



K2/L2/RC2系列微型无刷直流齿轮减速电机

K2/L2/RC2 BRUSHLESS DC GEAR MOTOR

中大力德 实现自动化应用的无限可能

电机驱动 微特电机 精密减速器



▲ 总公司 宁波中大力德智能传动股份有限公司



▲ 子公司 宁波中大创远精密设备有限公司



▲ 子公司 佛山中大力德驱动科技有限公司

宁波中大力德智能传动股份有限公司始创于1998年，是一家集电机驱动、微特电机、精密减速器、机器人结构本体及一体化智能执行单元的研发、制造、销售、服务于一体的国家高新技术企业。公司注册资本15117万元，分、子公司9家，员工1800余人，2017年8月在深交所主板上市，股票代码：002896。

公司系国家级高新技术企业，主导和参与起草国家标准12项，行业标准5项；授权专利107项，其中发明专利14项。拥有机械工业精密齿轮减速电机工程研究中心、浙江省级高新技术企业研究开发中心、浙江省级企业技术中心。

公司立足于智能化、自动化装备核心零部件设计和制造，为客户提供智能驱动解决方案。公司产品以其差异化和高性价比优势，广泛应用于工作母机、数控设备、工业机器人、智能物流、新能源、食品、包装、纺织、电子、医疗、通讯、农牧等机械装备领域。在替代进口产品的基础上，逐步参与国际竞争。

Ningbo Zhongda Leader Intelligent Transmission Co., Ltd. was founded in 1998. It is an electromechanical automation enterprise integrating R&D, manufacturing, sales and service of motor drives, micro motors, precision reducers and integrated products. It has 9 branches and subsidiaries, over 1,800 employees, and a registered capital of 151.17 million yuan. In August 2017, it was listed on the A-shares of the Shenzhen Stock Exchange (stock code 002896).

The company is a national-level high-tech enterprise, leading and participating in the drafting of 10 national standards and 5 industry standards, maintaining 107 patents and 11 invention patents. It's owning a Zhejiang-level enterprise R&D center.

The company is based on intelligent and automation equipment core component manufacturers and design solution providers. With its differentiated and cost-effective advantages, the company's products are widely used in industrial robots, intelligent logistics, new energy, machine tools and other fields, as well as special machinery and equipment for food, packaging, textiles, electronics, and medical treatment. On the basis of realizing domestic substitution of imported products, gradually participate in international competition. On the basis of realizing domestic substitution of imported products, gradually participate in international competition.

微型无刷直流齿轮减速电机概况 OVERVIEW OF MICRO BRUSHLESS DC GEAR MOTOR

微型无刷直流齿轮减速电机是微型交流齿轮减速的升级品；无论在电气性能和机械性能上均有明显优势。

The micro brushless DC gear motor is an upgrade of the micro AC gear motor, both in the electrical and mechanical properties have obvious advantages.

主要特征 Main features

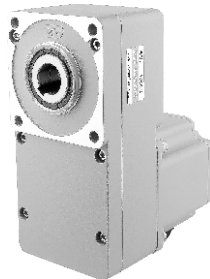
- 速度控制范围100~2000r/min
The speed control range is 100~2000r/min
- 转速调整率±0.5%
Speed adjustment rate ±0.5%
- 多段变速运行（8段速）
Multi-speed section (Maximum 8)
- 使能保持力矩（最大为额定转矩的50%）
Vector can maintain torque (Up to 50% of rated torque)
- 外置参数键盘接口及485通讯接口
External parameter keyboard interface and 485 communication interface
- 备有可用于测试及避免出现故障的监控、测试功能
Equipped with monitoring and testing functions that can be used to test and avoid failure
- 电机采用无霍尔传感设计方案，电机与驱动器之间的连接线可长达50m
The motor is designed with no hall sensor, and the connecting wire between the motor and the driver is 50m long
- 高效率低能耗。
High efficiency and low energy consumption.
- 合理的电磁方案设计，电机运行更平稳、更低噪
Reasonable electromagnetic design, motor running more stable, lower noise
- 防尘、防水（防护等级IP54）
Dustproof and waterproof (Protection class IP54)
- 出轴端无凸台，便于安装
No protrusion at the output end for easy installation
- 合理的齿轮参数，可靠的箱体结构，承载力更强
Reasonable gear parameters, reliable box structure, stronger bearing capacity
- 高可靠密封结构，低锥入度油脂润滑，寿命更长
High reliable sealing structure, low taper grease lubrication, longer life
- 体积小、重量轻，节省安装空间
Small size, light weight, save more installation space

可选的两种减速电机 Two optional speed reducers

● K2系列 Series



● L2系列 Series



● RC2系列 Series



电机 Motor	输出功率 Output power	机座号 Size	减速比 Ratio	防护等级 Protection level	适配驱动器 Driver
K2系列 Series	15W	60	5、10、15、20、30、50、100	IP54	C41系列 Series
	40W	80			
	120W	90			
	200W	90			
	200W	100			
L2系列 Series	15W	60	5、10、15、20、30、50、100	IP54	C41系列 Series
	40W	80			
	120W	90			
	200W	90			
	400W	100			
RC2系列 Series	40W	80	3、5、7.5、9、10、12.5、15、18、20、25、30、36、50、60、75、90、100、120、150、180	IP54	C41系列 Series
	120W	90	3、3.6、5、6、7.5、9、10、12.5、15、18、20、25、30、36、50、60、75、90、100、120、150、180		
	200W	90			
	200W	100			
	400W	100			

无感无刷电机的基本特点

BASIC CHARACTERISTICS OF INDUCTION BRUSHLESS MOTORS

无感无刷电机，是去除了有感无刷电机的霍尔感应元件，使得其减少了霍尔使用过程中带来的故障源，同时可使电机和驱动之间的距离更长，合理控制方式的应用，使得其运行更可靠，控制更简便。

The sensorless brushless motor removes the Hall sensing element of the sensorless brushless motor, reducing the sources of faults caused by the use of Hall. At the same time, it can make the distance between the motor and the drive longer. The application of reasonable control methods makes its operation more reliable and control more convenient.

■ 广泛的速度调节范围 Wide Speed Range

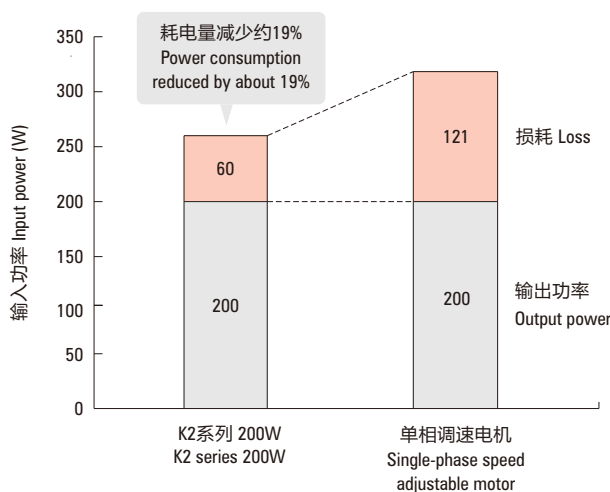
产品群 Product group	速度控制范围* Speed control range*	速度比 Ratio
K2/L2系列 K2/L2 series	100~2000r/min	1:20
变频器控制三相感应电机 Three-phase induction motor controlled by frequency converter	200~2400r/min	1:12
AC调速电机 AC speed adjustable motor	50HZ: 90~1400r/min	1:15

■ 卓越的节能效果 Excellent energy-saving effect

无刷电机的转子部使用永磁磁钢，减少了转子的二次损耗，大幅度减少耗电。有助于装置的节能。

The permanent magnet steel is used in the rotor part of the brushless motor, which reduces the secondary loss of the rotor and greatly reduces the power consumption. help save the energy of the device.

- 以输出200W进行的比较 Comparison with output of 200W
额定输出50Hz时（代表值） Rated output 50Hz (Representative value)

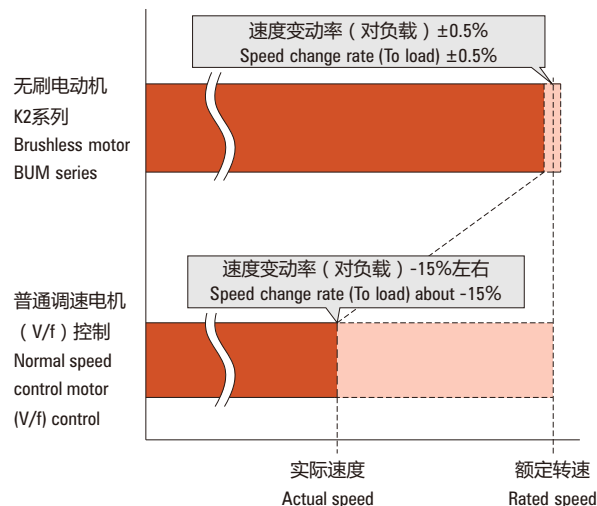


■ 优越的速度稳定性 Superior speed stability

对负载速度变动率 $\pm 0.5\%$ 以内，实现优越的速度稳定性，即使负载变动时也几乎不会出现如变频器或交流调速器因负载变化等而产生速度变化的情况。

Achieve excellent speed stability within $\pm 0.5\%$ of the load speed variation rate, and even when the load changes, there will be almost no speed changes caused by load changes such as frequency converters or AC speed governors.

- 负载率80%时速度变化对比（参考值）
Comparison of speed change at 80% loading rate (Reference value)

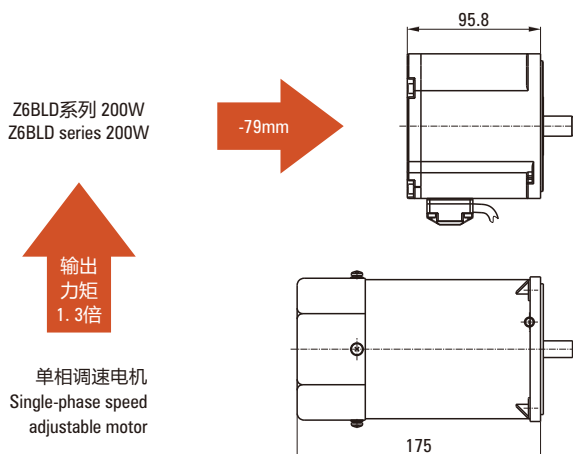


■ 薄型、轻量 Thin, lightweight

无刷电机的转子使用永磁体，因此，实现了薄型、轻量。可满足装置的小型化需求。

Brushless motor rotor using permanent magnet steel, so it's thin, light. Realize miniaturization of device.

- 以输出200W进行的比较 Comparison with output of 200W



无感无刷电机的基本特点

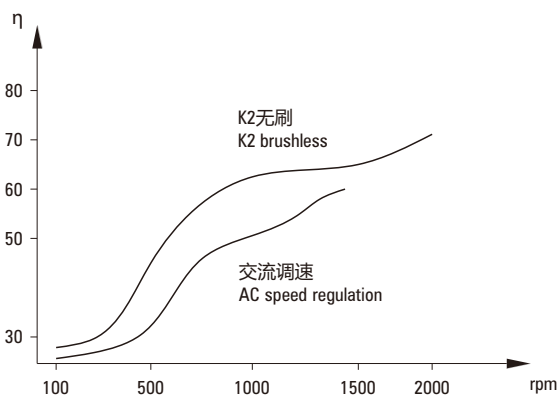
BASIC CHARACTERISTICS OF INDUCTION BRUSHLESS MOTORS

显著的效率提升 Significant efficiency gains

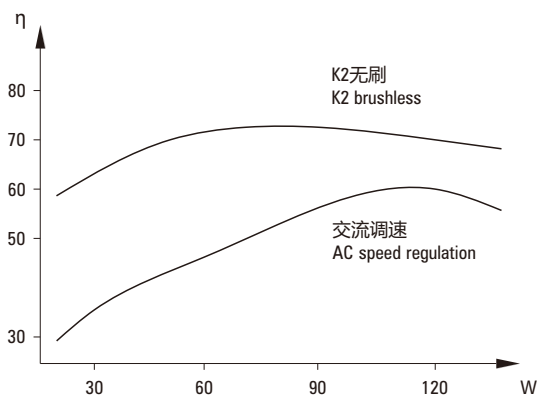
从低速到高速，从轻载到满载，平均效率比交流电机有无比优越性。

From low speed to high speed, from light load to full load, the average efficiency of AC motor has incomparable advantages.

转速—效率 Speed—Efficiency



功率—效率 Power—Efficiency



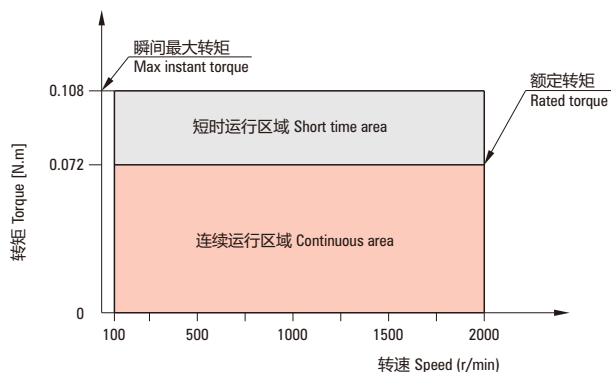
转速—转矩特性

SPEED — TORQUE CHARACTERISTICS

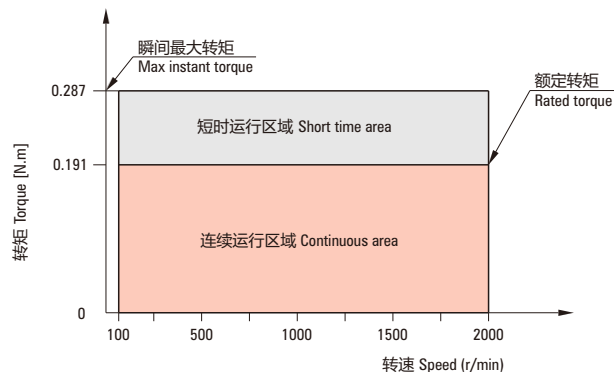
连续运行区域：可做连续运行的区域。Continuous operation field: The field in which continuous operation can be done.

短时运行区域：主要为加速时使用的区域。Short-term operation area: Mainly for use during acceleration.

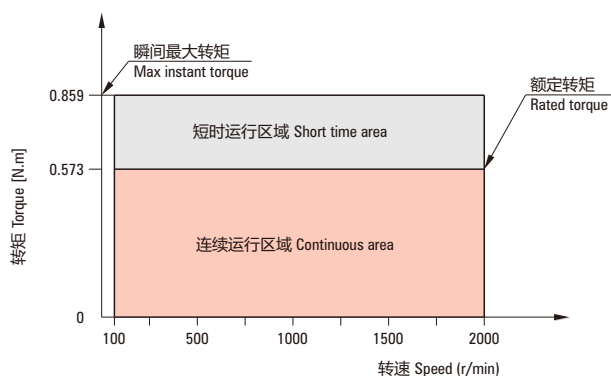
15W



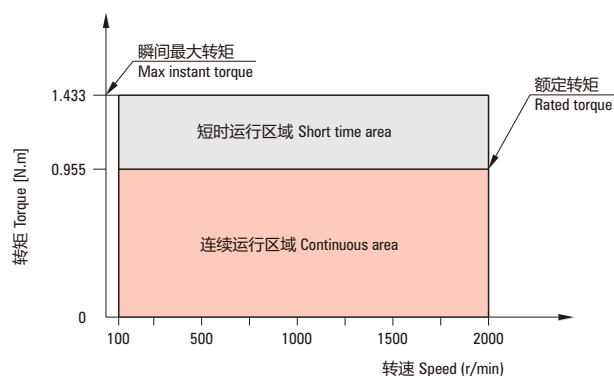
40W



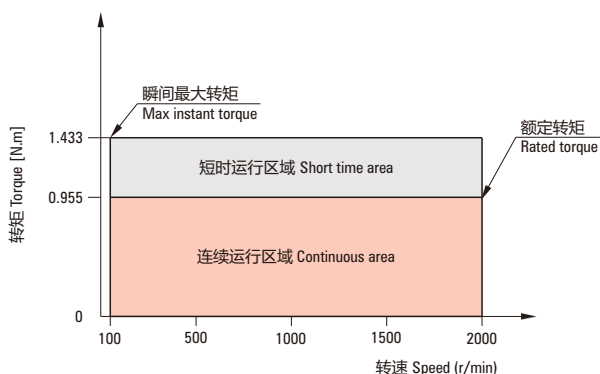
120W (90)



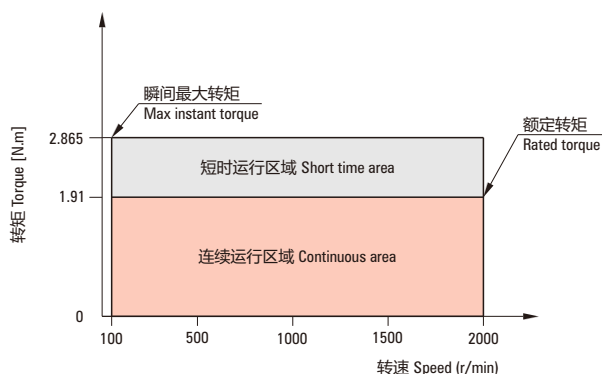
200W (90)



● 200W (104)



● 400W (104)



电机的一般规格 GENERAL SPECIFICATION

项目 Projects	电机 Electric motor	驱动器 Driver
绝缘电阻 Insulation resistance	于常温常湿环境下作连续运行后，以DC500V兆欧表测量电机线圈与外壳之间的值不小于20MΩ。 After continuous operation in normal temperature and humidity, the measuring value between the coil and the casing of the motor is more than 20MΩ with DC500V high resistance meter.	于常温常湿下连续运行后，电源端子与保护接地端子间、电源端子与输入/输出信号端子间的电阻值以DC500V高阻表测量达100MΩ以上。 After continuous operation at room temperature and humidity, the resistance between power supply terminal and protective grounding terminal, power supply terminal and input / output signal terminal is measured by DC500V high resistance meter over 100MΩ.
绝缘耐压 Insulation withstand voltage	于常温常湿下连续运行后，绕组与外壳间施加50Hz或60Hz、1500V电压，持续1分钟无异常。 After continuous operation at room temperature and constant humidity, there is no abnormality with a voltage of 50Hz and 60Hz, AC1.5kV between the coil and the shell.	于常温常湿下连续运行后，电源端子与保护接地端子间以50Hz、AC1.5kV，电源端子与输入/输出端子间以50Hz、AC1.5kV施加1分钟无异常。 After continuous operation under normal temperature and humidity, 50Hz, AC 1.5 kV are applied between power terminal and protective grounding terminal, 50Hz, AC 1.5 kV are applied between power terminal and input / output terminal for 1 minute without any abnormality.
温升 Temperature rise	在装上减速机或同等散热板 *1并于常温常湿下进行额定运行时，以电阻法测定其绕组温升值在80K以内。 When installing a reducer or equivalent heat dissipation plate and conducting rated operation at room temperature and humidity, the temperature rise is of the winding is less than 80K measured by resistance method.	于常温常湿下额定连续运行后，以热电偶法测量的散热板温升值在40K以内。 After rated continuous operation at normal temperature and humidity, the temperature rise of heat dissipation plate measured by thermocouple method is 40K.
使用环境 Service environment	环境温度 Ambient temperature	-10 ~ +40°C (无结冰) -10 ~ +40°C (No icing)
	环境湿度 Ambient humidity	85%以下 (无结露) Less than 85% (No dew)
	海拔 Altitude	海拔1000m以下 Below 1000m
	介质环境 Media environment	无腐蚀性气体、尘埃。不可在含有放射性物质、磁场以及真空等特殊环境中使用。 No corrosive gas and dust. Can Not contain radioactive material, magnetic field and vacuum and other special environment.
保存环境*2 Storage environment *2	环境温度 Ambient temperature	-20 ~ +70°C (无结冰) -20 ~ +70°C (No icing)
	环境湿度 Ambient humidity	90%以下 (无结露) Less than 90% (No dew)
	海拔 Altitude	海拔3000m以下 Below 3000m
保护等级 *3 Protection level *3	IP54	IP20

一般规格 GENERAL SPECIFICATION

*1 为了使电机外壳表面温度能保持在90°C以下，请将圆轴型电机安装在以下尺寸的散热板（材质：铝）上。

15W型：115×115mm 厚度5mm。 **40W型**：135×135mm 厚度5mm。

120W型：165×165mm 厚度5mm。 **200W型**：200×200mm 厚度5mm。

*2 保存环境也包括运送途中的短期值。

*3 表示防尘、防水性能的IP值依据IEC 60529及IEC 60034-5规定。

注意 · 请勿于电机与驱动器连接的状态下进行绝缘电阻测量、耐压测试。

· 电机的材质、表面处理。

[**材质**：外壳-铝，输出轴-40Cr，螺丝-镀镍（仅外部露出部分，不包括保护接地端子）]

[**表面处理**：外壳：喷塑（安装面除外）]

*1 In order to keep the surface temperature of the motor housing below 90°C, the round shaft motor shall be mounted on a heat sink plate (Material: Aluminum) of the following size.

15W type: 115×115mm thickness 5mm. 40W type: 135×135mm thickness 5mm.

120W type: 165×165mm thickness 5mm. 200W type: 200×200mm thickness 5mm.

*2 Storage environment also includes short-term value in transit.

*3 IP value indicating dustproof and waterproof performance is in accordance with IEC 60529 and IEC 60034-5 regulations.

Take notice of · Please do not conduct insulation resistance measurement and voltage withstand test when the motor is connected to the driver.

· Material and surface treatment of motor.

[**Material**: Housing-aluminum, output shaft-40Cr, screw-nickeling (Exposed part only, excluding protective ground terminal)]

[**Surface treatment**: Housing: Powder coating (Excluding mounting surface)]

■ 减速器输出轴转速 Reducer output shaft speed

单位 Unit: r/min

电机转速 Motor speed	减速比 Ratio	5	10	15	20	30	50	100
100r/min		20	10	6.7	5	3.3	2	1
2000r/min		400	200	133	100	66.7	40	20

■ K2/L2齿轮箱特点 K2/L2 Gearbox features

● 全密封 Completely sealed ● 充分润滑 Fully lubricated ● 更高强度（较K/L系列） Higher strength (Comparison K/L)

● 齿轮箱承载扭矩 Gearbox load torque

2GN	K	3N.m	L	8N.m
	K2	5N.m	L2	10N.m
4GN	K	8N.m	L	16N.m
	K2	12N.m	L2	20N.m
5GN/5GU	K	20N.m	L	40N.m
	K2	30N.m	L2	50N.m
6GU	K	40N.m	L	108N.m
	K2	50N.m	L2	120N.m

*L / L2齿轮箱承载扭矩对比在减速比范围5~100内

L / L2 gearbox load torque comparison within the speed ratio range of 5~100

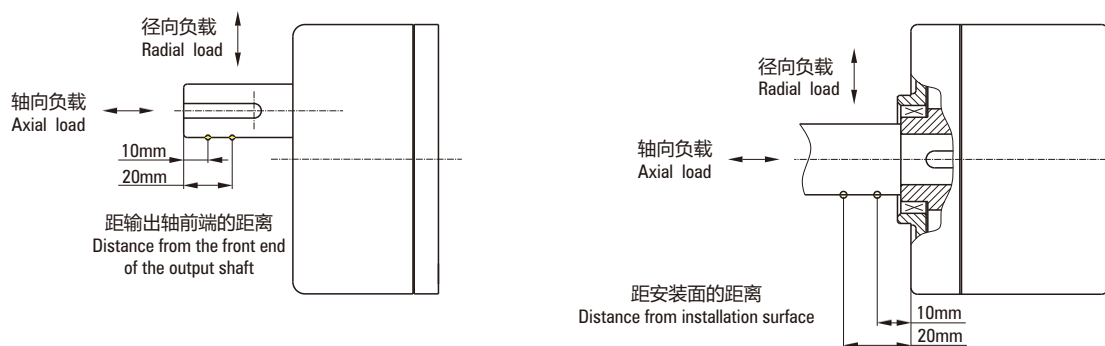
■ 微型K2减速器最大容许径向和轴向负载 Permissible radial load permissible axial load

机座号 Reducer size	减速比 Ratio (电机 Motor 2000rpm)	容许径向负载 (N) Permissible radial load		容许轴向负载 (N) Allowable axial load (N)
		距输出轴前端的距离 Distance from the front end of the output shaft		
		10mm	20mm	
60	5~15	100	160	30
	20~50	200	250	50
	100	300	450	80
80	5~20	200	250	110
	30~50	350	400	200
	100	500	600	250
90	5~10	300	350	100
	15	400	500	200
	20~100	500	600	250
100	5~10	500	600	150
	15	600	700	300
	20~100	700	800	450

■ 微型L2减速器最大容许径向和轴向负载 Permissible radial load permissible axial load

机座号 Reducer size	减速比 Ratio (电机 Motor 2000rpm)	容许径向负载 (N) Permissible radial load		容许轴向负载 (N) Allowable axial load (N)
		距安装面的距离 Distance from installation surface		
		10mm	20mm	
60	5~10	450	370	200
	15~100	500	400	
80	5~10	800	660	400
	15~100	1200	1000	
90	5~10	900	770	500
	15~20	1300	1110	
	30~100	1500	1280	
100	5~10	1230	1070	800
	15~20	1680	1470	
	30~100	2040	1780	

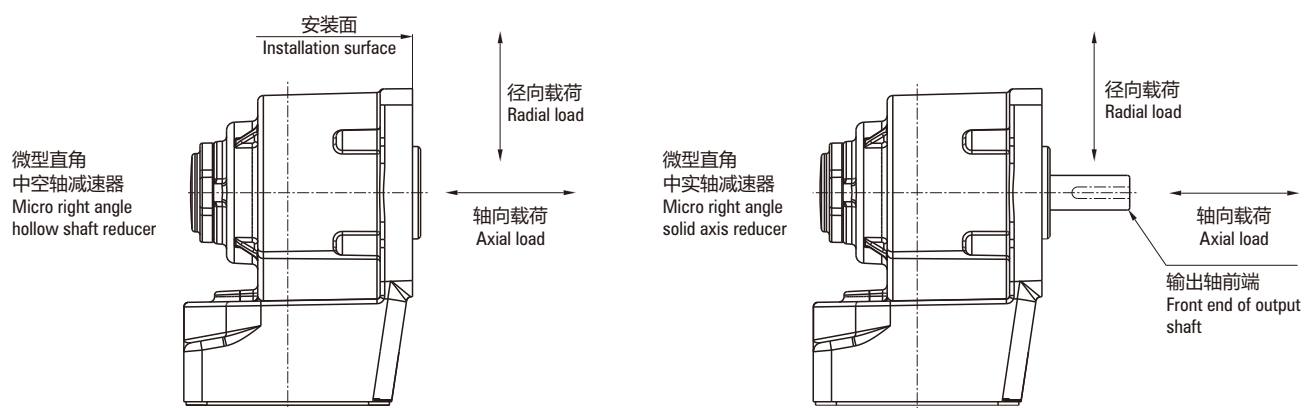
■ K2/L2轴向径向示意图 Axial and radial schematic diagram



■ 微型RC2减速器最大容许径向和轴向负载 Permissible radial load permissible axial load

机座号 Reducer size	输出轴型 Output shaft type	容许径向负载 (N) Permissible radial load		容许轴向负载 (N) Allowable axial load (N)
		中实自输出轴前端起距离、中空自安装面距离 Distance from the front section of the Zhongshi self output shaft and the distance from the hollow self installation surface		
		10mm	20mm	
80	中实	950	1050	800
	中空	1200	1100	
90	中实	1200	1350	1100
	中空	1600	1450	
100	中实	1550	1450	1400
	中空	1650	1500	

■ RC2轴向径向示意图 Axial and radial schematic diagram



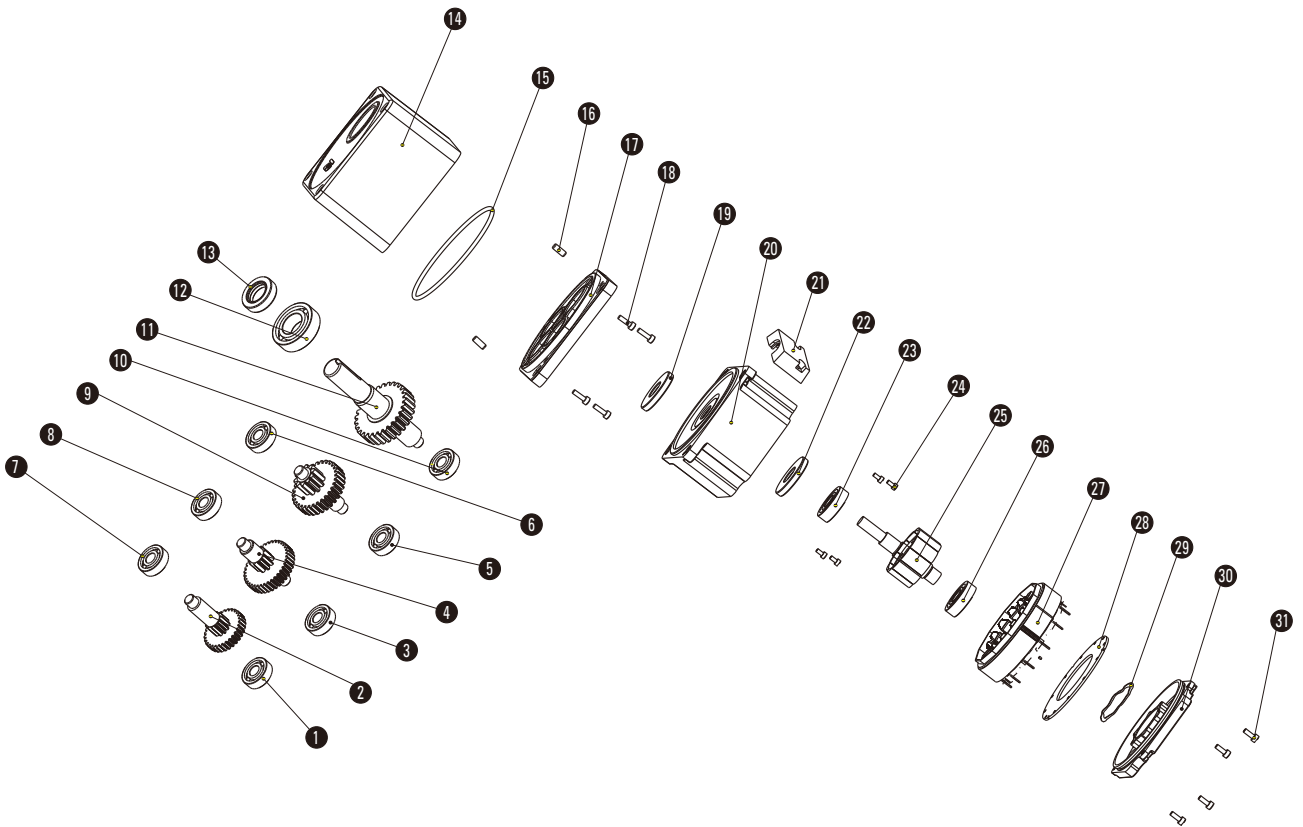
型号阅读方法 PRODUCT CODE

■ K2系列电机 K2-series

Z5
 BLD
 120
 -
 220
 GK
 -
 20S
 /
 5GU
 20K2

①	机座号：60×60 (Z2-60×60/Z4-80×80/Z5-90×90/Z6-104×104)	Size: 60×60 (Z2-60×60/Z4-80×80/Z5-90×90/Z6-104×104)
②	电机类型：无刷	Motor type: Brushless
③	功率：120W	Power: 120W
④	电压：220VAC	Voltage: 220VAC
⑤	减速器类型：GK (K2系列减速器)	Type of reducer: GK (K2-series reducer)
⑥	转速：2000rpm	Speed: 2000rpm
⑦	减速器机座：60 (2GN-60×60/4GN-80×80/5GN/5GU-90×90/6GU-104×104)	Reducer size: 60 (2GN-60×60/4GN-80×80/5GN/5GU-90×90/6GU-104×104)
⑧	速比：20	Ratio: 20

■ 产品爆炸图 Product explosion diagram



■ 明细表 Parts list

1: 轴承 Bearing	7: 轴承 Bearing	14: 箱体 Gearbox housing	21: 接线盒 Junction box	27: 嵌线定子 Stator core
2: 一级传动轴 1st follower	8: 轴承 Bearing	15: O型圈 O-ring	22: 油封 Oil seal	28: 线路板 Circuit board
3: 轴承 Bearing	9: 三级传动轴 3rd follower	16: 定位销 Locating pin	23: 轴承 Bearing	29: 波形弹性垫圈 Spring wave washer
4: 二级传动轴 2nd follower	10: 轴承 Bearing	17: 箱盖 Gearbox cover	24: 内六角圆柱头螺钉 Hexagon cylindrical head	30: 后端盖 Back cover
5: 轴承 Bearing	11: 输出轴 Output shaft	18: 内六角圆柱头螺钉 Hexagon socket head screws	25: 转子 Rotor	31: 内六角圆柱头螺钉 Hexagon cylindrical head
6: 轴承 Bearing	12: 轴承 Bearing	19: 密封垫圈 Sealing washer	26: 轴承 Bearing	
	13: 油封 Oil seal	20: 机壳 Shell		

K2系列直流无刷减速电机 (15W)

K2 SERIES GEAR MOTOR (15W)

命名 Name

- 平行轴减速机 Parallel shaft reducer

型号 Model number	电机型号 Motor type	减速器型号 Type of reducer	减速比 Ratio
Z2BLD15-220GK-20S/2GN□K2	Z2BLD15-220GK-20S	2GN□K2	5 ~ 100

容许力矩 Allowable torque

单位 Unit: N·m

输出功率 Output power	电机转速 Motor speed	减速比 Ratio						
		5	10	15	20	30	50	100
15W	100 ~ 2000rpm	0.29	0.58	0.87	1.04	1.57	2.61	4.70

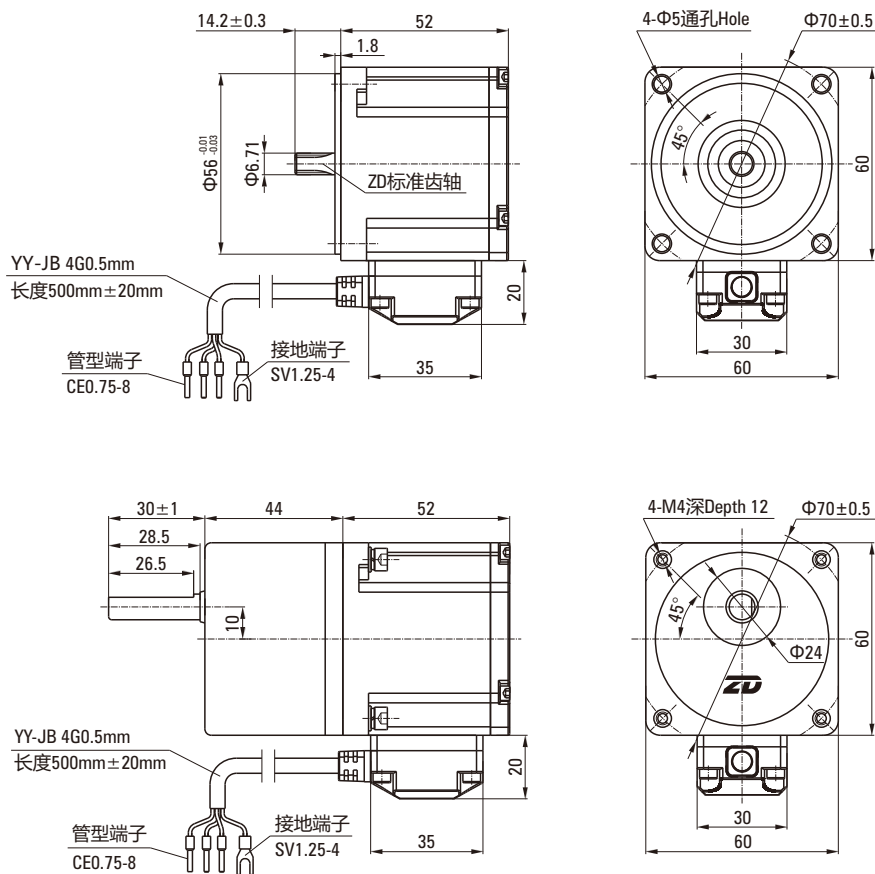
注Note: 表格中 (灰底部分) 表示齿轮箱出轴旋转与电机的旋转方向为反方向。其他则为相同方向。

The (gray) indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction.

外形图 Dimensional drawing

相线 Phase line			接地线 Ground line
黄 Yellow	绿 Green	蓝 Blue	黄绿 Yellow/Green
U	V	W	GND

光电机和整机接线图相同
The wiring diagram of the optical motor and the entire machine is the same



K2系列直流无刷减速电机 (40W)

K2 SERIES GEAR MOTOR (40W)

命名 Name

- 平行轴减速机 Parallel shaft reducer

型号 Model number	电机型号 Motor type	减速器型号 Type of reducer	减速比 Ratio
Z4BLD40-220GK-20S/4GN□K2	Z4BLD40-220GK-20S	4GN□K2	5 ~ 100

容许力矩 Allowable torque

单位 Unit: N·m

输出功率 Output power	电机转速 Motor speed	减速比 Ratio						
		5	10	15	20	30	50	100
40W	100 ~ 2000rpm	0.77	1.55	2.32	3.09	4.18	6.96	12.00

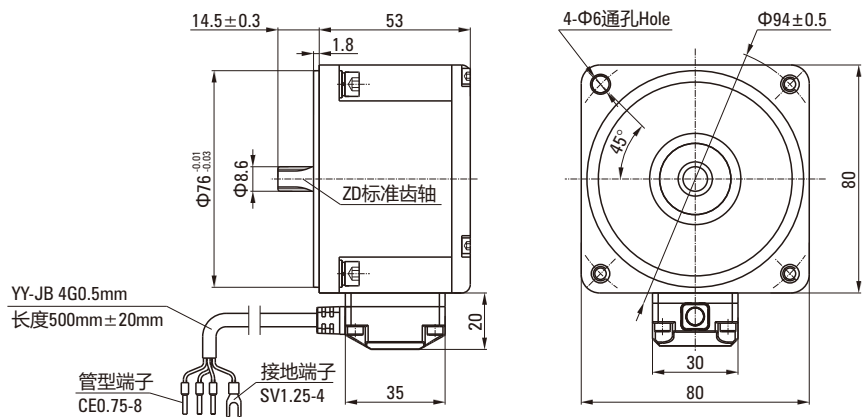
注Note: 表格中 (灰底部分) 表示齿轮箱出轴旋向与电机的旋转方向为反方向。其他则为相同方向。

The (gray) indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction.

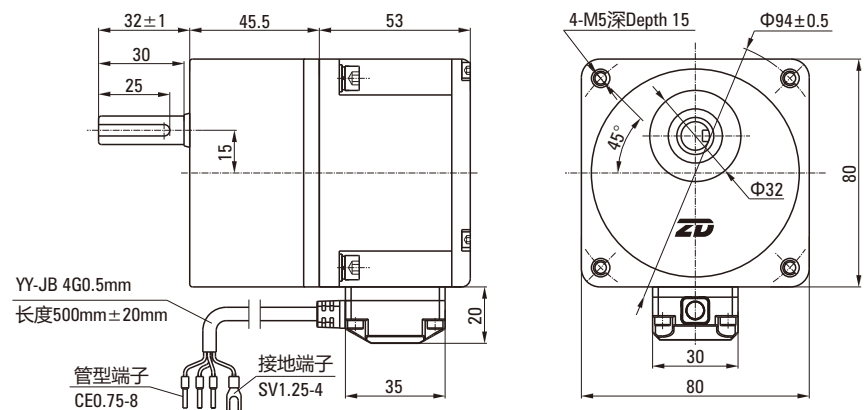
外形图 Dimensional drawing

相线 Phase line			接地线 Ground line
黄 Yellow	绿 Green	蓝 Blue	黄绿 Yellow/Green
U	V	W	GND

光电机和整机接线图相同
The wiring diagram of the optical motor and the entire machine is the same



- 键·键槽 Key·keyway



K2系列直流无刷减速电机 (120W)

K2 SERIES GEAR MOTOR (120W)

命名 Name

- 平行轴减速机 Parallel shaft reducer

型号 Model number	电机型号 Motor type	减速器型号 Type of reducer	减速比 Ratio
Z5BLD120-220GK-20S/5GN□K2	Z5BLD120-220GK-20S	5GN□K2	5 ~ 100

容许力矩 Allowable torque

单位 Unit: N·m

输出功率 Output power	电机转速 Motor speed	减速比 Ratio						
		5	10	15	20	30	50	100
120W	100 ~ 2000rpm	2.32	4.64	6.27	7.52	11.28	18.80	30.00

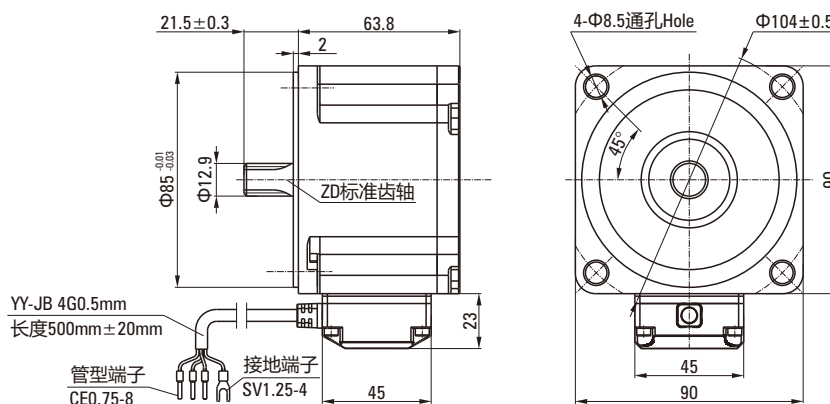
注Note: 表格中 (灰底部分) 表示齿轮箱出轴旋转与电机的旋转方向为反方向。其他则为相同方向。

The (gray) indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction.

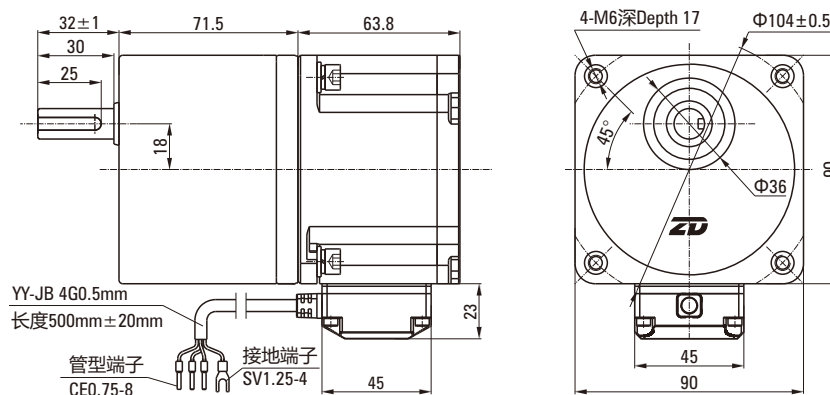
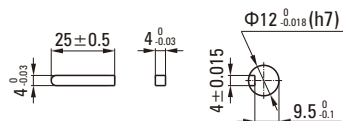
外形图 Dimensional drawing

相线 Phase line			接地线 Ground line
黄 Yellow	绿 Green	蓝 Blue	黄绿 Yellow/Green
U	V	W	GND

光电机和整机接线图相同
The wiring diagram of the optical motor and the entire machine is the same



- 键·键槽 Key·keyway



K2系列直流无刷减速电机 (120W/200W)

K2 SERIES GEAR MOTOR (120W/200W)

命名 Name

- 平行轴减速机 Parallel shaft reducer

型号 Model number	电机型号 Motor type	减速器型号 Type of reducer	减速比 Ratio
Z5BLD120-220GK-20S/5GU□K2	Z5BLD120-220GK-20S	5GU□K2	5 ~ 100
Z5BLD200-220GK-20S/5GU□K2	Z5BLD200-220GK-20S		

容许力矩 Allowable torque

单位 Unit: N·m

输出功率 Output power	电机转速 Motor speed	减速比 Ratio						
		5	10	15	20	30	50	100
120W	100 ~ 2000rpm	2.32	4.64	6.27	7.52	11.28	18.80	30.00
200W		3.87	7.74	10.46	12.61	18.91	30.00	30.00

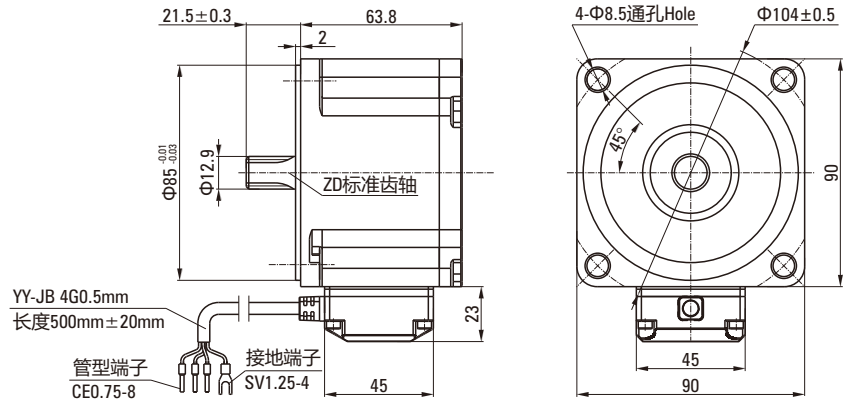
注Note: 表格中 (灰底部分) 表示齿轮箱出轴旋向与电机的旋转方向为反方向。其他则为相同方向。

The (gray) indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction.

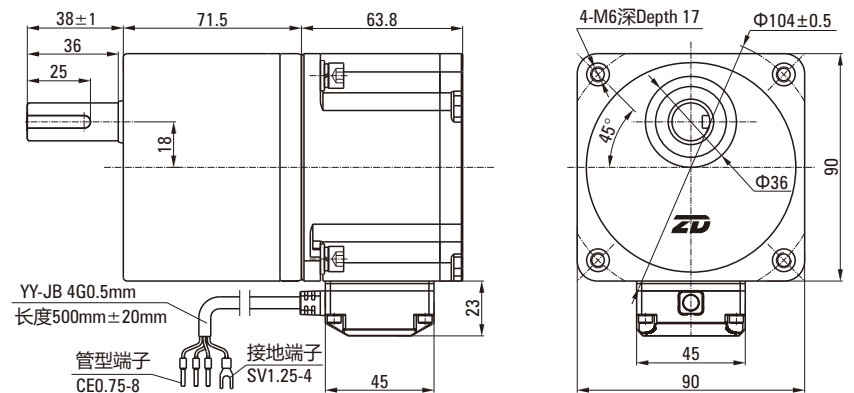
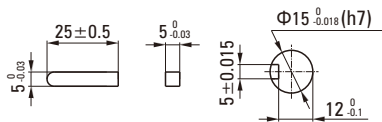
外形图 Dimensional drawing

相线 Phase line			接地线 Ground line
黄 Yellow	绿 Green	蓝 Blue	黄绿 Yellow/Green
U	V	W	GND

光电机和整机接线图相同
The wiring diagram of the optical motor and the entire machine is the same



- 键 · 键槽 Key · keyway



K2系列直流无刷减速电机 (200W/400W)

K2 SERIES GEAR MOTOR (200W/400W)

命名 Name

- 平行轴减速机 Parallel shaft reducer

型号 Model number	电机型号 Motor type	减速器型号 Type of reducer	减速比 Ratio
Z6BLD200-220GK-20S/6GU□K2	Z6BLD200-220GK-20S	6GU□K2	5 ~ 100
Z6BLD400-220GK-20S/6GU□K2	Z6BLD400-220GK-20S		

容许力矩 Allowable torque

单位 Unit: N·m

输出功率 Output power	电机转速 Motor speed	减速比 Ratio						
		5	10	15	20	30	50	100
200W	100 ~ 2000rpm	3.87	7.74	10.44	12.53	18.80	31.33	50.00
400W		7.74	15.47	20.91	25.21	37.82	50.00	50.00

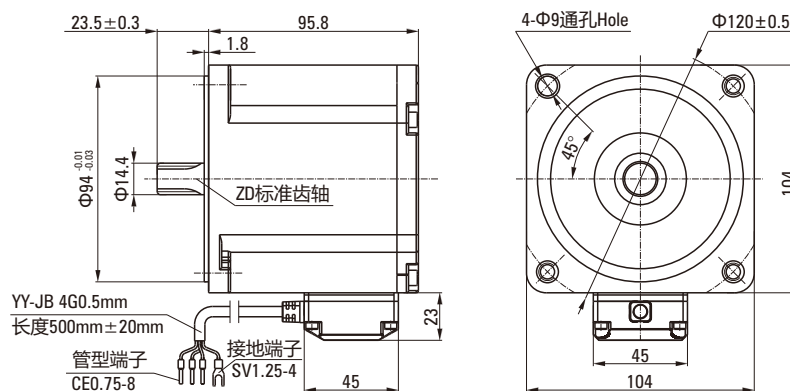
注Note：表格中 (灰底部分) 表示齿轮箱出轴旋转与电机的旋转方向为反方向。其他则为相同方向。

The (gray) indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction.

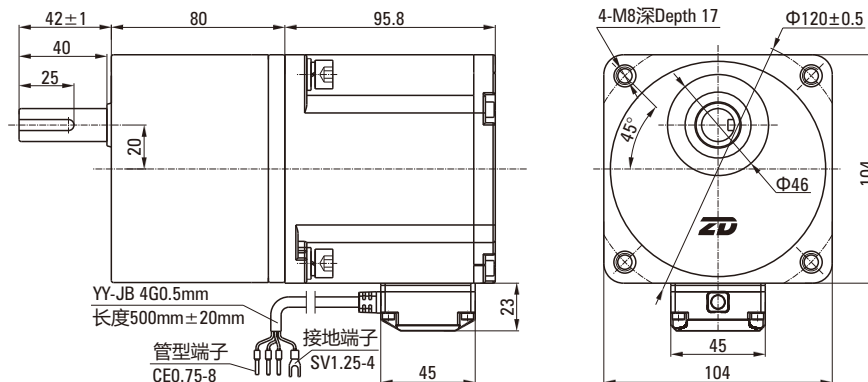
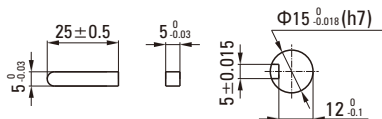
外形图 Dimensional drawing

相线 Phase line			接地线 Ground line
黄 Yellow	绿 Green	蓝 Blue	黄绿 Yellow/Green
U	V	W	GND

光电机和整机接线图相同
The wiring diagram of the optical motor and the entire machine is the same



● 键 · 键槽 Key · keyway



型号阅读方法 PRODUCT CODE

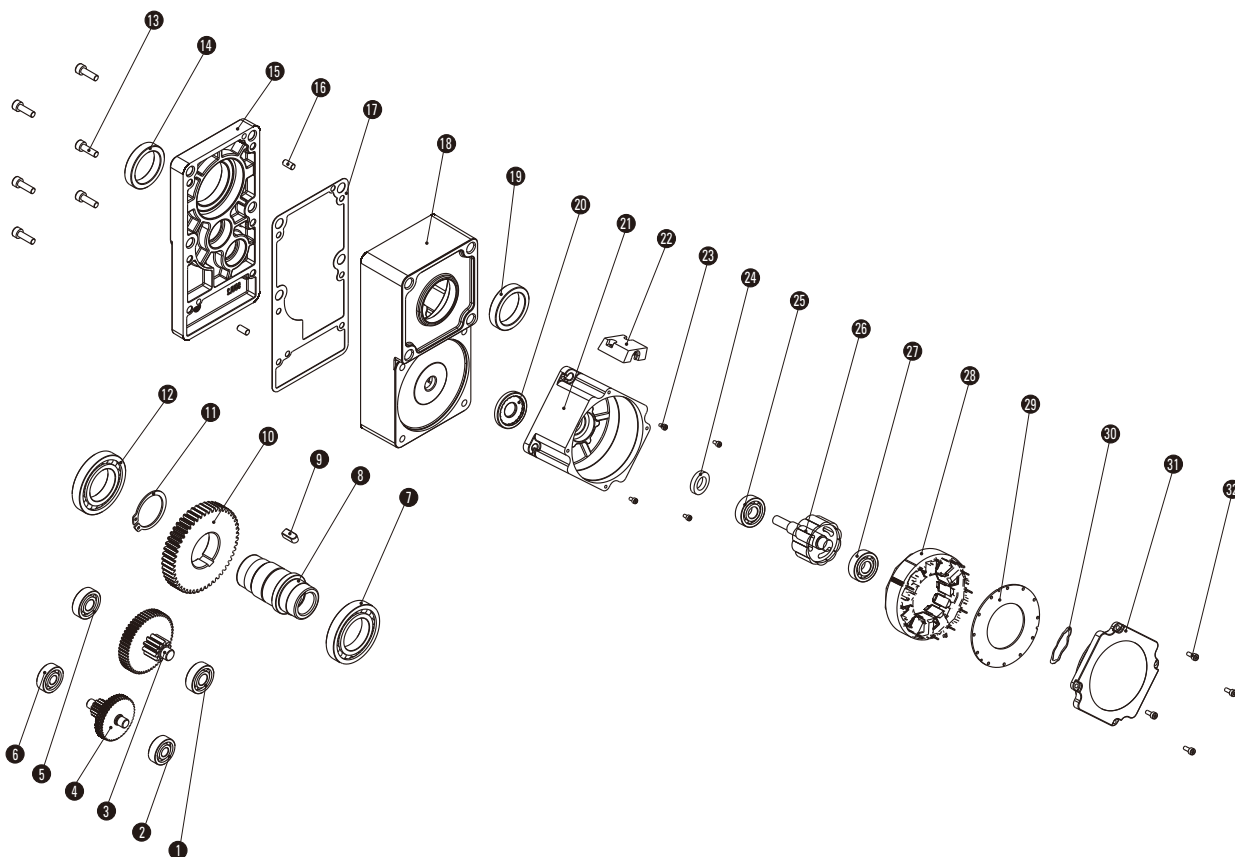
L2系列电动机 L2-series

Z5 BLD 120 - 220 GKL - 20S / 5GU 50L2

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	机座号：60×60 (Z2-60×60/Z4-80×80/Z5-90×90/Z6-104×104)	Size: 60×60 (Z2-60×60/Z4-80×80/Z5-90×90/Z6-104×104)
②	电机类型：无刷	Motor type: Brushless
③	功率：120W	Power: 120W
④	电压：220VAC	Voltage: 220VAC
⑤	减速器类型：GKL (L2系列减速器)	Type of reducer: GK L(L2-Series reducer)
⑥	转速：2000rpm	Speed: 2000rpm
⑦	减速器机座：60 (2GN-60×60/4GN-80×80/5GU-90×90/6GU-104×104)	Reducer size: 60 (2GN-60×60/4GN-80×80/5GU-90×90/6GU-104×104)
⑧	速比：50	Ratio: 50

产品爆炸图 Product explosion diagram



明细表 Parts list

1: 轴承 Bearing	7: 轴承 Bearing	14: 油封 Oil seal	21: 机壳 Shell	28: 嵌线定子 Stator core
2: 轴承 Bearing	8: 输出轴 Output shaft	15: 箱盖 Gearbox cover	22: 接线盒 Junction box	29: 线路板 Circuit board
3: 二级传动轴 2nd follower	9: 键 Keys	16: 定位销 Locating pin	23: 内六角圆柱头螺钉 Hexagon socket head screws	30: 波形弹性垫圈 Spring wave washer
	10: 三级从齿 1rd follower gear	17: 密封垫片 Sealing washer		
4: 一级传动轴 1st follower	11: 挡圈 Circlip	18: 箱体 Gearbox housing	24: 油封 Oil seal	31: 后端盖 Back cover
5: 轴承 Bearing	12: 轴承 Bearing	19: 油封 Oil seal	25: 轴承 Bearing	
6: 轴承 Bearing	13: 内六角圆柱头螺钉 Hexagon socket head screws	20: 密封垫圈 Sealing washer	26: 转子 Rotor	32: 内六角圆柱头螺钉 Hexagon socket head screws
		27: 轴承 Bearing		

L2系列直流无刷减速电机 (15W)

L2 SERIES GEAR MOTOR (15W)

命名 Name

- 平行轴减速机 Parallel shaft reducer

型号 Model number	电机型号 Motor type	减速器型号 Type of reducer	减速比 Ratio
Z2BLD15-220GKL-20S/2GN□L2	Z2BLD15-220GKL-20S	2GN□L2	5 ~ 100

容许力矩 Allowable torque

单位 Unit: N·m

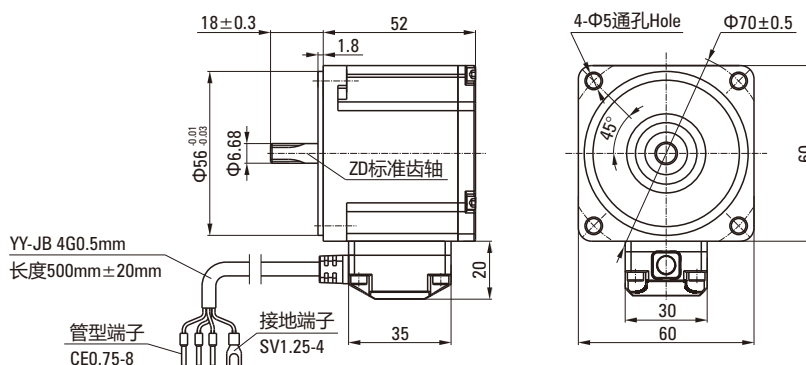
输出功率 Output power	电机转速 Motor speed	减速比 Ratio						
		5	10	15	20	30	50	100
15W	100 ~ 2000rpm	0.26	0.52	0.78	1.04	1.57	2.61	5.22

注Note: 表格中所有出轴旋转方向与电机转向相反。All shaft rotation directions in the table are opposite to motor steering.
(不同转速及速比下的力矩为ZD标准驱动器下测试所得。The torque under different speed and speed ratio is obtained under the ZD standard)

外形图 Dimensional drawing

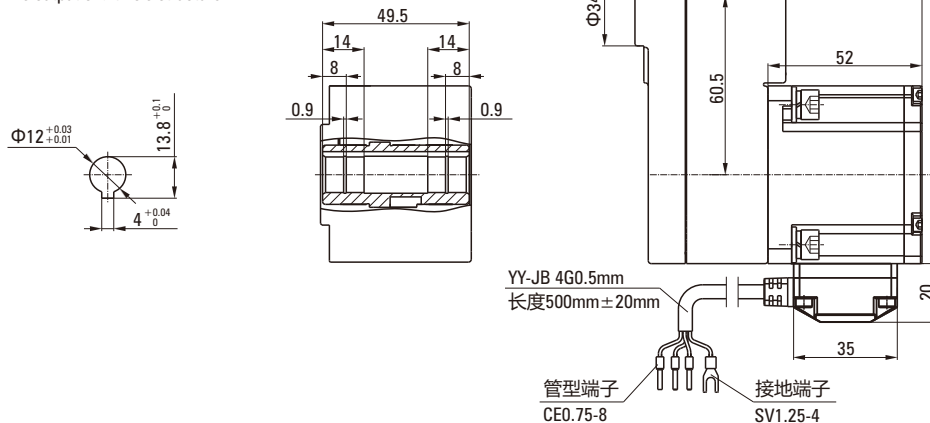
相线 Phase line			接地线 Ground line
黄 Yellow	绿 Green	蓝 Blue	黄绿 Yellow/Green
U	V	W	GND

光电机和整机接线图相同
The wiring diagram of the optical motor and the entire machine is the same



输出轴内孔结构

The output shaft hole structure



L2系列直流无刷减速电机 (40W)

L2 SERIES GEAR MOTOR (40W)

命名 Name

- 平行轴减速机 Parallel shaft reducer

型号 Model number	电机型号 Motor type	减速器型号 Type of reducer	减速比 Ratio
Z4BLD40-220GKL-20S/4GN□L2	Z4BLD40-220GKL-20S	4GN□L2	5 ~ 100

容许力矩 Allowable torque

单位 Unit: N·m

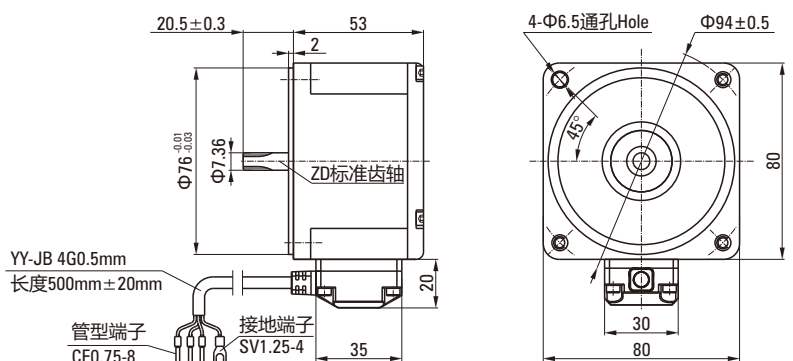
输出功率 Output power	电机转速 Motor speed	减速比 Ratio						
		5	10	15	20	30	50	100
40W	100 ~ 2000rpm	0.70	1.39	2.09	2.78	4.18	6.96	14

注Note: 表格中所有出轴旋转方向与电机转向相反。All shaft rotation directions in the table are opposite to motor steering.
(不同转速及速比下的力矩为ZD标准驱动器下测试所得。The torque under different speed and speed ratio is obtained under the ZD standard)

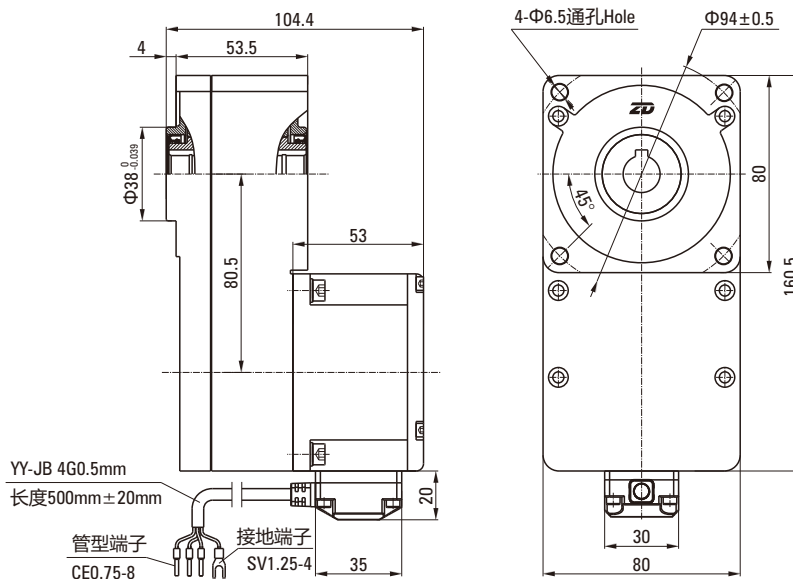
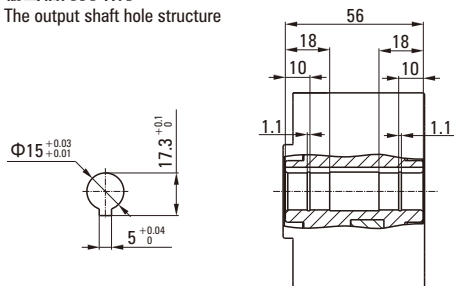
外形图 Dimensional drawing

相线 Phase line			接地线 Ground line
黄 Yellow	绿 Green	蓝 Blue	黄绿 Yellow/Green
U	V	W	GND

光电机和整机接线图相同
The wiring diagram of the optical motor and the entire machine is the same



- 输出轴内孔结构
The output shaft hole structure



L2系列直流无刷减速电机 (120W/200W)

L2 SERIES GEAR MOTOR (120W/200W)

命名 Name

- 平行轴减速机 Parallel shaft reducer

型号 Model number	电机型号 Motor type	减速器型号 Type of reducer	减速比 Ratio
Z5BLD120-220GKL-20S/5GU□L2	Z5BLD120-220GKL-20S	5GU□L2	5 ~ 100
Z5BLD200-220GKL-20S/5GU□L2	Z5BLD200-220GKL-20S		

容许力矩 Allowable torque

单位 Unit: N·m

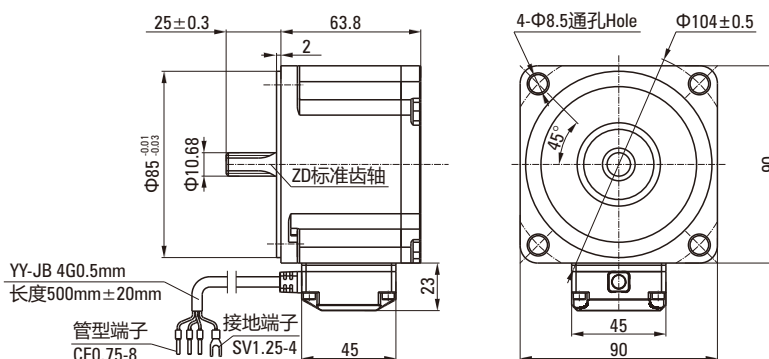
输出功率 Output power	电机转速 Motor speed	减速比 Ratio						
		5	10	15	20	30	50	100
120W	100 ~ 2000rpm	2.09	4.18	6.27	8.35	12.53	20.89	42.00
200W		3.49	6.97	10.46	13.94	20.91	34.86	50.00

注Note: 表格中所有出轴旋转方向与电机转向相反。All shaft rotation directions in the table are opposite to motor steering.
(不同转速及速比下的力矩为ZD标准驱动器下测试所得。The torque under different speed and speed ratio is obtained under the ZD standard)

外形图 Dimensional drawing

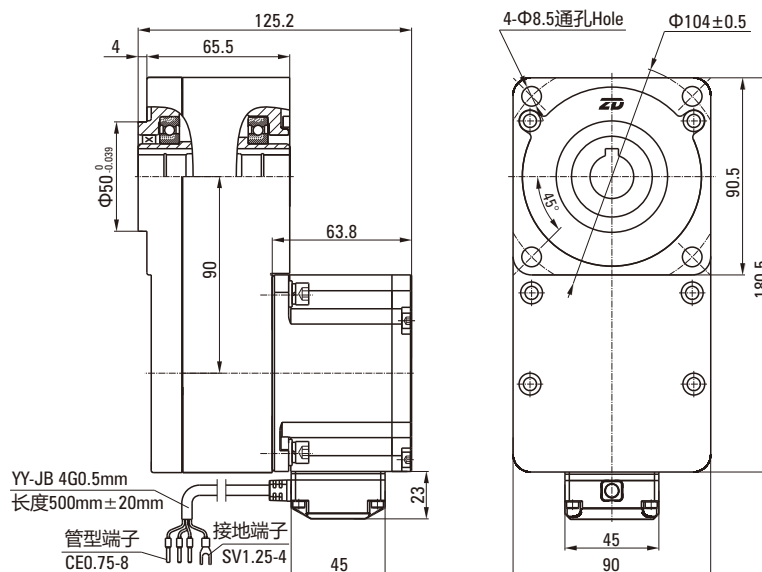
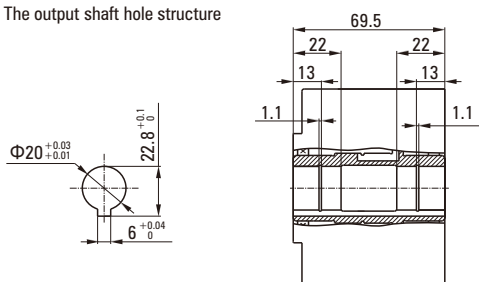
相线 Phase line			接地线 Ground line
黄 Yellow	绿 Green	蓝 Blue	黄绿 Yellow/Green
U	V	W	GND

光电机和整机接线图相同
The wiring diagram of the optical motor and the entire machine is the same



输出轴内孔结构

The output shaft hole structure



L2系列直流无刷减速电机 (200W/400W)

L2 SERIES GEAR MOTOR (200W/400W)

命名 Name

- 平行轴减速机 Parallel shaft reducer

型号 Model number	电机型号 Motor type	减速器型号 Type of reducer	减速比 Ratio
Z6BLD200-220GKL-20S/6GU□L2	Z6BLD200-220GKL-20S	6GU□L2	5 ~ 100
Z6BLD400-220GKL-20S/6GU□L2	Z6BLD400-220GKL-20S		

容许力矩 Allowable torque

单位 Unit: N·m

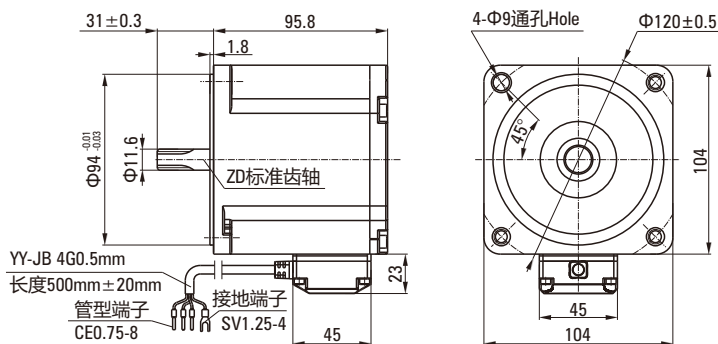
输出功率 Output power	电机转速 Motor speed	减速比 Ratio						
		5	10	15	20	30	50	100
200W	100 ~ 2000rpm	3.48	6.96	10.44	13.92	20.89	34.81	70.00
400W		6.97	13.94	20.91	27.89	41.83	69.72	120.00

注Note: 表格中所有出轴旋转方向与电机转向相反。All shaft rotation directions in the table are opposite to motor steering.
(不同转速及速比下的力矩为ZD标准驱动器下测试所得。The torque under different speed and speed ratio is obtained under the ZD standard)

外形图 Dimensional drawing

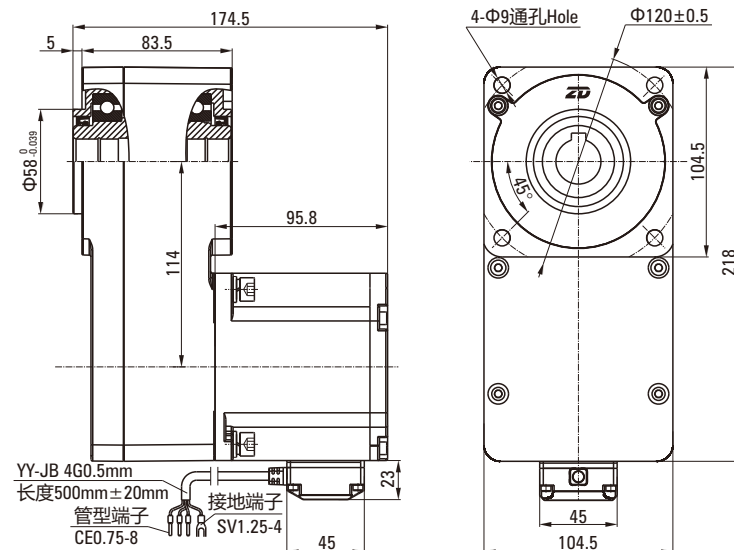
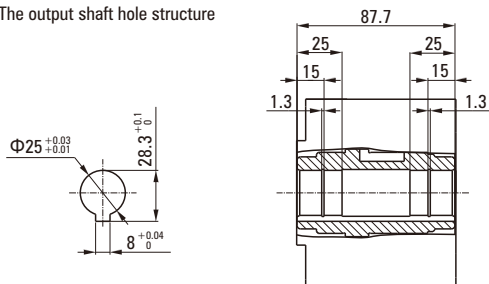
相线 Phase line			接地线 Ground line
黄 Yellow	绿 Green	蓝 Blue	黄绿 Yellow/Green
U	V	W	GND

光电机和整机接线图相同
The wiring diagram of the optical motor and the entire machine is the same



输出轴内孔结构

The output shaft hole structure



型号阅读方法 PRODUCT CODE

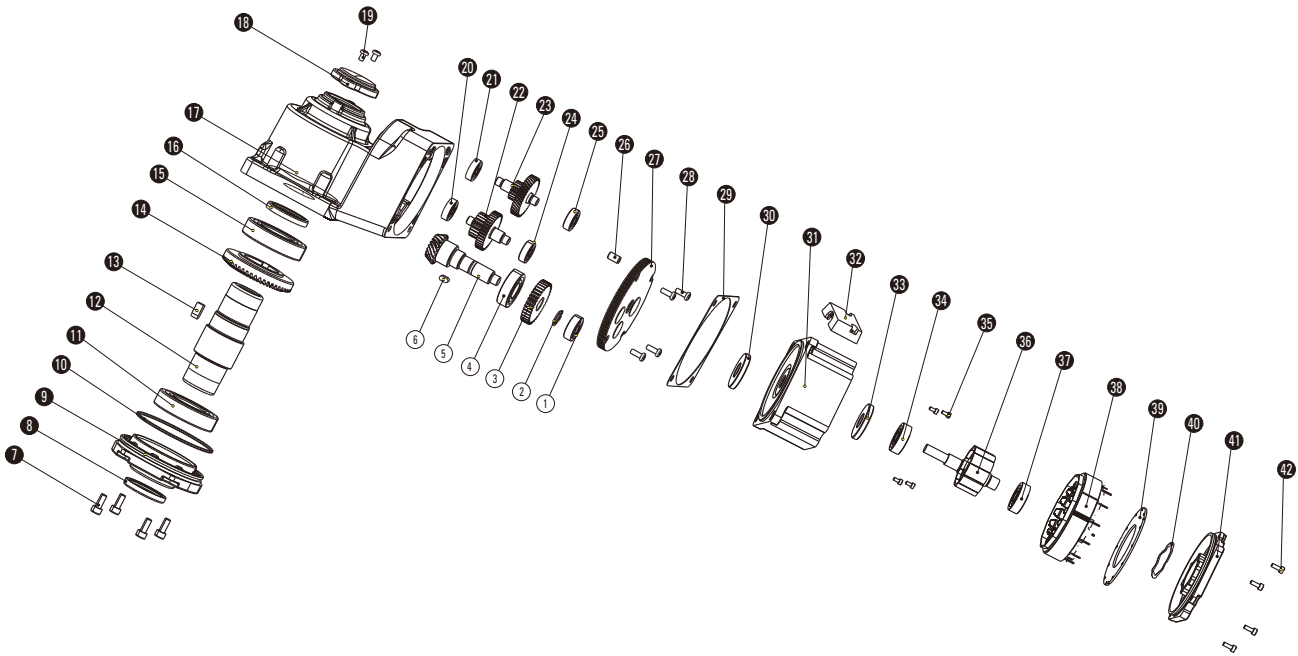
RC2系列电机 RC2-series

Z5 BLD 120 - 220 GKR - 20S / 5GU 50RC2

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	机座号：80×80 (Z4-80×80/Z5-90×90/Z6-104×104)	Size: 80×80 (Z4-80×80/Z5-90×90/Z6-104×104)
②	电机类型：无刷	Motor type: Brushless
③	功率：120W	Power: 120W
④	电压：220VAC	Voltage: 220VAC
⑤	减速器类型：GKR (K2系列减速器)	Type of reducer: GKR (K2-series reducer)
⑥	转速：2000rpm	Speed: 2000rpm
⑦	减速器机座：80 (4GN-80×80/5GU-90×90/6GU-104×104)	Reducer size: 80 (4GN-80×80/5GU-90×90/6GU-104×104)
⑧	速比：50	Ratio: 50

产品爆炸图 Product explosion diagram



明细表 Parts list

1: 轴承 Bearing	11: 轴承 Bearing	20: 轴承 Bearing	28: 十字槽元机螺钉 Pan head screws with ross recess	36: 转子 Rotating shaft
2: 轴承 Bearing	12: 输出轴 Output shaft	21: 轴承 Bearing	29: 密封垫片 Sealing washer	37: 轴承 Bearing
3: 三级从齿 Three-stage slave	13: 键 Keys	22: 二级传动轴 Secondary transmission shaft	30: 密封垫圈 Sealing washer	38: 嵌线定子 Stator core
4: 轴承 Bearing	14: 输出锥齿轮 Output bevel gear	23: 一级传动轴 Primary drive shaft	31: 机壳 Shell	39: 线路板 Circuit board
5: 输入锥齿轮 Input bevel gear	15: 轴承 Bearing	24: 轴承 Bearing	32: 接线盒 Junction box	40: 波形弹性垫圈 Corrugated spring washer
6: 轴承 Bearing	16: 油封 Oil seal	25: 轴承 Bearing	33: 油封 Oil seal	41: 后端盖 Back cover
7: 内六角圆柱头螺钉 Hexagon socket head screws	17: 箱体 Box body	26: 定位销 Locating pin	34: 轴承 Bearing	42: 内六角圆柱头螺钉 Hexagon cylindrical head
8: 油封 Oil seal	18: 箱盖 Box cover	27: 箱盖 Box cover	35: 内六角圆柱头螺钉 Hexagon cylindrical head	
9: 箱盖 Box cover	19: 十字槽元机螺钉 Pan head screws with ross recess			
10: O型圈 O-ring				

RC2系列直流无刷减速电机 (40W)

RC2 SERIES GEAR MOTOR (40W)

命名 Name

● 弧锥直角减速电机 Arc cone right angle reduction motor

型号 Model number	电机型号 Motor type	减速器型号 Type of reducer	减速比 Ratio
Z4BLD40-220GKR-20S/4GU□RC2	Z4BLD40-220GKR-20S	4GU□RC2	3 ~ 180

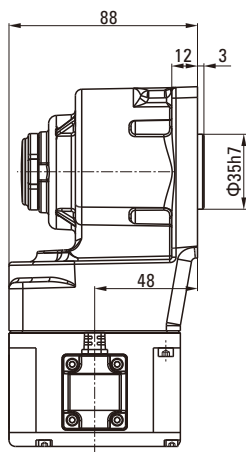
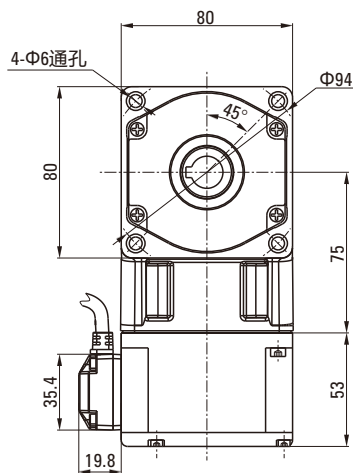
容许力矩 Allowable torque

单位 Unit: N·m

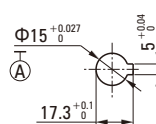
输出功率 Output power	电机转速 Motor speed	减速比 Ratio																			
		3	5	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
40W	100 ~ 2000rpm	0.37	0.63	1.05	1.39	1.55	1.93	2.32	2.79	3.10	3.49	4.18	5.02	6.97	7.53	8.0	8.0	8.0	8.0	8.0	8.0

注Note : □色表示与电动机的旋转方向为同方向。其他则为相反方向。
The color represents the same direction as the rotation direction of the motor. Others are in the opposite direction.

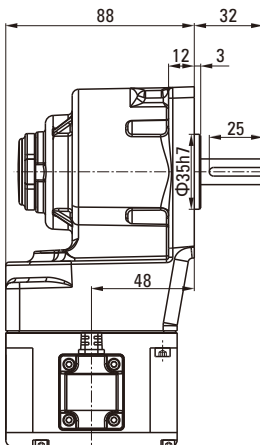
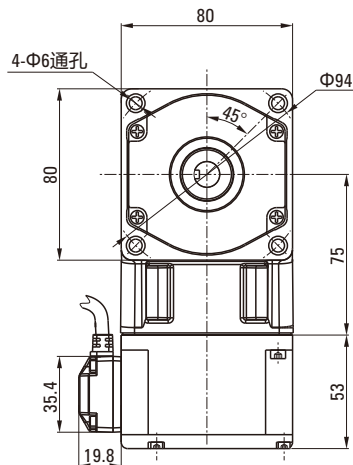
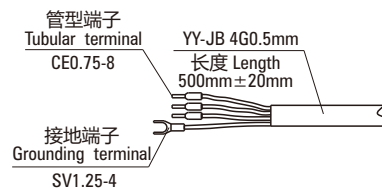
外形图 Dimensional drawing



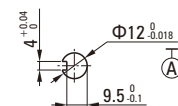
输出轴结构
Output shaft structure



端子图 Terminal diagram



输出轴结构
Output shaft structure



相线 Phase line			接地线 Ground line
黄 Yellow	绿 Green	蓝 Blue	黄绿 Yellow/Green
U	V	W	GND

光电机和整机接线图相同
The wiring diagram of the optical motor and the entire machine is the same

RC2系列直流无刷减速电机 (120W/200W)

RC2 SERIES GEAR MOTOR (120W/200W)

命名 Name

- 弧锥直角减速电机 Arc cone right angle reduction motor

型号 Model number	电机型号 Motor type	减速器型号 Type of reducer	减速比 Ratio
Z5BLD120-220GKR-20S/5GU□RC2	Z5BLD120-220GKR-20S	5GU□RC2	3 ~ 180
Z5BLD200-220GKR-20S/5GU□RC2	Z5BLD200-220GKR-20S		

容许力矩 Allowable torque

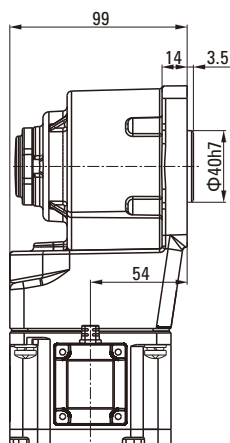
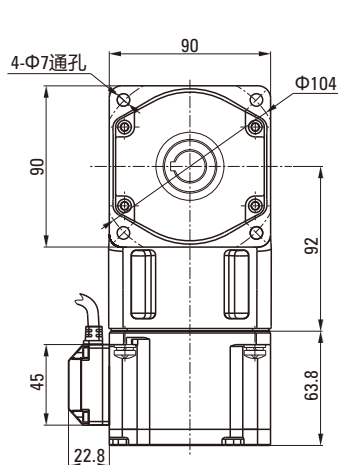
单位 Unit: N·m

输出功率 Output power	电机转速 Motor speed	减速比 Ratio																					
		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
120W	100 ~ 2000rpm	1.13	1.35	1.88	2.26	3.14	3.76	4.18	5.23	6.27	7.53	8.37	10.46	12.55	13.55	18.82	20.0	20.0	20.0	20.0	20.0	20.0	20.0
200W		1.88	2.26	3.13	3.76	5.22	6.27	6.97	8.71	10.45	12.55	13.94	17.43	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0

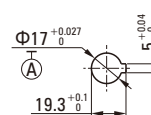
注Note: □色表示与电动机的旋转方向为同方向。其他则为相反方向。

The color represents the same direction as the rotation direction of the motor. Others are in the opposite direction.

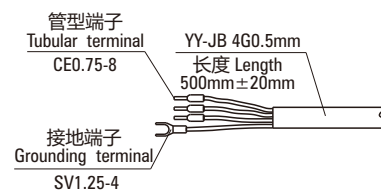
外形图 Dimensional drawing



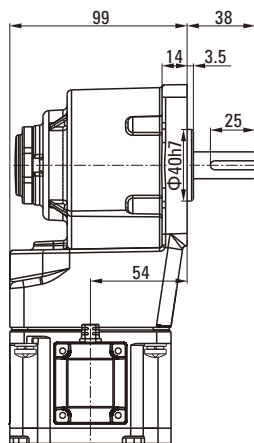
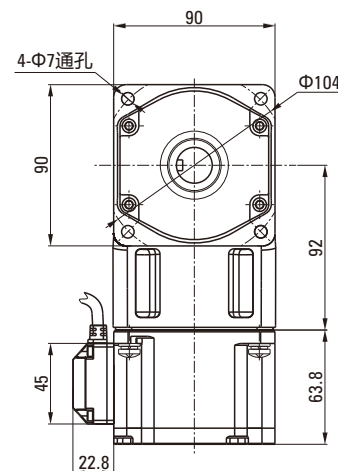
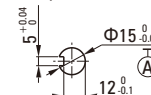
输出轴结构
Output shaft structure



端子图 Terminal diagram



输出轴结构
Output shaft structure



相线 Phase line			接地线 Ground line
黄 Yellow	绿 Green	蓝 Blue	黄绿 Yellow/Green
U	V	W	GND

光电机和整机接线图相同
The wiring diagram of the optical motor and the entire machine is the same

RC2系列直流无刷减速电机 (200W/400W)

RC2 SERIES GEAR MOTOR (200W/400W)

命名 Name

● 弧锥直角减速电机 Arc cone right angle reduction motor

型号 Model number	电机型号 Motor type	减速器型号 Type of reducer	减速比 Ratio
Z6BLD200-220GKR-20S/6GU□RC2	Z6BLD200-220GKR-20S	6GU□RC2	3 ~ 180
Z6BLD400-220GKR-20S/6GU□RC2	Z6BLD400-220GKR-20S		

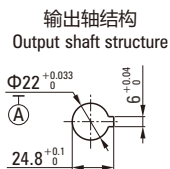
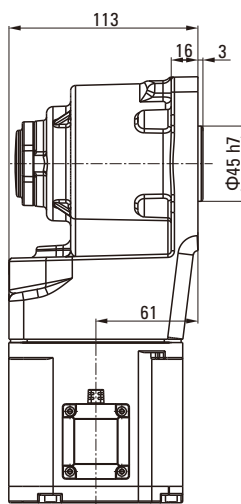
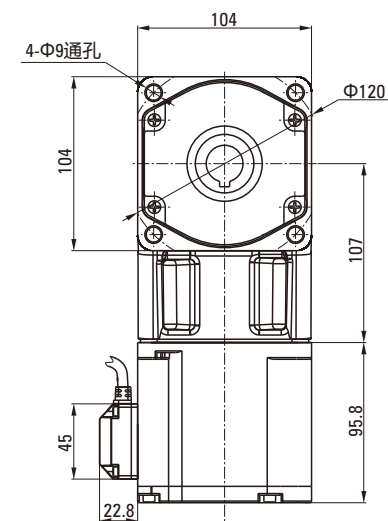
容许力矩 Allowable torque

单位 Unit: N·m

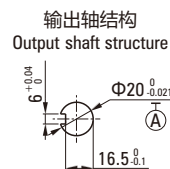
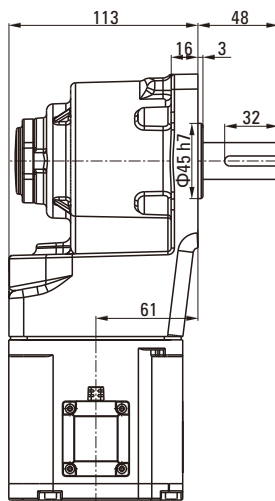
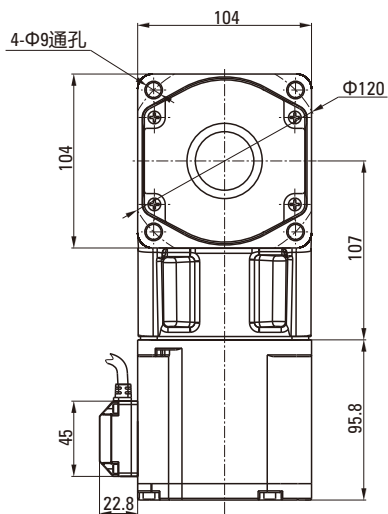
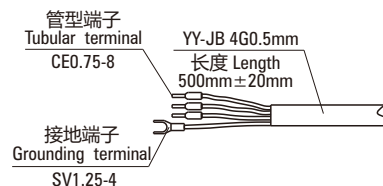
输出功率 Output power	电机转速 Motor speed	减速比 Ratio																					
		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
200W	100 ~ 2000rpm	1.88	2.26	3.13	3.76	5.22	6.27	6.97	8.71	10.45	12.55	13.94	17.43	20.91	25.1	31.37	37.64	47.06	56.47	60.0	60.0	60.0	60.0
400W		3.76	4.52	6.26	7.52	10.44	12.54	13.94	17.42	20.9	25.1	27.88	34.86	41.82	50.2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0

注Note: □色表示与电动机的旋转方向为同方向。其他则为相反方向。
The color represents the same direction as the rotation direction of the motor. Others are in the opposite direction.

外形图 Dimensional drawing



端子图 Terminal diagram



相线 Phase line			接地线 Ground line
黄 Yellow	绿 Green	蓝 Blue	黄绿 Yellow/Green
U	V	W	GND

光电机和整机接线图相同
The wiring diagram of the optical motor and the entire machine is the same

C41系列无感驱动器

C41 SERIES SENSORLESS DRIVER

Z DRV • C41 — 200 S2 — R — A
 ① ② ③ ④ ⑤ ⑥ ⑦

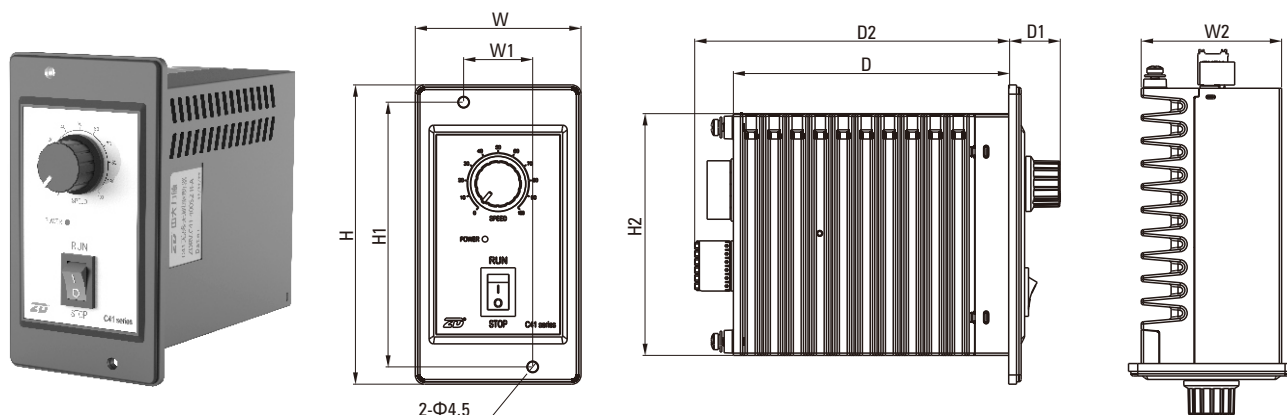
①	公司名称缩写 Company name abbreviation	Z: 中大力德 ZHONGDA LEADER
②	产品类型 Product type	DRV: 驱动器及相关产品 Drivers and related products
③	产品系列 Product series	C41无感系列 C41 Sensorless series
④	功率等级 Power level	高压 High voltage: 15:15W 40:40W 120:120W 200:200W 400:400W
⑤	电源类型 Power supply type	S2: 单相 1 phase AC220V/50Hz~60Hz
⑥	功能码 Function code	C: 带CanOpen通讯功能 With CanOpen communication function
		R: 带485通讯功能 With 485 communication function
⑦	外观结构 Appearance structure	A: 面板式 Panel type
		B: 内置式 Built-in type

■ C41系列无感驱动器特点

Features of C41 series sensorless drivers

- 只需三根电动力线：**从根本上避免电机编码器线或霍尔信号线的连接不可靠、信号被干扰等问题，可有效提升系统的可靠性。
 Only three motor power lines are needed: Fundamentally avoiding problems such as unreliable connection of motor encoder lines or Hall signal lines and signal interference, which can effectively improve the reliability of the system.
- 无需电机编码器或霍尔传感器：**采用高性能无位置传感器方案，实现电机的正弦波FOC矢量控制，节省了编码器或霍尔的线束和端子，有效降低系统的整体成本。
 No need for motor encoder or Hall sensor: Adopting a high-performance position sensorless solution, achieving sine wave FOC vector control of the motor, saving the wiring harness and terminals of the encoder or Hall, effectively reducing the overall cost of the system.
- 低速性能好：**优秀的速度闭环控制性能，最低转速可达100rpm，调速比可以与带编码器电机驱动器相媲美。
 Good low-speed performance: Excellent speed closed-loop control performance, with a minimum speed of down to 100rpm, and a speed ratio comparable to motor drives with encoders.
- 支持大负载带载启动：**最大允许150%电机额定负载转矩条件下带载启动；如需更大负载转矩条件下带载启动，可与我司沟通产品定制事宜。
 Support heavy load on-load starting: Maximum allowable on-load starting at 150% of the rated torque of the motor; If you need to start with load under higher load torque conditions, you can communicate with our company about product customization matters.
- 支持超长距离电机控制：**本产品与电机间三相动力线的最长允许距离为50米，如需支持更长距离，可与我司沟通产品定制事宜。
 Support for ultra long distance motor control: The maximum allowable distance for the three-phase power line between this product and the motor is 50m. If you need to support a longer distance, you can communicate with our company about product customization matters.
- 速度波动小：**额定转速条件下速度波动大约为0.5%优异的稳速性能可以媲美带编码器电机，满足绝大部分应用的需求。
 Low speed fluctuation: Under rated speed conditions, the speed fluctuation is about 0.5%, and the excellent speed stability performance can be comparable to motors with encoders, meeting the needs of the vast majority of applications.
- 可支持超高速电机：**支持电机最高转速可达20000rpm，如需支持更高电机转速，可与我司沟通定制。
 Can support ultra high speed motors: Supports a maximum motor speed of up to 20000rpm. If you need to support higher motor speeds, you can communicate with our company for customization.
- 高性价比。**
 High cost-effectiveness.

■ C41无感驱动器（面板式） C41 series sensorless driver (Panel type)



单位 Unit: mm

型号 Model	外形尺寸 Overall dimensions						安装尺寸 Inatallation dimensions		
	H	W	D	H2	W2	D2	H1	W1	D1
ZDRV.C41-15S2-A	100	60	123	80	51	141.4	90	-	20
ZDRV.C41-40S2-A	100	60	123	80	51	141.4	90	-	20
ZDRV.C41-120S2-A	100	60	123	80	51	141.4	90	-	20
ZDRV.C41-200S2-A	100	60	123	80	51	141.4	90	-	20
ZDRV.C41-400S2-R-A	130	72	120	105	61	136.8	115	30	22

■ 输入输出接口 Input/output interface

● ZDRV.C41-200S2-A / ZDRV.C41-400S2-R-A

引脚编号 Pin number	引脚名称 Pin name	引脚功能 Pin function
1	W	电机动力电源输出端 Motor power supply output terminal
2	V	
3	U	
4	N	零线 Zero line
5	L	火线 Live wire

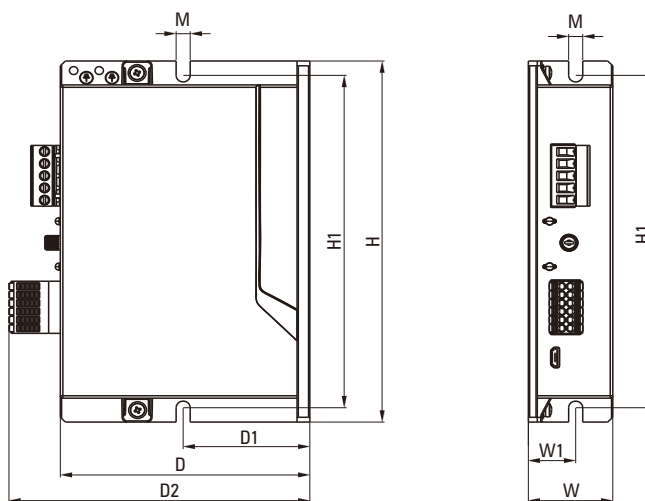
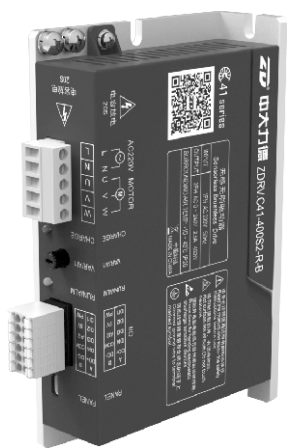
● ZDRV.C41-200S2-R-A

引脚编号 Pin number	引脚名称 Pin name	引脚功能 Pin function
1	PW	输入公共端 Input common terminal
2	DI1/FWD	预设功能：正转 Preset function: Forward rotation
3	5V	5V电源输出正 5V power output positive
4	DI2/REV	预设功能：反转 Preset function: Reverse
5	AI2	模拟电压输入 Analog voltage (0~10V) / PWM (3~10KHz)
6	DI3/BRK	预设功能：电子刹车 Preset function: Electronic brake
7	COM	5V电源GND 5V power GND
8	DI4/CLR	预设功能：故障复位 Preset function: Fault reset
9	DO-	1路数字信号输出端： 最大输出电流：50mA 1 channel digital signal output terminal: Maximum output current: 50mA
10	DO+	

● ZDRV.C41-400S2-R-A

引脚编号 Pin number	引脚名称 Pin name	引脚功能 Pin function
1	PW	输入公共端 Input common terminal
2	DI1/FWD	预设功能：正转 Preset function: Forward rotation
3	5V	5V电源输出正 5V power output positive
4	DI2/REV	预设功能：反转 Preset function: Reverse
5	AI2	模拟电压输入 Analog voltage (0~10V) / PWM (3~10KHz)
6	DI3/BRK	预设功能：电子刹车 Preset function: Electronic brake
7	COM	5V电源GND 5V power GND
8	DI4/CLR	预设功能：故障复位 Preset function: Fault reset
9	DO-	1路数字信号输出端： 最大输出电流：50mA 1 channel digital signal output terminal: Maximum output current: 50mA
10	DO+	
11	B	485信号负 485 signal negative
12	A	485信号正 485 signal positive

■ C41无感驱动器（内置式） C41 series sensorless driver (Built in)



单位 Unit: mm

型号 Model	外形尺寸 Overall dimensions				安装尺寸 Inatallation dimensions			
	H	W	D	D2	H1	W1	D1	M
ZDRV.C41-200S2-R-B	151	33	97.5	117.5	139	18.5	49.5	5.5
ZDRV.C41-400S2-R-B	151	33	97.5	117.5	139	18.5	49.5	5.5

■ 输入输出接口 Input / output interface

● ZDRV.C41-200S2-R-B / ZDRV.C41-400S2-R-B

引脚编号 Pin number	引脚名称 Pin name	引脚功能 Pin function
1	L	火线 Live wire
2	N	零线 Zero line
3	U	电动力电源输出端 Motor power supply output terminal
4	V	
5	W	

● ZDRV.C41-200S2-R-B / ZDRV.C41-400S2-R-B

引脚编号 Pin number	引脚名称 Pin name	引脚功能 Pin function
1	PW	输入公共端 Input common terminal
2	DI1/FWD	预设功能：正转 Preset function: Forward rotation
3	5V	5V电源输出正 5V power output positive
4	DI2/REV	预设功能：反转 Preset function: reverse
5	AI2	模拟电压 Analog voltage (0~10V) / PWM (3~10KHz)
6	DI3/BRK	预设功能：电子刹车 Preset function: Electronic brake
7	COM	5V电源GND 5V power GND
8	DI4/CLR	预设功能：故障复位 Preset function: Fault reset
9	DO-	1路数字信号输出端：最大输出电流：50mA 1 channel digital signal output terminal: Maximum output current: 50mA
10	DO+	
11	B	485信号负 485 signal negative
12	A	485信号正 485 signal positive

规格 Specifications

型号参数 Model parameters		C41系列无感驱动器 Series sensorless driver			
		ZDRV.C41-200S2-A	ZDRV.C41-400S2-R-A	ZDRV.C41-200S2-R-B	ZDRV.C41-400S2-R-B
额定输入电压 Rated input voltage		AC220V/50HZ	AC220V/50HZ	AC220V/50HZ	AC220V/50HZ
输出电流 Output current	额定电流 (rms) Rated current	1.2A	2.5A	1.2A	2.5A
	峰值电流 (peak) Peak current	4.0A	8.0A	4.0A	8.0A
安装方式 Installation method		面板式安装 Panel mounted		内置式安装 Built-in installation	
过压报警电压 Overvoltage alarm voltage		125%额定电压过压 Rated voltage overvoltage			
欠压报警电压 Under voltage alarm voltage		70%额定电压欠压 Rated voltage under voltage			
过载时间 Overload time		150%额定电流30秒 150% rated current for 30 seconds			
冷却方式 Cooling method		自然冷却、接触式散热 Free cooling, contact cooling			
通用功能 General functions	数字量输入 Digital input	4路, 支持NPN/PNP, 光耦输入, 高电平DC12V~DC30V, 低电平DC0V~DC5V, 输入阻抗3KΩ 4-channel, supporting NPN/PNP, optocoupler input, high-level DC12V~DC30V, low-level DC0V~DC5V, input impedance 3K Ω			
	数字量输入功能 Digital input function	正转运行、反转运行、正转点动、反转点动、自由停车、故障复位、电子刹车、外部故障输入、正转限位、反转限位、多段速选择等 Forward running, reverse running, forward jogging, reverse jogging, free parking, fault reset, electronic braking, external fault input, forward limit, reverse limit, multi terminal speed selection, etc			
	模拟量输入 Analog input	1路 1 channel, DC0V~DC5V/10V, PWM (3KHZ~10KHZ)			
	模拟量输入功能 Analog input function	速度调节 Speed regulation			
	数字量输出 Digital output	1路, 光耦输出, 兼容支持NPN/PNP, 最大工作电压30VDC, 最大输出电流100mA 1 channel, optocoupler output, compatible with NPN/PNP support, maximum working voltage 30VDC, maximum output current 100mA			
	脉冲控制 Pulse control	无 No			
	保护功能 Protection function	欠压保护、过压保护、过载保护、硬件过流保护、软件过流保护、过温保护、缺相保护等等 Undervoltage protection, overvoltage protection, overload protection, hardware overcurrent protection, software overcurrent protection, over temperature protection, phase loss protection, etc			
	上位机 Upper computer	不支持 Not support	支持 Support		
操作面板 Operation panel	可配置中大的手持操作面板, 设置参数和读取数据 Can match to ZD handle panel, setting parameters and reading data				
总线控制 Bus control	Modbus/RS485	无 No	最大支持115.2K波特率, 可使用Modbus RTU协议与控制器通讯 Supports a maximum baud rate of 115.2K and can communicate with the controller using the Modbus RTU protocol		
	CANopen	定制开发 Custom development			
使用环境 Usage environment	工作温度 Working temperature	-10~40°C, 40°C以上降额使用, 每升高1°C, 需降低2.5%之额定电流, 工作温度最高可至50°C -10~40°C, derated for use above 40°C. For every 1°C increase, the rated current needs to be reduced by 2.5%. The maximum operating temperature can reach 50°C			
	存储温度 Storage temperature	-30°C~+60°C, 空气温度变化小于1°C/分 -30°C~+60°C, with an air temperature change of less than 1°C/minute			
	湿度 Humidity	85%RH以下, 不结露 Below 85% RH, without condensation			
	防护等级 Protection level	IP20			
	能耗制动 Energy consumption braking	无 No			
	海拔 Height	1000米以下使用; 1000米以上降额使用, 每升高100米需降额1.5%使用; 海拔2000米以上请测试确认 Used below 1000 meters; For use with a derating of over 1000 meters, a derating of 1.5% is required for each 100 meter increase; Please test and confirm if the altitude is above 2000 meters			
气压 Pressure	86kpa~106kpa				

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CATALOGUE



精密谐波齿轮减速器
PRECISION STRAIN WAVE GEAR REDUCER

ZD 中大刀德



摆线针轮精密减速器
CYCLOIDAL PIN WHEEL PRECISION REDUCER

ZD 中大刀德



传动行星减速电机
TRANSMISSION PLANETARY

ZD 中大刀德



ZB/ZBR/ZE/ZER/HD/HDR系列
高精度行星减速机
PLANETARY GEAR BOX

ZD 中大刀德



伺服驱动器 / 无刷驱动器
工业车辆驱动器 / 交流调速器
SERVO DRIVER / BRUSHLESS DRIVER
INDUSTRIAL VEHICLE DRIVER / AC SPEED CONTROLLER

ZD 中大刀德



微型永磁无刷齿轮减速电机
DC BRUSHLESS GEAR MOTOR

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