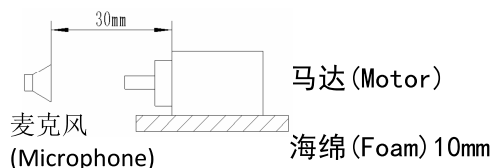
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|------------------------------------|--|
| 2.1 额定电压 (Rated Voltage) : | DC 36V |
| 2.2 运行条件 (Operating Condition) : | 温度 (Temp.) : $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
相对湿度 (Relative Humidity) : 5~85% |
| 2.3 保存条件 (Storage Condition) : | 温度 (Temp.) : $-20^{\circ}\text{C} \sim +40^{\circ}\text{C}$
相对湿度 (Relative Humidity) : 5%~90% |
| 2.4 旋转方向 (Direction of Rotation) : | CCW&CW |

3. 电气性能 (ELECTRICAL CHARACTERISTIC)

- | | | |
|--|----------------|-------|
| 3.1 空载电流 (No Load Current) : | ≤ 1500 | mA |
| 3.2 空载转速 (No Load Speed) : | $2950 \pm 5\%$ | RPM |
| 3.3 负载电流 (Rated Load Current) : | ≤ 7 | A |
| 3.4 负载转速 (Rated Load Speed) : | $2685 \pm 5\%$ | RPM |
| 3.5 额定负载 (Rate Load) : | 500 | mN. m |
| 3.6 附性能曲线 (Performance Curve Attached) | | |

4. 机械特性 (MECHANICAL CHARACTERISTIC)

- | | | |
|--------------------|--------------------------|--------|
| 4.1 重量 (Weight) : | ≈ 1020 | g |
| 4.2 外形 (Outline) : | Refer to outline drawing | |
| 4.3 噪音 (Noise) : | ≤ 60 | dB (A) |



测试条件: 常温常湿, 背景噪音 < 25dB (A), 距离马达端面 30cm, 额定电压空载运行。
Test Condition: Normal temp. and humidity, background noise is 25dB (A) Max., 30cm away from motor mounting surface, rated voltage and no load.

Performance Curve

SOF NO. :

Proposal No:

Winding :0.80*2x7

Motor test reference no :

Date : 2017-12-28

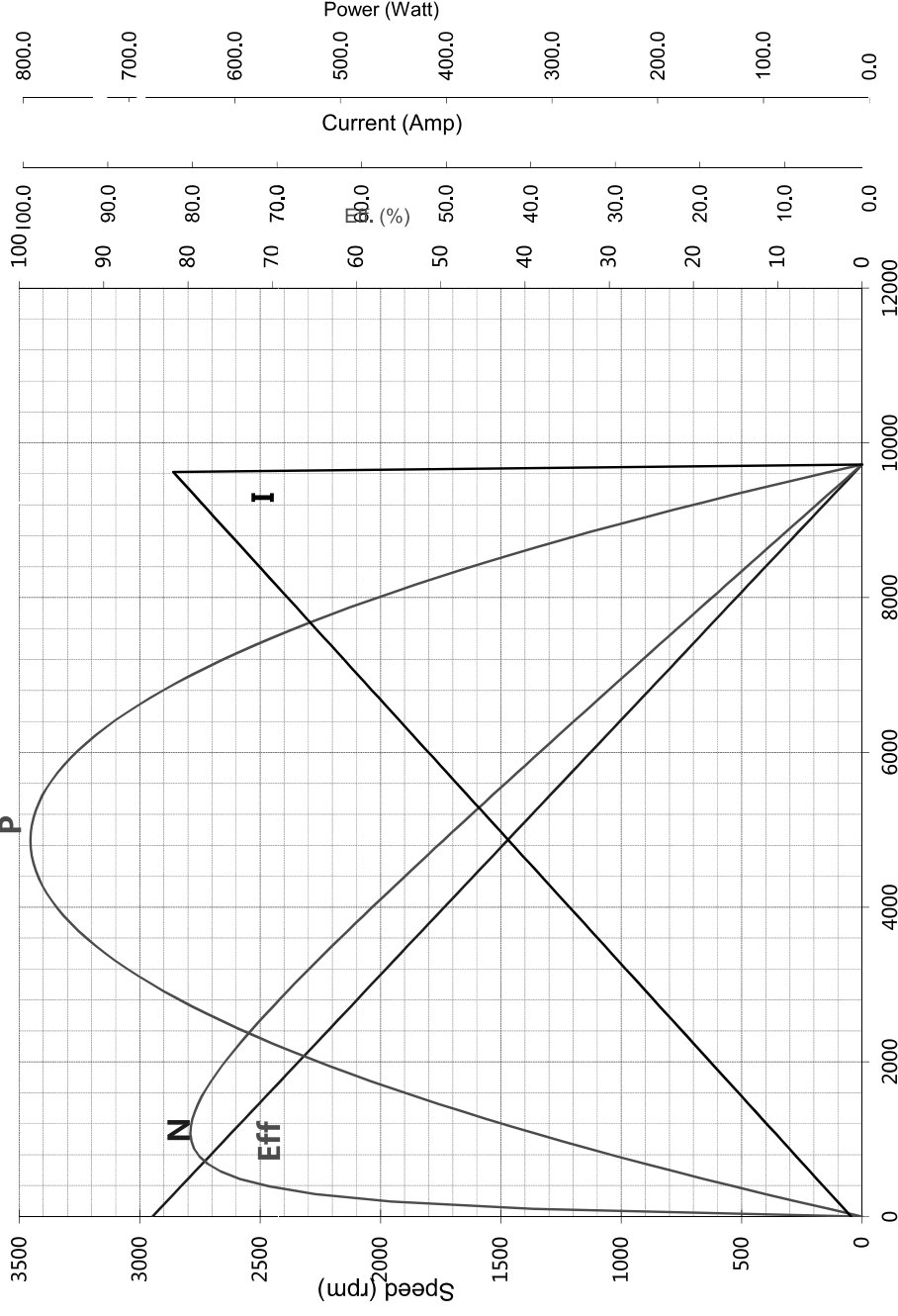
Performance (In an ambient temperature of 25 -30 C)

Motor tested rapidly to prevent significant temperature rise.

At a constant voltage of **36.00** Volts

With a circuit resistance **0.000** Ohms

AT No Load



Speed : 2947 Rpm

Current: 1.300 Amp

At stall (Extrapolated)

Torque : 9720.728 m-Nm

Current: 82.545 Amp

At maximum efficiency

Efficiency : 79.69 %

Torque : 1083.883 m-Nm

Speed : 2618 Rpm

Current : 10.359 Amp

Output : 297.199 Watts

At maximum power

Torque : 4860.364 m-Nm

Speed : 1474 Rpm

Current : 41.922 Amp

Output : 749.976 Watts

Characteristics

Torque Constant : 119.648 m-Nm/Amp

E.M.F Constant : 119.648 mV/rad/sec

Dy. Resistance : 0.436 Ohms

Motor Regulation: 0.303 Rpm/m-Nm

Calculation

At Torque Level: 800.000 m-Nm

Speed : 2704.5 Rpm

Current : 7.986 Amp

Efficiency : 78.80 %

Output : 226.569 Watts

COMPUTER PRINT-OUT NOMINAL MOTOR CURVES.
Performance and characteristics are measured based on limited motor samples only.



马达出厂规格 (MOTOR OUTGOING SPECIFICATION)

客户 (CUSTOMER): _____
型号 (MODEL) : RBE-533236-010TX
版本号 (REV.) : A
日期 (DATE) : 2018. 06. 05

客户确认/日期	
CONFIRM BY CUSTOMER/DATE	
编制 (PREPARED) : JONE	
审核 (CHECKED) :	
批准 (APPROVED) :	

1. 适用范围 (SCOPE)

本文规定的测试条件和技术要求适用于深圳市中驱电机有限公司交付的 RBE-533236-010TX 直流无刷电机。

This document defines the test standard and specification for RBE-533236-010TX BLDC motor which is delivered by CHINA DRIVE MOTORS (SHENZHEN) CO., LTD.

2. 标准工作条件 (STANDARD OPERATING CONDITIONS)

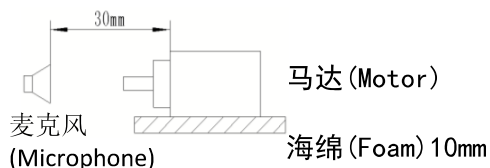
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|-----------------------------------|---|
| 2.1 额定电压 (Rated Voltage): | DC 36V |
| 2.2 运行条件 (Operating Condition): | 温度 (Temp.): $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
相对湿度 (Relative Humidity): $5 \sim 85\%$ |
| 2.3 保存条件 (Storage Condition): | 温度 (Temp.): $-20^{\circ}\text{C} \sim +40^{\circ}\text{C}$
相对湿度 (Relative Humidity): $5\% \sim 90\%$ |
| 2.4 旋转方向 (Direction of Rotation): | CCW&CW |

3. 电气性能 (ELECTRICAL CHARACTERISTIC)

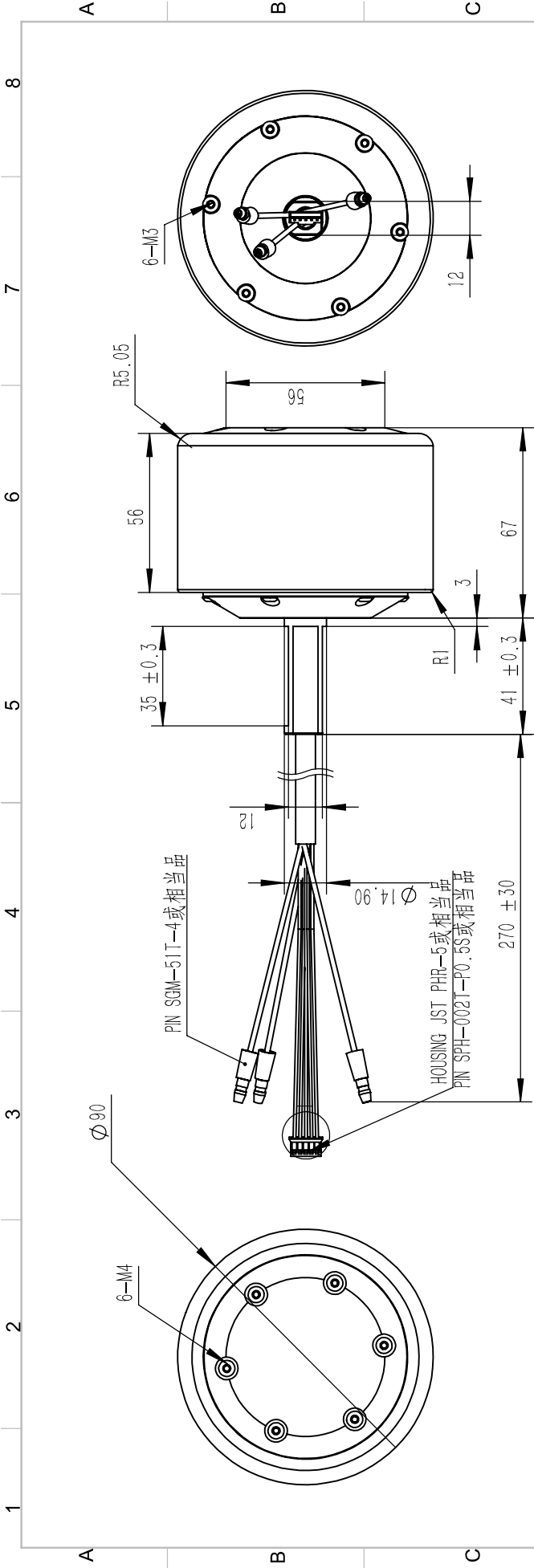
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|--|----------------|------|
| 3.1 空载电流 (No Load Current): | ≤ 1500 | mA |
| 3.2 空载转速 (No Load Speed): | $2950 \pm 5\%$ | RPM |
| 3.3 负载电流 (Rated Load Current): | ≤ 7 | A |
| 3.4 负载转速 (Rated Load Speed): | $2685 \pm 5\%$ | RPM |
| 3.5 额定负载 (Rate Load): | 500 | mN.m |
| 3.6 附性能曲线 (Performance Curve Attached) | | |

4. 机械特性 (MECHANICAL CHARACTERISTIC)

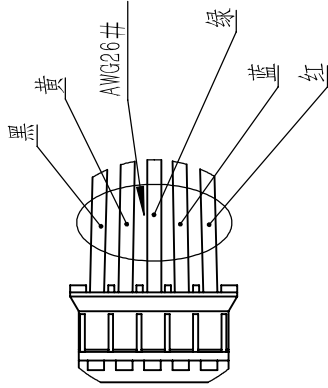
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|-------------------|--------------------------|--------|
| 4.1 重量 (Weight): | ≈ 1050 | g |
| 4.2 外形 (Outline): | Refer to outline drawing | |
| 4.3 噪音 (Noise): | ≤ 60 | dB (A) |



测试条件: 常温常湿, 背景噪音 $< 25\text{dB (A)}$, 距离马达端面 30cm, 额定电压空载运行。
Test Condition: Normal temp. and humidity, background noise is 25dB (A) Max., 30cm away from motor mounting surface, rated voltage and no load.



2 : 1



RBE-533236-010TX

胎皮颜色不同
名称后缀相应变化

AWG18#蓝色引线	U
AWG18#绿 (红) 色引线	V
AWG18#黄 (灰) 色引线	W
AWG26#红色引线	hall '+'
AWG26#黄色引线	hall C
AWG26#蓝色引线	hall B
AWG26#绿色引线	hall A
AWG26#黑色引线	hall '-'

深圳市中驱电机有限公司 China Drive Motors (Shenzhen) Co., Ltd.		TITLE		外形图	
DRAWN		CHECKED		APPROVED	
SHEET: 1 OF 1		REVISION: A		8	
DRAWING NO.:		6		7	
DATE		3		2	
DESCRIPTION		初次发行		2	
REVISION		A		1	
FORM002 (06/10/2016)		2		8	



Performance Curve

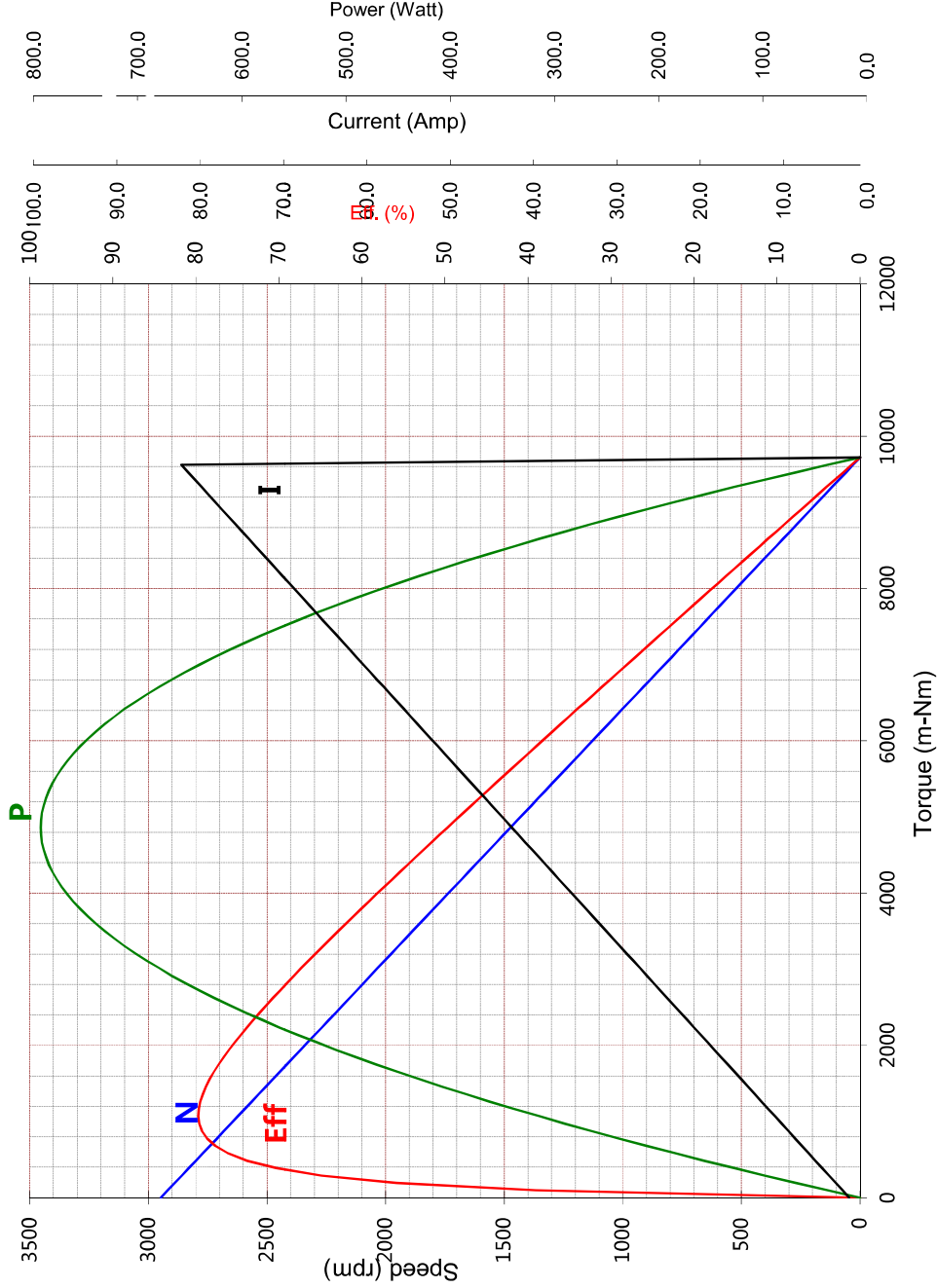
SOF NO. :

Proposal No:

Winding :0.80*2x7

Motor test reference no :

Date : 2017-12-28



Performance (In an ambient temperature of 25 -30 C)

Motor tested rapidly to prevent significant temperature rise.

At a constant voltage of 36.00 Volts
With a circuit resistance 0.000 Ohms

AT No Load

Speed : 2947 Rpm
Current: 1.300 Amp

At stall (Extrapolated)
Torque : 9720.728 m-Nm
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COMPUTER PRINT-OUT NOMINAL MOTOR CURVES.
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RBE-102024-003 PRODUCT STANDARD SPECIFICATION 产品规格书	China Drive Motors (Shenzhen) Co., LTD 深圳市中驱电机有限公司	PAGE
	编号 CODE NO: 20180901	P.1/9

此份规格书由以下各部分组成：

The specification is different from the following parts:

序号	名 称	编制人	备注
1	结 构 形 式 CONSTRUCTION-FORM	曹 建	必须
2	标准运行条件 STANDAND OPERATING CONDITION	曹 建	必须
3	电 气 性 能 ELECTRICAL CHARACTERISTICS	曹 建	必须
4	机 械 要 求 MECHANICAL SPECIFICATION	曹 建	必须
5	型式试验&寿命验证 RELIABILITY TEST & LIFE TEST	陈 彬	TBD
6	外形示意图 DRAWING SKETCH MAP	曹 建	必须
7	曲线图 GRAPH	曹 建	必须

RBE-102024-003 PRODUCT STANDARD SPECIFICATION 产品规格书	China Drive Motors (Shenzhen) Co., LTD 深圳市中驱电机有限公司	PAGE
	编号 CODE NO: 20180901	P.2/9

1. Construction-form 结构形式

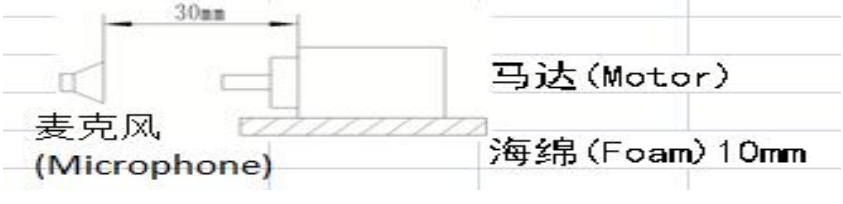
NO. 序号	Item 项目	Contents 内容
1-1	Motor construction 马达结构	Hub motor 轮毂电机
1-2	Number of phases 相数	3-phases 3 相
1-3	Core slot number 铁芯槽数	27
1-4	Number of magnet poles 磁极极数	Thirty 30
1-5	Hall Angle 霍尔安装角度	40°
1-6	Silicon steel type 硅钢片牌号	50TW470
1-7	Magnet type 永磁体牌号	45SH
1-8	Ball BEARING 滚珠轴承	6804-2RS/6903-2RS
1-9	Encoder 光编码	AEDR-8300 (详见附件)

2. Standard operating condition 标准运行条件

NO 序号	Item 项目	Specification 规格
2-1	Rated voltage 额定电压	24V
2-2	Rated load 额定负荷	5N.m
2-3	Rotation direction 回转方向	CW&CCW 顺时针+逆时针
2-4	Motor position 摆放位置	Any position available 任何位置都可以
2-5	Voltage range for use 工作电压范围	20-36V
2-6	Operating conditions 使用环境	-20℃~60℃ ordinary humidity 10%RH~85%RH
2-7	Storage conditions 贮存环境	-25℃~80℃ ordinary humidity 10% ~90%RH (no condensation of moisture/无凝露)

RBE-102024-003 PRODUCT STANDARD SPECIFICATION 产品规格书	China Drive Motors (Shenzhen) Co., LTD 深圳市中驱电机有限公司	PAGE
	编号 CODE NO: 20180901	P.3/9

3. Electrical characteristics 电气性能

NO. 序号	Item 项目	Specification 规格	Typical 代表值	Measuring condition 测试条件
3-1	Rated voltage 额定电压	24.0 V	24.0V	
3-2	Operating voltage range 使用电压范围	20-36V		
3-3	No-load speed 空载转速	210±5%RPM		At Rated voltage and No-load 额定电压及无负荷下测试
3-4	No-load current 空载电流	≤800mA		At Rated voltage and No-load 额定电压及无负荷下测试
3-5	Rated load 额定负荷	5N.m		
3-6	Rated speed 额定转速	115±5% RPM		At Rated voltage and rated load 额定电压及负荷下测试
3-7	Rated current 额定电流	≤5A		At Rated voltage and rated load 额定电压及负荷下测试
3-8	Stall current 堵转电流	13A REF		At rated voltage and shaft lock 额定电压及锁定电机轴条件下测试
3-9	Stall torque 堵转扭力	13N.m REF		At rated voltage and shaft lock 额定电压及锁定电机轴条件下测试
3-10	Terminal resistance 电枢电阻	1.37 Ω		Measure between terminals 端子阻抗
3-11	Insulation resistance 绝缘电阻	20M Ω		DC250V between lead wire and case 在导线与机身之间加 250V 直流电
3-12	Insulation class 绝缘等级	绝缘等级: F 级		Permanent magnet temperature resistance grade, enameled wire temperature resistance grade 永磁体耐温等级, 漆包线耐温度等级
		45dB max		At rated voltage and No-load, back ground noise:30dB max 额定电压及无负荷下测试, 背景噪音不超过 30 分贝
				
3-14	VIBRATION 振动	TBD		

RBE-102024-003 PRODUCT STANDARD SPECIFICATION 产品规格书	China Drive Motors (Shenzhen) Co., LTD 深圳市中驱电机有限公司	PAGE
	编号 CODE NO: 20180901	P.4/9

ADD: Measuring condition: 测试条件

1. Measuring temperature: $(20 \pm 5) ^\circ \text{C}$

2. Measuring relative humidity: Normal temp. and humidity: 测试相对温度: 常温常湿。

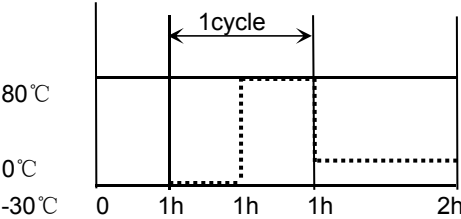
4. Mechanical specification 机械要求

NO. 序号	Item 项目	Measuring condition 测试条件	Specification 规格	Typical 代表值
4-1	Configuration 外观尺寸	Verner calipers 游标卡尺	As specified in outline drawing 参考相关图纸	
4-2	Appearance 外观	Visual examination 目测	Should be no evidence of mechanical damage, crack, rust and stain 不得有明显的机械划痕、裂缝、锈迹、污点	
4-3	Weight 重量	Balance 天平	2.2Kg REF	

5. Reliability test 可靠性试验

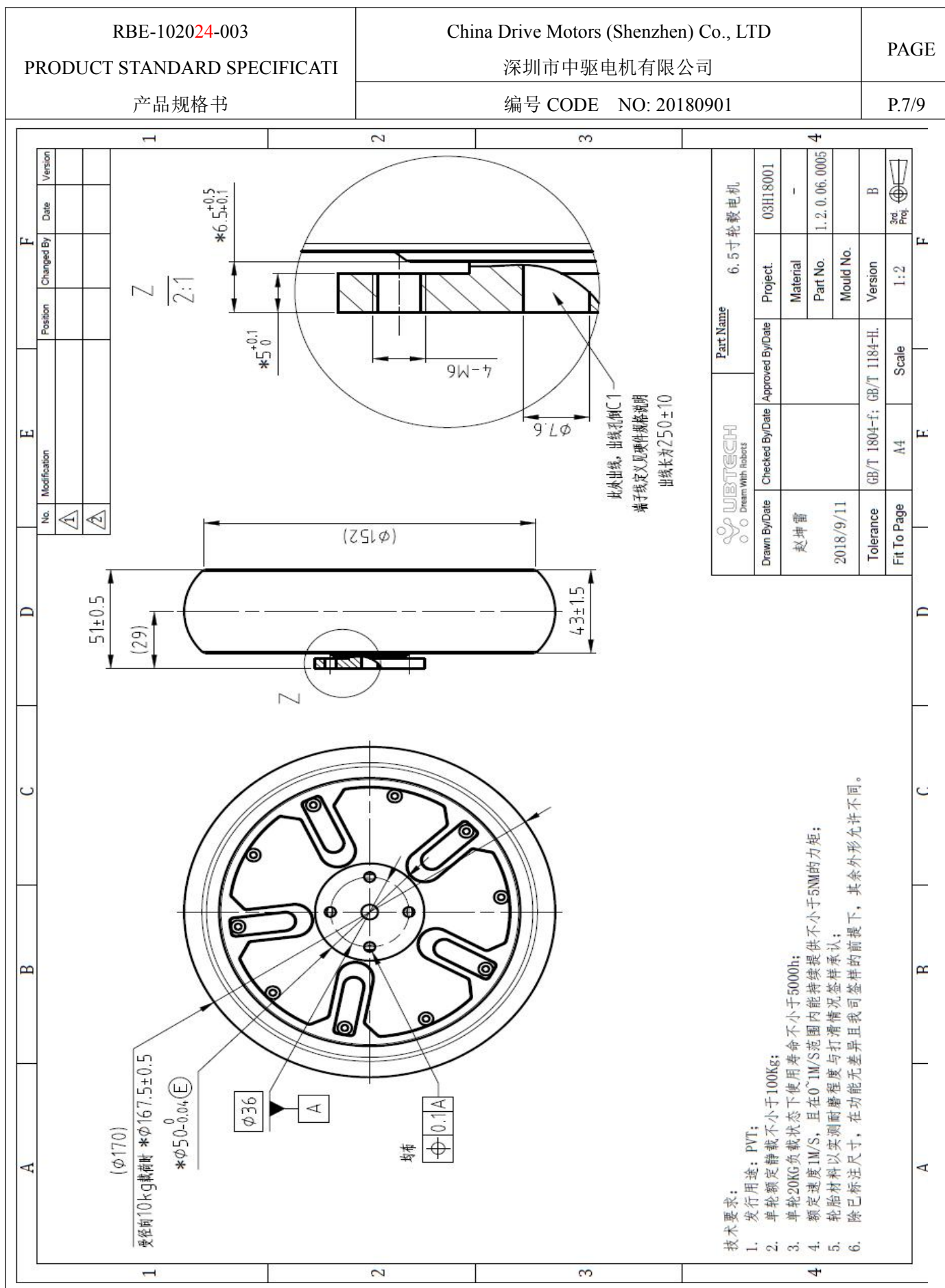
No.	Item 项目	Test condition 试验条件	Requirements 判定基准
5-1	High temperature exposure 高温放置	Exposure to $(80 \pm 2) ^\circ \text{C}$ For 48 hours, then return to ordinary temperature and humidity for 2 hours. 温度 $(80 \pm 2) ^\circ \text{C}$ 条件下放置 48 小时后, 在正常温度和湿度下放置 2 小时。	1) Rated speed initial data $\pm 15\% \text{ MAX}$ 额定转速最大不超过初始值的 $\pm 15\%$ 2) Rated current initial data $\pm 15\% \text{ MAX}$ 额定电流最大不超过初始值的 $\pm 15\%$ 3) Operating voltage range can be activated 工作电压范围内可以正常启动, 编码器不失真
5-2	Low temperature exposure 低温放置	Exposure to -30°C for 48 hours, then return to ordinary temperature and humidity for 2 hours. 在温度 -30°C 条件下放置 48 小时后, 在正常温度和湿度下放置 2 小时。	
5-3	Humidity test 湿度测试	Exposure $(60 \pm 2) ^\circ \text{C}$, 85%RH~95%RH (relative humidity) . for 48 hours, then return to ordinary temperature and humidity for 2 hours. 在温度 $(60 \pm 2) ^\circ \text{C}$, RH85%RH~95% RH(相对湿度)条件下放置 48 小时后, 在正常温度和湿度下放置 2 小时。	

RBE-102024-003	China Drive Motors (Shenzhen) Co., LTD	PAGE
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PRODUCT STANDARD SPECIFICATI 产品规格书		深圳市中驱电机有限公司	
		编号 CODE NO: 20180901	P.5/9
No.	Item 项目	Test condition 试验条件	Requirements 判定基准
5-4	Heat cycle test 热循环测试	Exposure to heat test condition underline for 1 times, then return to ordinary temperature and humidity for 2 hours .(Remarks : Temperature rise time --30min) 在下列测试条件下循环 1 次后,在正常温度和湿度下放置 2 小时。(注: 温升时间--30min) 	1) Rated speed initial data $\pm 15\% \text{ MAX}$ 额定转速最大不超过初始值的$\pm 15\%$ 2) Rated current initial data $\pm 15\% \text{ MAX}$ 额定电流最大不超过初始值的$\pm 15\%$ 3) Operating voltage range can be activated 工作电压范围内可以正常启动, 编码器不失真
5-5	高温高湿运行	温度 $45^{\circ}\text{C} \pm 5^{\circ}\text{C}$, 湿度 $80\% \text{RH} \pm 5\%$, 运行时间 8H	
5-6	低温运行	温度 $-25^{\circ}\text{C} \pm 5^{\circ}\text{C}$, 相对湿度: $50\% \text{RH} \sim 80\% \text{RH}$, 运行时间 8H	
5-7	高温运行	温度 $45 \pm 5^{\circ}\text{C}$, 相对湿度: $50\% \text{RH} \sim 80\% \text{RH}$, 运行时间 8H	
5-8	常温老化	常温 ($25^{\circ}\text{C} \pm 5^{\circ}\text{C}$) 相对湿度: $50\% \text{RH} \sim 80\% \text{RH}$, 额定 20kg 负载连续运行 0.5H, (第一批次 800 台电机, 抽检 3% 的电机负载运行 48 小时)	
5-9	寿命测试	1) 测试电压: DC24.0V 2) 负荷: 20kg 3) 温度: (25 ± 5) $^{\circ}\text{C}$ 4) 相对湿度: $50\% \text{RH} \sim 80\% \text{RH}$ 5) 测试方式: 20kg 负载下正转 60s, 停 10s; 反转 60s, 停 10s 为一个周期, (暂定连续运行 150000 周期, 待试验完成再确认具体运行周期)	
5-10	Drop test 落地测试	Set the motor to the approximately 10Kg (including the motor) weight of block, free drop direction 3 time on the concrete floor, then return to ordinary temperature and humidity for 2 hours. 马达连正常包装约 10Kg, 从 1.0 米的高度自由落体至水泥地面, X-Y-Z 三个方面各 2 次。在正常温度和湿度下放置 2 小时。	

RBE-102024-003 PRODUCT STANDARD SPECIFICATI 产品规格书	China Drive Motors (Shenzhen) Co., LTD 深圳市中驱电机有限公司 编号 CODE NO: 20180901	PAGE P.6/9
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No.	Item 项目	Test condition 试验条件	Requirements 判定基准
5-11	正弦变频振动试验	依照 GB/T4857.10-2005 标准，常温（25℃ ± 5℃）相对湿度：50%RH~80%RH，振动频率 3Hz-100Hz-3Hz，振动时间 30 分钟，随机抽取单体电机固定在振动台上振动。	1) Rated speed initial data ±15% MAX 额定转速最大不超过初始值的±15%
5-12	模拟运输振动试验	依照 GB/T4857.10-2005 标准，常温（25℃ ± 5℃）相对湿度：50%RH~80%RH，振动频率 3Hz-100Hz-3Hz，振动时间 30 分钟，包装完成后，随机抽取一箱固定在振动台上振动。	2) Rated current initial data ±15% MAX 额定电流最大不超过初始值的±15%
5-13	包装规范	单箱内放置 4 台电机，内置珍珠棉泡沫防护，胶带封箱后再打 2 道打包带。 卡板放置方式：每层 12 箱（横 5 竖 2），堆 5 层，共 60 箱，240 台电机；整体重量 540kg；宽度 770*1120*1100（高度）。（具体位置图见包装图纸）	3) Operating voltage range can be activated 工作电压范围内可以正常启动，编码器不失真



RBE-102024-003

PRODUCT STANDARD SPECIFICATI

产品规格书

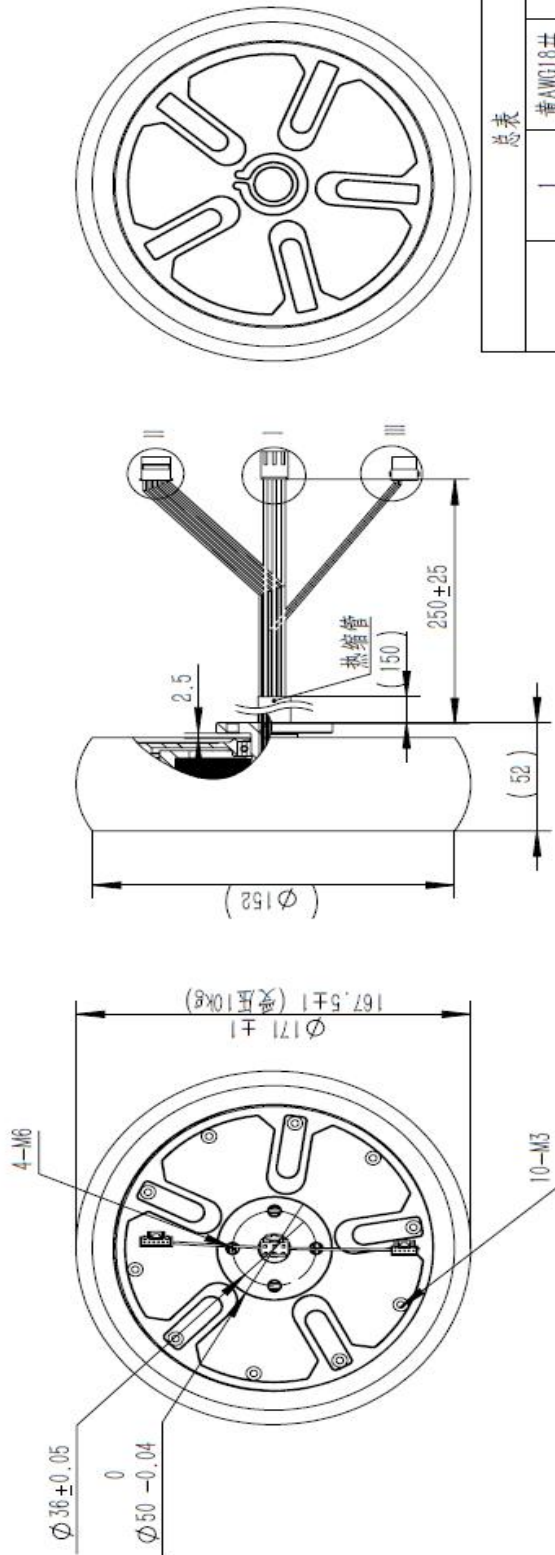
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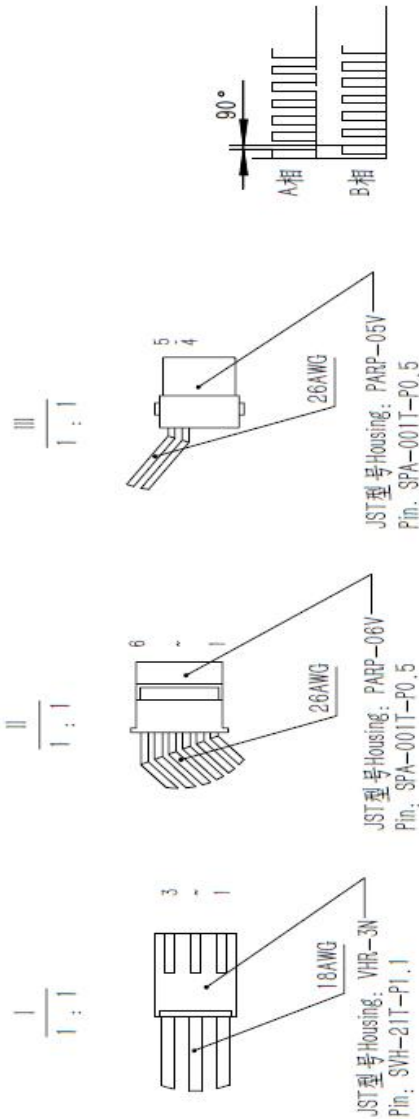
PAGE

P.8/9



总表	
I	1 黄AWG18# W
	2 绿AWG18# V
	3 蓝AWG18# U
II	1 黑AWG26# HALL 1-1
	2 黄AWG26# HALL C
	3 蓝AWG26# HALL B
	4 绿AWG26# HALL A
	5 红AWG26# HALL 1+1
	6 紫AWG26# NTC(20K)
III	4 灰AWG26# 编码器B
	5 白AWG26# 编码器A
IV	编码器线数 800 ± 2线

深圳市中驱电机有限公司 China Drive Motors(Shenzhen)Co.Ltd	
TITLE 外形图	
DRAWN 20180919	CHECKED
APPROVED	
SHEET: 1 OF 1	REVISION: A



UNIT: mm	SCALE: 1:3 (COMPLY WITH DIRECTIVE 2011/65/EURoHS)	MATERIAL
Unspecified Tolerance (GB/T 1804 - m)	UNIT: mm	
Linear	0.5-3 >3-6 >6-30 >30-120 >120-400 >400-1000 >1000-2000 >2000-4000	
Dimensions	±0.1 ±0.1 ±0.2 ±0.3 ±0.5 ±0.8 ±1.2 ±2	FINISHING
Flat & Circular	0.5-3 >3-6 >6-30 >30-120 >120-400 >400-1000 >1000-2000 >2000-4000	
Dimensions	±0.2 ±0.5 ±1 ±2	
Permissible deviations for angles of 90° on side of the angle concerned		
Angular Dimensions	<10 >10-50 >50-100 >100-150 >150-200 >200-250 >250-300 >300-350 >350-400 >400	
DATE	2018-09-19	
DESCRIPTION	新款发行	
REVISION	A	

DRAWING NO. DBE-102024-003

DRAWING NO: RBE-102024-003

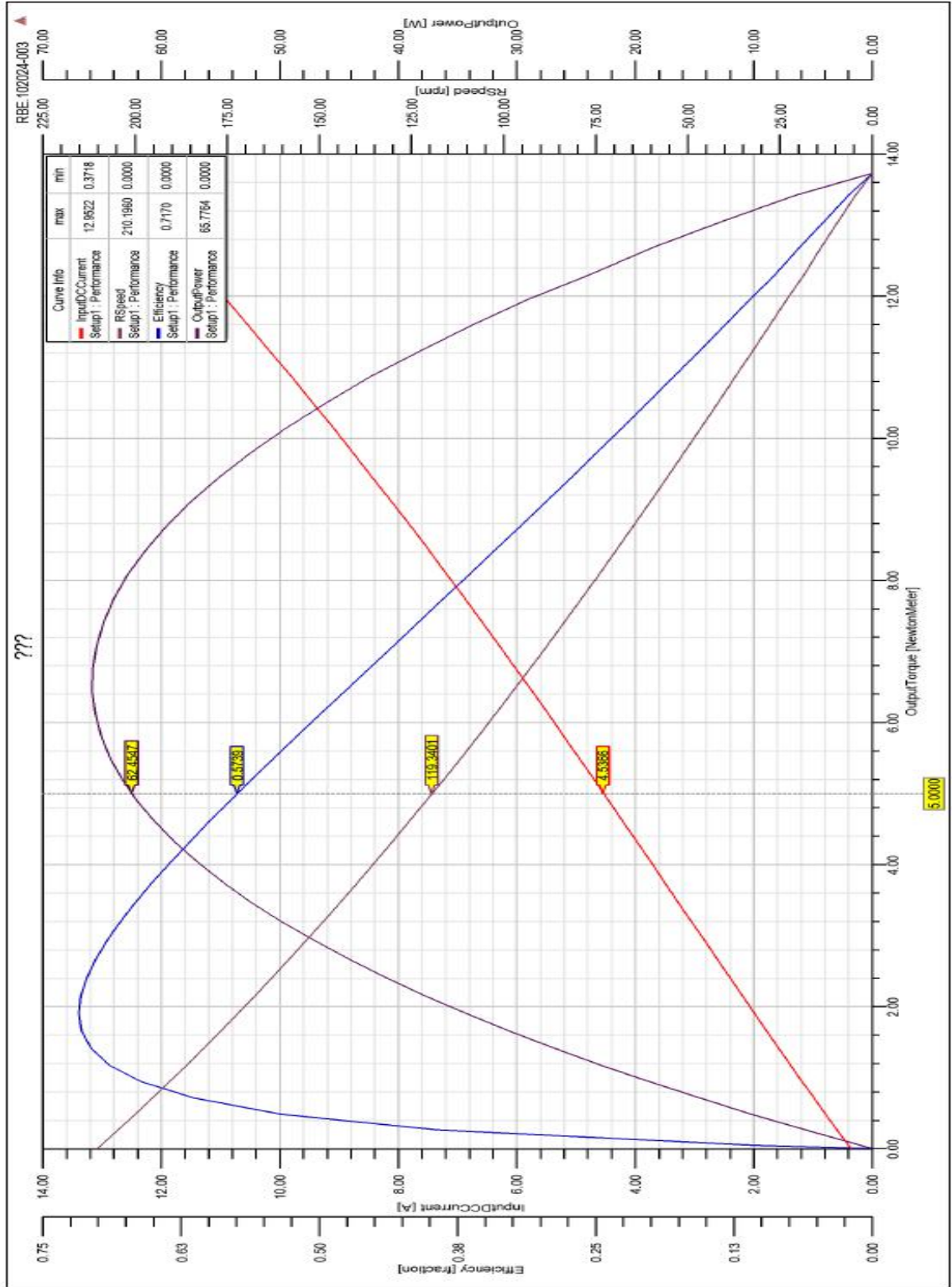
RBE-102024-003
PRODUCT STANDARD SPECIFICATI
产品规格书

China Drive Motors (Shenzhen) Co., LTD
深圳市中驱电机有限公司
编号 CODE NO: 20180901

PAGE
P.9/9

Tuesday, September 18, 2018

1020 - RBE.102024-003 - 曲线图



马达出厂规格 (MOTOR OUTGOING SPECIFICATION)

客户 (CUSTOMER): _____
型号 (MODEL) : RBE 102036-005
版本号 (REV.) : A
日期 (DATE) : 2018. 09. 30

客户确认/ 日期	
CONFIRM BY CUSTOMER/ DATE	
编制 (PREPARED): <u>Jone</u>	
审核 (CHECKED): _____	
批准 (APPROVED): _____	

1. 适用范围 (SCOPE)

本文规定的测试条件和技术要求适用于深圳市中驱电机有限公司交付的 RBE 102036-005 直流无刷电机。

This document defines the test standard and specification for RBE 102036-005 BLDC motor which is delivered by CHINA DRIVE MOTORS (SHENZHEN) CO., LTD.

2. 标准工作条件 (STANDARD OPERATING CONDITIONS)

- | | |
|-----------------------------------|---|
| 2.1 额定电压 (Rated Voltage): | DC 24V |
| 2.2 运行条件 (Operating Condition): | 温度 (Temp.): -10°C ~ +40°C
相对湿度 (Relative Humidity): 5% ~ 75% |
| 2.3 保存条件 (Storage Condition): | 温度 (Temp.): -20°C ~ +50°C
相对湿度 (Relative Humidity): 5% ~ 80% |
| 2.4 旋转方向 (Direction of Rotation): | CLOCK |

3. 电气性能 (ELECTRICAL CHARACTERISTICS)

- | | | |
|--|-----------|-----|
| 3.1 空载电流 (No Load Current): | ≤ 1700 | mA |
| 3.2 空载转速 (No Load Speed): | 900 ± 10% | RPM |
| 3.3 负载电流 (Rated Load Current): | ≤ 6.7 | A |
| 3.4 负载转速 (Rated Load Speed): | 825 ± 10% | RPM |
| 3.5 额定负载 (Rate Load): | 2000 | mNm |
| 3.6 附性能曲线 (Performance Curve Attached) | | |

4. 机械特性 (MECHANICAL CHARACTERISTICS)

- | | | |
|-------------------|--------------------------|-------|
| 4.1 重量 (Weight): | ≈ 2535 | g |
| 4.2 外形 (Outline): | Refer to outline drawing | |
| 4.3 噪音 (Noise): | ≤ 60 | dB(A) |
- 测试条件: 常温常湿, 背景噪音 < 25dB(A), 距离马达端面 30cm
Test Condition: Normal temp. and humidity, background noise is 25dB(A) Max., 30cm away from motor mounting surface, rated voltage and no load.

