



DC BRUSHLESS GEAR MOTOR

直流无刷减速电机



中大 实现自动化应用的无限可能

Zhongda Realizes the infinite possible in automation application

宁波中大力德智能传动股份有限公司始创于1998年，是一家专业制造电机驱动、微特电机、精密减速机的中外合资企业。公司现有员工800人，固定资产2亿元，占地面积100亩（其中杭州湾50亩）。

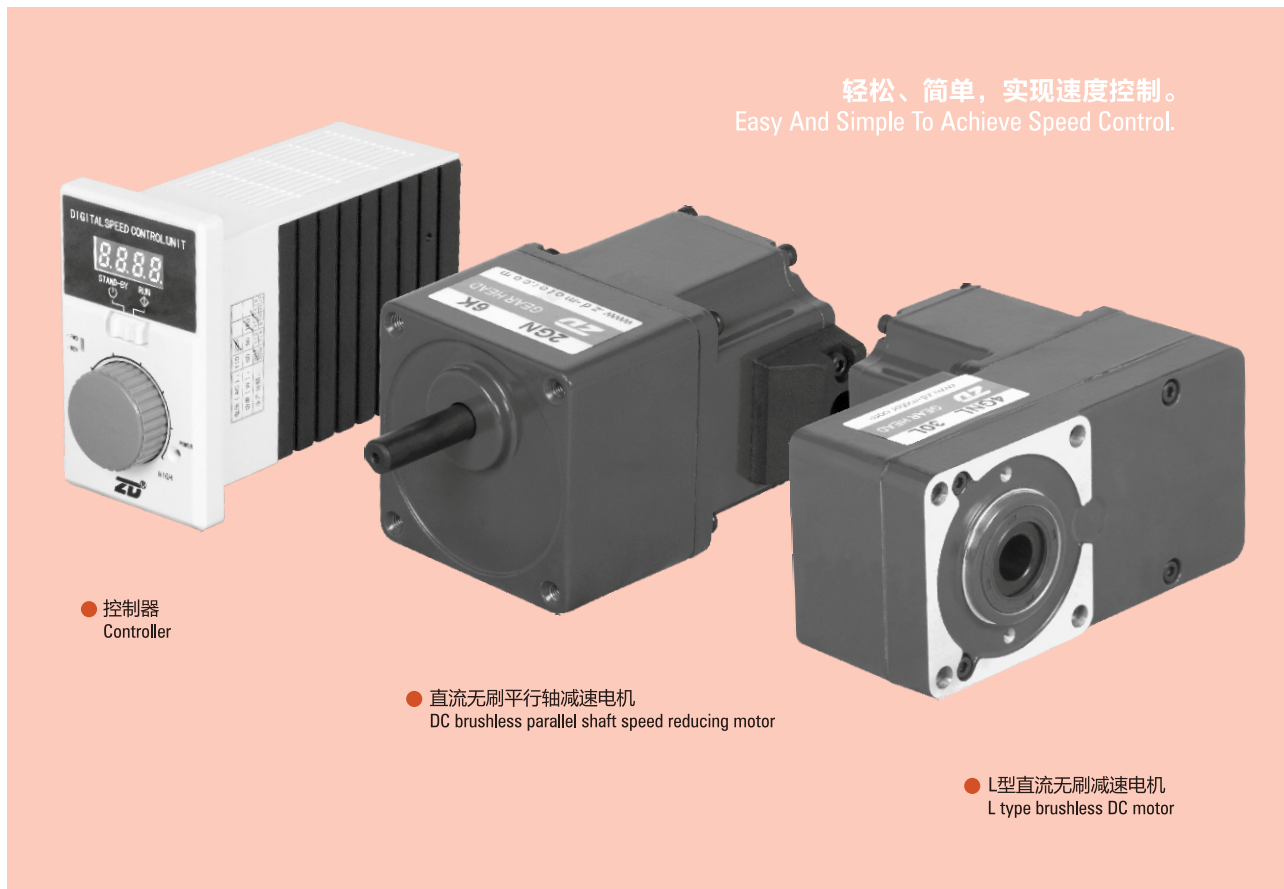
公司系国家级高新技术企业，浙江省级企业研发中心，获国家专利81项，参与制定国标4项，行标3项；其中以第一起草单位制定国标1项，行标1项；“永磁无刷电机行星齿轮减速机构”列入国家火炬计划，“VRSF-78VR20-200行星减速器”列入国家重点新产品计划，获中国科技部颁发“国家重点新产品证书”。

Ningbo Zhongda Leader Intelligent Transmission Co., Ltd. is a sino-foreign joint venture. specialized in micro motors, motor drivers and precision gear reducers. We have 800 employees, with two hundred million RMB of fixed assets and area of 66666m² (half in Hangzhou Wan).

We, ZD-MOTOR, is a national hi-tech enterprise, and provincial R&D center of Zhejiang, we own 81 national patents, we participated in drafting 4 national standard, 3 industry standards. As major party to draft 1 national and 1 industry standard. "gear reduced permanent brushless motor institution" is listed in National Torch Plan, "VRSF-78VR20-200 planetary gear reducer" is listed in national new major product plan, and gain the certification of "National New Major product" issued by China's Ministry of Science & Technology.

直流无刷减速电机 DC BRUSHLESS GEAR MOTOR

轻松、简单，实现速度控制。
Easy And Simple To Achieve Speed Control.

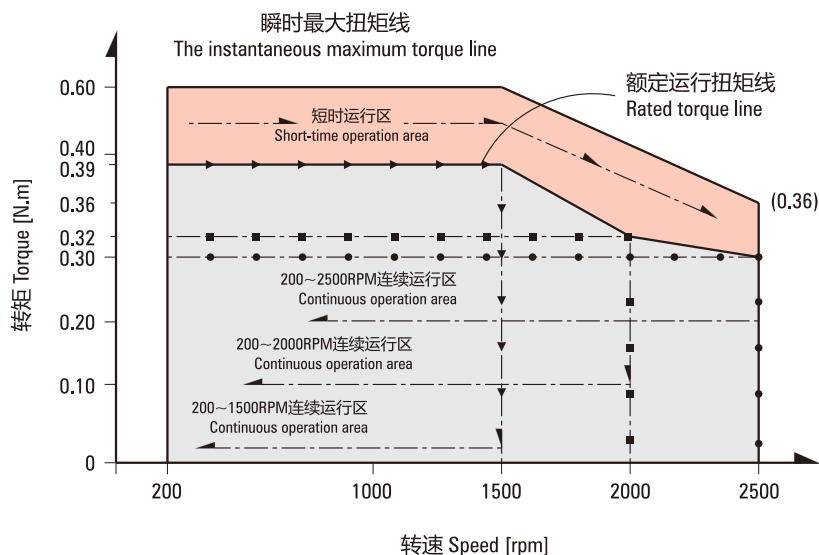


● 控制器
Controller

● 直流无刷平行轴减速电机
DC brushless parallel shaft speed reducing motor

● L型直流无刷减速电机
L type brushless DC motor

无刷直流电机特性曲线说明 Description Of Brushless DC Motor Characteristic Curve



- **瞬时最大扭矩线:** 电机启动、瞬间冲击负载的最大扭矩；超越此转矩值时，会引起驱动器的过流保护，造成停机；
- **短时运行区:** 电机不同转速时，可在此力矩区内短时运行，时间过长易引起电机发热，从而造成烧机或驱动过热保护启动，造成停机；
- **额定运行扭矩线:** 电机在不同转速下的额定力矩，可在此力矩下长时间运行；
- **连续运转区:** 在不同转速时，电机在此相应区内连续运行；
- **The maximum of instaneous torque line:** the motor starting the maximum torque of motor , instantaneous impact load; beyond the torque value, over-current protection will lead to stop.
- **Short-term running area:** when the motor at different speed, it can operate in a short time during this torque range, but after a long time it can cause heating of the motor, resulting motor break or drive overheat protection start, cause stopping working.
- **Rated torque Rated torque of the motor line:** at different speeds, the motor can run for a long time in this moment;
- **In Continuous operation area:** at different speed, the motor can operate continuous.

产品特点 PRODUCT FEATURES

■ 无刷电机的基本特点 The Characteristics Of Brushless Motor Suitable For Speed Control Are Introduced

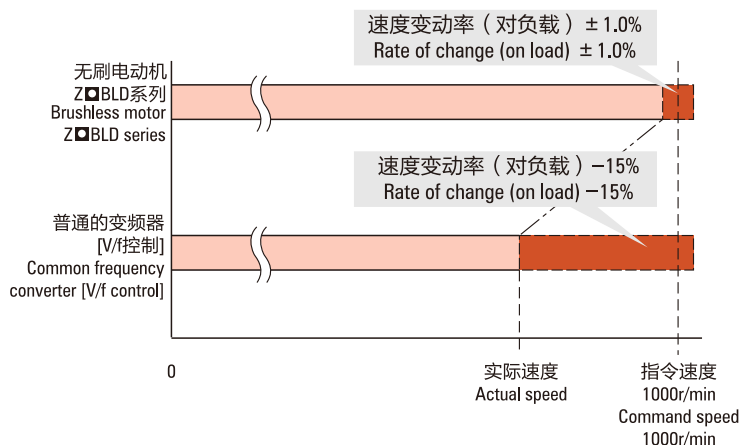
无刷电机上，无需使用通常被认为是DC电动机缺点的刷子和整流子等机械触点，DC电动机使用刷子和整流子进行旋转，因此需要定期进行维护；而无刷电动机使用霍尔IC检测到的信号，利用驱动电路的晶体管的ON/OFF进行旋转，因此无需维护。

On brushless motor ,it is unecessarily using brush ,commutator and any other mechanical contact. Brush motor need brush and commutator to running ,so it need to regular maintain. However ,brushless motor used Hall IC to detect the signal and used driving circuit of crystal catheter's ON/OFF. So it dispense with maintain.

■ 可进行稳定的速度控制 Stable Speed Control

无刷电动机持续对设定速度和来自电动机的速度反馈信号进行对比，来调节施加到电动机上的电压；因此，即使负载状况发生变化，仍可以从低速瞬间调整到设定速度，并以此稳定的速度运行。使用变频器控制的三相感应电动机不进行反馈控制，因此负载变大时，速度会大幅下降；对于速度稳定性要求较高的用途，建议使用无刷电动机。

Brushless DC motors compare the setting speed with the speed feedback signals from the motor at all times and adjust the motor's applied voltage. For this reason, even if the load changes, stable rotation is performed from low speed to high speed. Common inverter-controller three-phase induction motors do not have this type of feedback control and when the load changes, the speed can be affected. Brushless DC motors are recommended for applications that require the speed to be maintained regardless of the load fluctuation.



■ 宽广的速度控制范围（ZD目前是限速到2500RPM，此驱动更改后可适用于4000RPM电机）

Wide Speed Control Range (ZD Is Currently The Rate Limiting To 2500RPM, This Drive Change Can Be Applied To The 4000RPM Motor)

无刷电动机的速度控制范围比AC调速电动机及变频器更广，由于不像AC调速电动机那样在低速时有使用转矩限制，因此，无刷电动机适用于从低速到高速都需要一定转矩的用途。

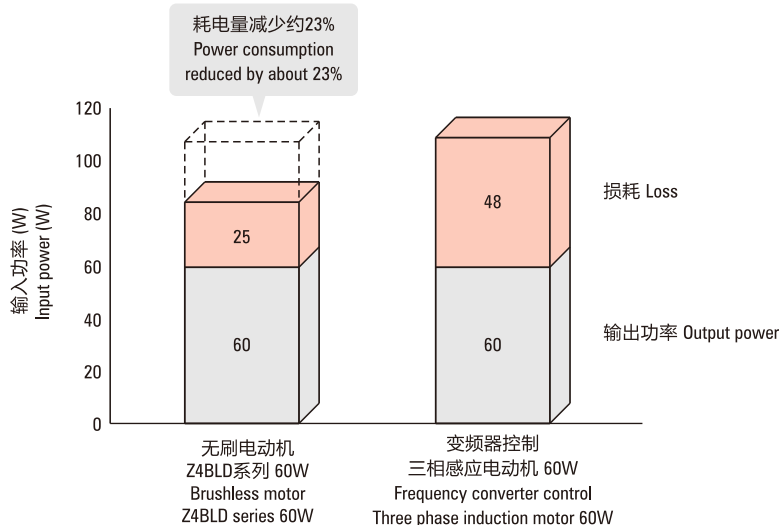
The brushless DC motor has a broader speed control range compared to three-phase inverter driven motors. Unlike three-phase inverter driven motors, the torque at low speed is not limited, so brushless DC motors are suited for applications that require constant.

产品样式 Product Style	速度控制范围 Speed Control Range	速度比 Rate Ratio
无刷电动机 Brushless motor	80~4000	50
变频器控制 Frequency converter control	200~2400	12
三相感应电动机 Three phase induction motor	50Hz: 90~1400	15
AC调速电动机 AC speed regulating motor	60Hz: 90~1600	17

■ 有助于节能 Saving Energy

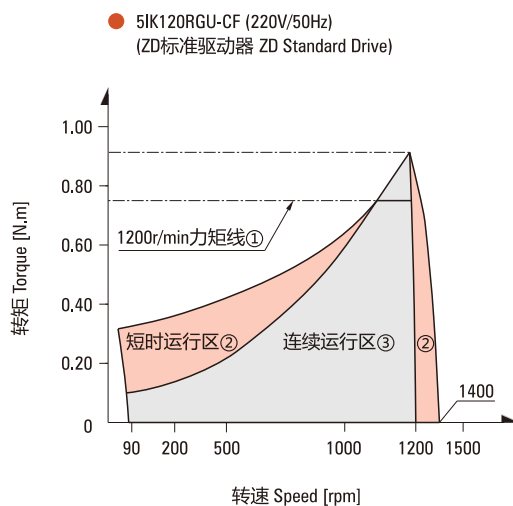
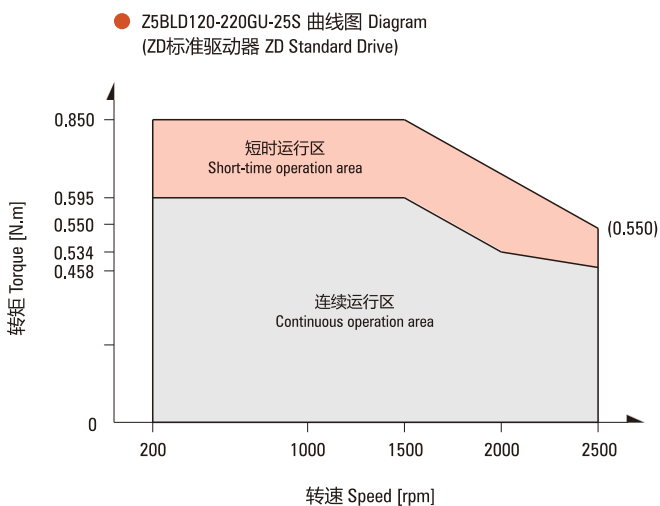
无刷电动机的转子使用了永磁铁，可减少转子的二次损耗，因此与采用变频控制的三相感应电动机相比，耗电量减少约23%，有助于装置的节能。

DC Brushless motor used permanent magnets, it can reduce the secondary loss of rotor. So compared with adopts frequency conversion control of three-phase induction motor, the power reduced 23%. This is in favour of saving energy.



■ 低速大力矩性能 Low Speed And High Torque Performance

无刷直流减速电机低速时可维持大力矩连续运行，且运行平稳。DC brushless motor have a steady big torque when running at low speed.



①1200r/min torque line ②Short-time operating area ③Continuous operation area

● 无刷、交流调速且连续运行性能一览表 Working performance table of brushless motor and ac speed adjustable motor

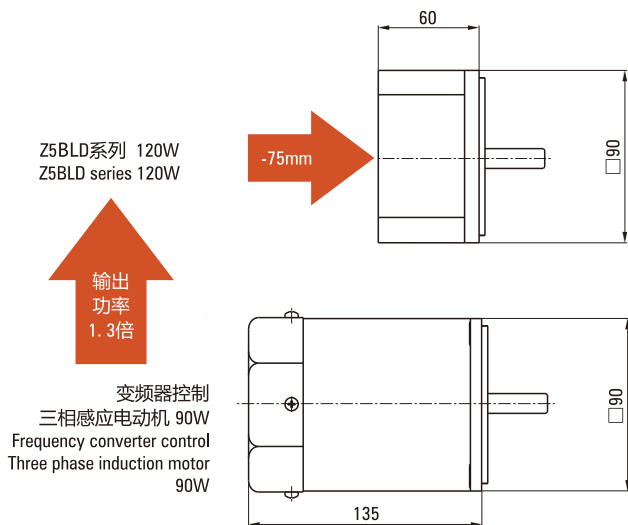
序号 Serial Number	Z5BLD120-220GU-25S					5IK120RGU-CF				
	力矩 Moment N.m	转速 Speed rpm	电流 Current A	效率 Efficiency %	温升 Temperature Rise K	力矩 Moment N.m	转速 Speed rpm	电流 Current A	效率 Efficiency %	温升 Temperature Rise K
1	0.595	200	0.485	26.5	≤50K	0.010	200	0.850	3.00	≤80K
2	0.595	500	0.671	47.5	≤50K	0.150	500	1.070	8.00	≤80K
3	0.595	1000	0.966	62.0	≤40K	0.500	1000	1.186	32.5	≤80K
4	0.595	1500	1.200	69.0	≤40K	0.915	1400	0.981	60.0	≤55K

环境温度 -10°C ~ +40°C 下使用 Ambient temperature -10°C ~ +40°C environment

■ 薄型、大功率 Thin, High Power

无刷电动机的转子使用永磁体，因此实现了薄型和大功率；比如，与安装尺寸90的三相感应电动机相比总长缩短>75mm，输出功率达到1.3倍。若采用无刷电动机，有助于实现装置的小型化。

Brushless DC motors have a slim body and provide high power due to permanent magnets being used in the rotor. For example, the overall length is 75mm shorter and the output power is 1.3 times higher than that of three-phase induction motors with a frame size of 90mm. Using brushless DC motors can contribute to downsizing and space saving.



■ 搭载保护功能，有助于保护设备系统的安全 Protection Function, Help To Protect The Safety Of The Equipment System

由于加载了过流、欠压、缺相等保护功能，因此可保证设备系统运行时的安全。

Due to the load of the overcurrent, undervoltage, open phase protection, for this reason can ensure the safety of equipment system.

■ 电机的一般规格——转速 Motor Spec——Speed

电机轴转速 Motor Speed	减速比 Reduction Ratio	出轴转速 Output Shaft Speed											
		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25
200~1500RPM		67~500	56~417	40~300	33~250	27~200	22~167	20~150	16~120	13~100	11~83	10~75	8~60
2000RPM		667	556	400	334	267	223	200	160	134	112	100	80
2500RPM		833	695	500	417	334	278	250	200	167	139	125	100

电机轴转速 Motor Speed	减速比 Reduction Ratio	出轴转速 Output Shaft Speed											
		30	36	50	60	75	90	100	120	150	180	200	
200~1500RPM		7~50	6~42	4~30	3~25	3~20	2~17	2~15	2~12.5	1.5~10	1~8	1~7.5	
2000RPM		67	56	40	34	27	23	20	17	14	12	10	
2500RPM		84	70	50	42	34	28	25	21	17	14	12.5	

■ 电机的一般规格——产品种类 Motor Spec——Product Type

电动机 Motor	方形尺寸 Square Size	输出功率 Output Power	机型 Model	驱动器 Driver	电源电压 Voltage Supply
	60X60	15、25	标准型 Standard type IP40 或 Or IP54		DC24~48 单相 Single phase 100~120V 单相 Single phase 220~240V
	80X80	40、60			
	90X90(GN)	40、60			
	90X90(GU)	60、90、120			
	104X104	200、400			

电机的一般规格——基本性能 Motor Spec——Basic Performance

项目		电动机	驱动器
绝缘电阻（不得将电机与驱动连接状态下测试）		在常温常湿环境下连续运行后，以DC500V电阻表测试电动机线圈与外壳之间的测量值应在50MΩ以上	在常温常湿环境下连续运行后，电源端子与保护接地端子间、电源端子与输入/输出信号端之间的电阻值以DC500V电阻表测量达50MΩ以上
绝缘耐压（不得将电机与驱动连接状态下测试）		在常温常湿环境下连续运行后，线圈、外壳间以50Hz、AC1.5kV施加1分钟无异常，泄漏电流<10mA	在常温常湿环境下连续运行后，电源端子与保护接地端子间以50Hz、AC1.5kV，电源端子与输入/输出信号端之间以50Hz、AC1.5kV施加1分钟无异常
温度上升		在常温常湿环境下连续运行后，以热电偶法测量的线圈温度上升值在55℃以下、测量外壳表面温度上升值在40℃以下①	在常温常湿环境下连续运行后，以热电偶法测量的铝质散热板温度上升值在50℃以下
使用环境	环境温度	-10℃~+40℃ (无结冰)	
	环境湿度	85%以下 (无凝霜)	
	海拔高度	1000m以下	
	介质环境	无腐蚀性气体、尘埃；不可在含有放射性物质、磁场及真空等特殊环境中使用	
	振动	不可施加连续振动或过度冲击	
保存环境②	环境温度	-10℃~+40℃ (无结冰)	
	环境湿度	85%以下 (无凝霜)	
	海拔高度	1000m以下	
耐热等级		B级	/
保护等级		Ip40 & IP54	IP20

①为了使电动机外壳表面温度能保持在90℃以下，需将电动机安装在以下尺寸的散热板（材质：铝）上；25W:115X115X厚度5、60W:135X135X厚度5、120W:165X165X厚度5、200W:200X200X厚度5。(单位：mm)

②保护环境也包括运输途中的短期值。

Project Item		Motor	Driver
Insulation resistance (No motor and drive connection state test)		50MΩ or more when 500VDC megger is applied between the windings and the case after continuous operation under normal ambient temperature and humidity	50MΩ or more when 500VDC megger is applied between the power supply terminal and the protective earth terminal, and between the power supply terminal and the I/O signal terminal after continuous operation under normal ambient temperature and humidity
Insulation resistance (No motor and drive connection state test)		Sufficient to withstand 1.5kVAC at 50Hz applied between the windings and the case for 1 minute after continuous operation under normal ambient temperature and humidity	Sufficient to withstand 1.5kVAC at 50Hz applied between the power supply terminal and the protective earth terminal and the I/O signal terminal for 1 minute after continuous operation under normal ambient temperature and humidity
Temperature rise		The temperature rise of windings is 55℃ max, and that of the case surface is 40℃ max, measured by the thermocouple method after rated continuous operation under normal ambient temperature and humidity	The temperature of the heat sink is 50℃ max, measured by the thermocouple method after rated continuous operation under normal ambient temperature and humidity
Use environment	Ambient temperature	-10℃~+40℃ (Non-freezing)	
	Ambient humidity	85% or less (No-condensing)	
	Altitude	1000m following	
	Medium environment	Non corrosive gas, dust; can not be used in a special environment containing radioactive substances, magnetic fields and vacuum, etc	
	Vibration	Not to exert a continuous vibration or excessive impact	
Save environment②	Ambient temperature	-10℃~+40℃ (Non-freezing)	
	Ambient humidity	85% or less (No-condensing)	
	Altitude	1000m following	
Heat resistance grade		B stage	/
Protection level		IP40 & IP54	IP20

① In order to make the motor shell surface temperature can be maintained below 90℃, the motor installed in the following dimensions of the radiating plate (Material: aluminum); thickness of 25W: 115X115X5, the thickness of the 60W: 135X135X5, the thickness of the 120W: 165X165X5, the thickness of the 200W: 200X200X5. (Unit: mm)

② The storage condition applies to a short period such as a period during transportation.

型号阅读方法 PRODUCT CODE

电动机 Motor

Z 5 BLD 90 - 220 GN(L) - 25S - M
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	公司名称 Company	中大电机 ZD MOTOR			
②	座机号 Code	2	4	5	6
	电机安装法兰 Mounting flange mm	□60	□80	□90	□104
	机壳尺寸 Case dimension	60*60	80*80	90*90	104*104
③	电机种类 Motor type	BLD: 无刷直流电机 BLD: DC Brushless gear motor			
④	输出功率(W) Output power (W)	(例e.g) 90: 90W			
⑤	电源电压 Voltage	(例e.g) 24: 24VDC (可选电压24V~48VDC, 单相100V~120VAC, 单相220V~240VAC, 50/60Hz) 24: 24VDC (Optional voltage 24V~48VDC, single phase 100V~120VAC, single phase 220V~240VAC, 50/60Hz)			
⑥	相对于方型减速箱 Relative to square type gear box:	齿轴形状 Motor shaft type GN: GN型齿轮轴 GN type gear shaft GU: GU型齿轮轴 GU type gear shaft			
	相对于L型减速箱 L type gearbox:	齿轴形状 Shaft shape GNL: GN型L系列齿轮轴 (主要为2&4系列) Type L GN series gear shaft (Mainly for 2&4 series) GUL: GU型L系列齿轮轴 (主要为5&6系列) Type L GU series gear shaft (Mainly for 5&6 series)			
	光电机出轴形状 Shape of the output shaft:	A: 圆轴型 Circular shaft type A1: 键槽型 Keyway type			
⑦	电机转速 Motor speed	(例e.g) 25S: 2500RPM 低压时为30S Low voltage for 30S			
⑧	电机附加配件 M: 电磁刹车器 BFE: 闭环反馈方式, 一般指电机增加编码器 (包括简易型霍尔编码器) Motor parts M: Electromagnetic brake BFE: Closed loop feedback mode, generally refers to the motor to increase the encoder (Including the simple holzer encoder)				

方型减速器 Square Shape Gearbox

5 GN 50 K
 ① ② ③ ④

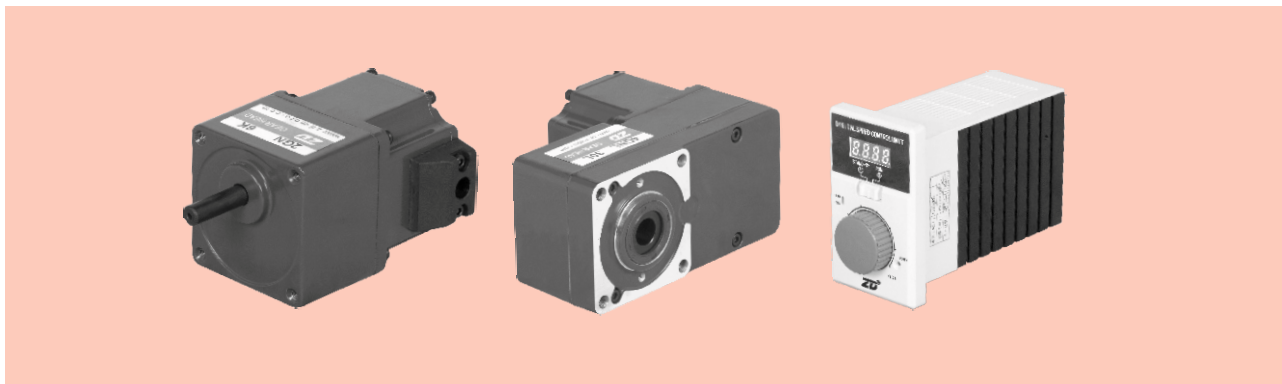
①	减速机安装尺寸 Gearhead frame size	2: 60mm 4: 80mm 5: 90mm 6: 104mm
②	类型 Gear type	GN: GN型齿轮 GN type gear GU: GU型齿轮轴 GU type gear
③	减速比 Gear ratio	(例e.g) 50: 减速比 50: Reduction ratio
④	轴承种类 Bearing type	K: 滚珠轴承 (对GU型方箱体标注为KB) K: Ball bearing (On the GU type square box marked as KB)

L型减速器 L Type Gearbox

5 GU 50 LC
 ① ② ③ ④

①	减速机安装尺寸 Gearhead frame size	2: 60mm 4: 80mm 5: 90mm 6: 104mm
②	类型 Gear type	GN: GN型齿轮轴 (针对L系列2&4) Type GN gear shaft (For L series 2&4) GU: GU型齿轮轴 (针对L系列5&6) Type GU gear shaft (For L series 5&6)
③	减速比 Gear ratio	(例e.g) 50: 减速比 50: Reduction ratio
④	减速箱类型 Bearing type	LC: L型空心轴输出减速器 L type hollow shaft output reducer RC: 弧锥齿空心轴输出 Hollow shaft output of spiral bevel gear RT: 弧锥齿实心轴输出 Solid shaft output of spiral bevel gear

60系列直流无刷减速电机 60 SERIES OF BRUSHLESS DC MOTOR



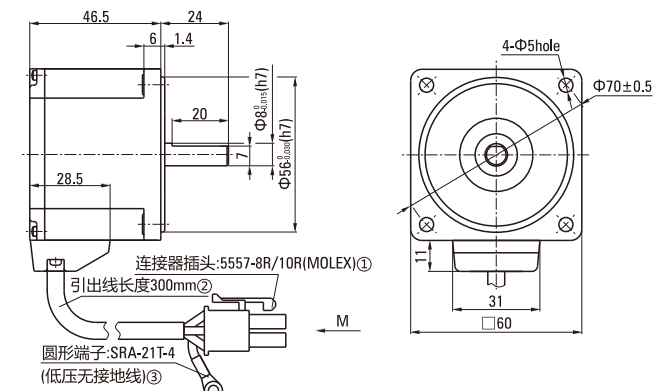
电机基本特性 Basic Characteristics Of Motor

● 25W (DC电源时适用于24VDC/36VDC/48VDC) 25W (DC Power Supply When Applied To 24VDC/36VDC/48VDC)

额定功率(连续) Rated power (Continuous)	W	25 (15W/25W)			
额定转速 Rated speed	r/min	2500			
额定转矩 Rated torque	N.m	0.096			
瞬时最大转矩 Instantaneous maximum torque	N.m	0.144			
转子转动惯量 Rotor moment of inertia	J:×10 ⁻⁴ kg.m ²	0.042			
速度控制范围 Speed control range	RPM	高压High pressure 200-2500RPM (低压Low pressure 200-3000RPM)			
速率变化率 Speed control range	对负载 On load	±1.0%以下: 条件 0~额定转矩、额定转速、额定电压、常温 Below ±1%: condition 0~rated torque, rated speed, rated voltage, room temperature			
	对电压 On voltage	±1.0%以下: 条件 额定电压±10%、额定转速、额定负载、常温 Below ±1%: condition rated voltage ±10%, rated speed, rated load, room temperature			
	对温度 On temperature	±1.0%以下: 条件 使用环境温度0~+40°C 额定转速、额定负载、额定电压 Below ±1%: Conditions of ambient temperature 0~+40°C rated voltage, rated load and rated speed			
电源输入 Power input	额定电压 Rated voltage	V	单相Single phase 110V	单相Single phase 220V	24VDC(可选Optional 36VDC/48VDC)
	电压容许范围 Voltage tolerance range		±10%		
	频率 Frequency	Hz	50/60	/	
	频率容许范围 Frequency tolerance range		±5%	/	
	额定输入电流 Rated input current	A	1.0	0.6	1.7
	瞬时最大输入电流 Instantaneous maximum input current	A	2.0	1.2	2.6

圆轴型光电机 Circular Shaft Type Optical Motor

● Z2BLD25-□A-25S □—电压 Voltage 24/36/48/110/220



①Connector: 5557-8R/10R (MOLEX) ②The sheath length of lead line 300mm ③Round terminal: SRA-21T-4 (Low ground)

● 低压电机接线插孔对应信号说明

Low Voltage Wrie Plughole Corresp-onding Signal Explanation

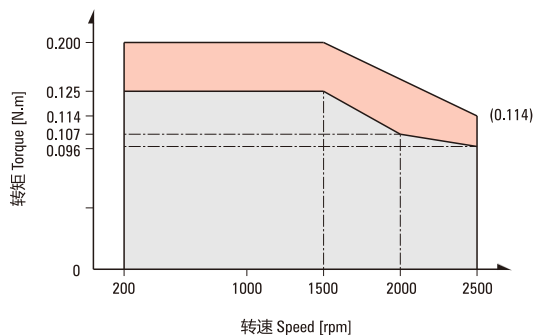
plughole	1	2	3	4
signal	U	W	Hv	Hu
plughole	5	6	7	8
signal	V	GND	Hw	Vcc

● 高压电机接线插孔对应信号说明

High Voltage Wrie Plughole Corresp-onding Signal Explanation

排线对应的意义									
1	2	3	4	5	6	7	8	9	10
蓝 (用)	黄 (用)	黄 (用)	绿 (用)	绿 (用)	蓝 (用)		金属丝网	红 (用)	黑 (用)
W	Hu	U	Hv	V	Hw			Vcc+5V	GND

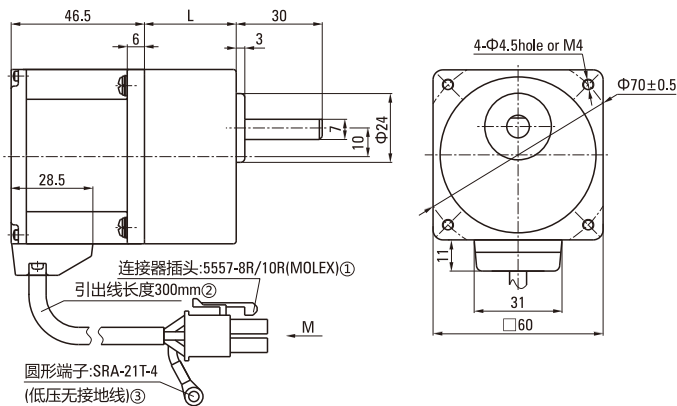
● Z2BLD25-220A-25S 曲线图 Diagram (ZD标准驱动器 ZD Standard Drive)



25W

● 平行轴减速器 Parallel Shaft Speed Reducer

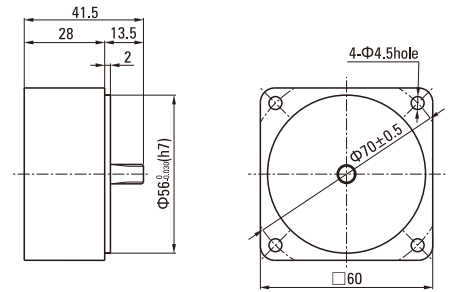
Z2BLD25-□GN-25S/2GN□K □—电压 Voltage 24/36/48/110/220
□—速比数值 Velocity Ratio Value



①Connector: 5557-8R/10R (MOLEX) ②The sheath length of lead line 300mm ③Round terminal: SRA-21T-4 (Low ground)

● 中间减速器 Decimal Gearhead

ZGN□XK □—速比数值,一般为10 Velocity Ratio Value, Generally 10



减速器型号 Gearhead Model	减速比 Gear Ratio	L尺寸 Dimension
ZGN□K	3~18	32&41
	20~200	41

●减速器型号的□中为减速比的数值
Enter the gear ratio in the box (□) within the model name

● Z2BLD15-□GN-25S/2GN□K整机容许力矩 (单位: N.m) Z2BLD15-□GN-25S/2GN□K Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	减速比 Reduction 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	200
Z2BLD15-□GN	200~1500RPM	0.18	0.22	0.30	0.36	0.45	0.54	0.60	0.75	0.91	1.08	1.09	1.36	1.63	1.96	2.72	2.95	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	2000RPM	0.17	0.21	0.29	0.35	0.44	0.52	0.58	0.73	0.87	1.04	1.04	1.30	1.56	1.87	2.60	2.82	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	2500RPM	0.14	0.17	0.23	0.28	0.35	0.42	0.46	0.58	0.70	0.84	0.84	1.05	1.25	1.51	2.09	2.27	2.83	3.00	3.00	3.00	3.00	3.00	3.00

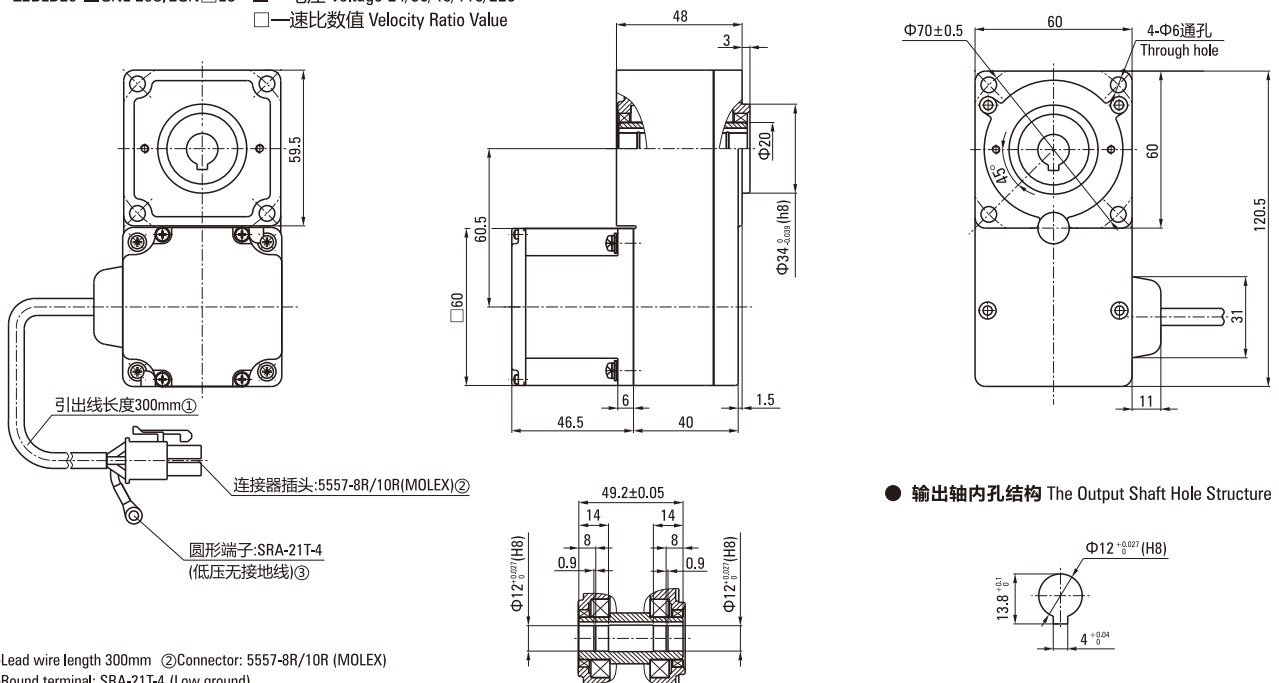
● Z2BLD25-□GN-25S/2GN□K整机容许力矩 (单位: N.m) Z2BLD25-□GN-25S/2GN□K Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	减速比 Reduction 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	200
Z2BLD25-□GN	200~1500RPM	0.30	0.36	0.50	0.60	0.75	0.91	1.00	1.26	1.51	1.81	1.81	2.27	2.72	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	2000RPM	0.29	0.35	0.49	0.58	0.73	0.87	0.97	1.21	1.46	1.75	1.75	2.18	2.61	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	2500RPM	0.23	0.28	0.39	0.46	0.58	0.69	0.77	0.97	1.16	1.39	1.39	1.74	2.09	2.51	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

注Note: 表格中的□(灰底部分)表示旋转方向与电机转向一致。The □(gray) in the table indicates that the rotation direction is consistent with the motor.
(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.)

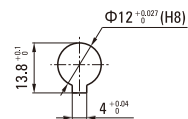
● L型减速器 L Type Speed Reducer

Z2BLD25-□GNL-25S/2GN□LC □—电压 Voltage 24/36/48/110/220
□—速比数值 Velocity Ratio Value



①Lead wire length 300mm ②Connector: 5557-8R/10R (MOLEX)
③Round terminal: SRA-21T-4 (Low ground)

● 输出轴内孔结构 The Output Shaft Hole Structure



● Z2BLD15-□GNL-25S/2GN□LC整机容许力矩 (单位: N.m) Z2BLD15-□GNL-25S/2GN□LC Machine Allowable Torque (Unit: N.m)

电机轴转速 Motor Speed	减速比 Reduction Ratio	5	10	15	20	30	50	100	200
200~1500RPM		0.27	0.54	0.82	1.09	1.63	2.72	5.44	10.9
2000RPM		0.23	0.46	0.69	0.92	1.38	2.30	4.60	9.20
2500RPM		0.21	0.42	0.63	0.84	1.25	2.09	4.18	8.37

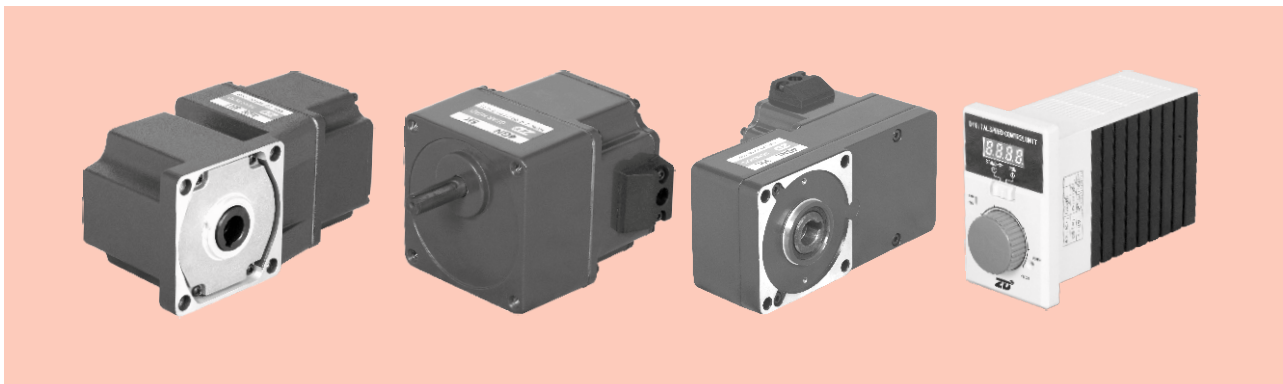
注Note: 表格中的所有速比旋转方向与电机转向相反。All gearbox output turn direction in form are opposite as motor turn direction.
(不同转速及速比下的力矩为ZD标准驱动器下测试所得。The torque under different speed and speed ratio is obtained under the ZD standard.)

● Z2BLD25-□GNL-25S/2GN□LC整机容许力矩 (单位: N.m) Z2BLD25-□GNL-25S/2GN□LC Machine Allowable Torque (Unit: N.m)

电机轴转速 Motor Speed	减速比 Reduction Ratio	5	10	15	20	30	50	100	200
200~1500RPM		0.50	1.00	1.51	2.01	2.72	4.53	9.06	16.4
2000RPM		0.43	0.85	1.28	1.70	2.30	3.83	7.67	13.9
2500RPM		0.35	0.70	1.05	1.39	2.09	3.49	6.97	12.6

注Note: 表格中的所有速比旋转方向与电机转向相反。All gearbox output turn direction in form are opposite as motor turn direction.
(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.)

80系列直流无刷减速电机 80 SERIES OF BRUSHLESS DC MOTOR



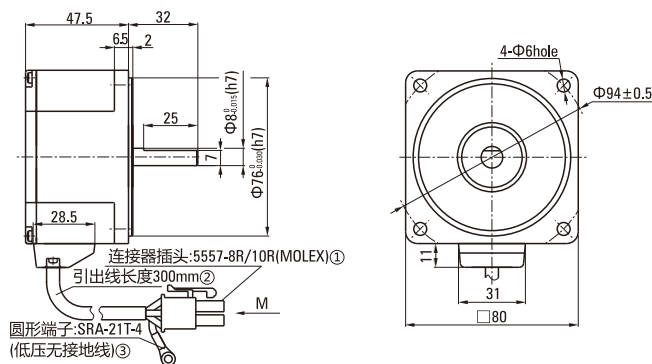
电机基本特性 Basic Characteristics Of Motor

● 60W (DC电源时适用于24VDC/36VDC/48VDC) 60W (DC Power Supply When Applied To 24VDC/36VDC/48VDC)

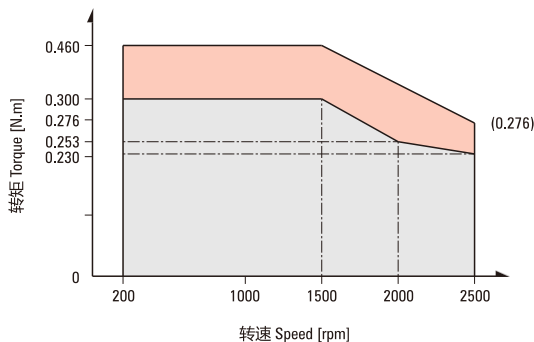
额定功率(连续) Rated power (Continuous)	W	60 (40W/60W)			
额定转速 Rated speed	r/min	2500			
额定转矩 Rated torque	N.m	0.230			
瞬时最大转矩 Instantaneous maximum torque	N.m	0.345			
转子转动惯量 Rotor moment of inertia	J:X10 ⁻⁴ kg.m ²	0.082			
速度控制范围 Speed control range	RPM	高压High pressure 200-2500RPM (低压Low pressure 200-3000RPM)			
速度变化率 Speed control range	对负载 On load	±1.0%以下: 条件 0~额定转矩、额定转速、额定电压、常温 Below ±1%: condition 0~rated torque, rated speed, rated voltage, room temperature			
	对电压 On voltage	±1.0%以下: 条件 额定电压±10%、额定转速、额定负载、常温 Below ±1%: condition rated voltage ±10%, rated speed, rated load, room temperature			
	对温度 On temperature	±1.0%以下: 条件 使用环境温度0~+40°C 额定转速、额定负载、额定电压 Below ±1%: Conditions of ambient temperature 0~+40°C rated voltage, rated load and rated speed			
电源输入 Power input	额定电压 Rated voltage	V	单相Single phase 110V	单相Single phase 220V	24VDC(可选Optional 36VDC/48VDC)
	电压容许范围 Voltage tolerance range		±10%		
	频率 Frequency	Hz	50/60		
	频率容许范围 Frequency tolerance range		±5%		
	额定输入电流 Rated input current	A	1.7	1.0	3.7
瞬时最大输入电流 Instantaneous maximum input current	A	3.3	1.9	5.6	

圆轴型光电机 Circular Shaft Type Optical Motor

● Z4BLD60-□A-25S □—电压 Voltage 24/36/48/110/220



● Z4BLD60-220A-25S 曲线图 Diagram (ZD标准驱动器 ZD Standard Drive)



①Connector: 5557-8R/10R (MOLEX) ②The sheath length of lead line 300mm ③Round terminal: SRA-21T-4 (Low ground)

● 低压电机接线插孔对应信号说明

Low Voltage Wrie Plughole Corresp-onding Signal Explanation

plughole	1	2	3	4
signal	U	W	Hv	Hu
plughole	5	6	7	8
signal	V	GND	Hw	Vcc

● 高压电机接线插孔对应信号说明

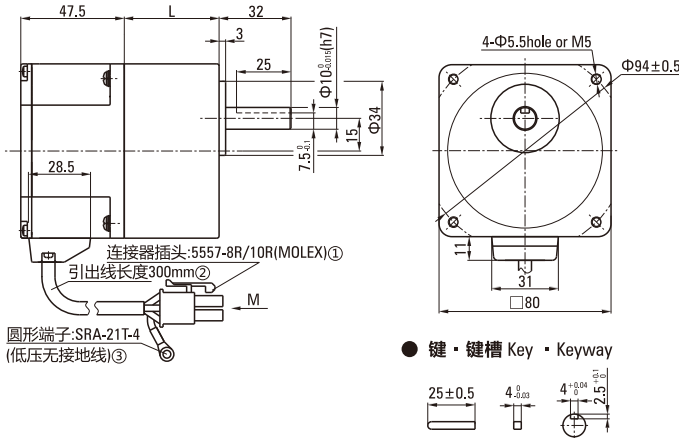
High Voltage Wrie Plughole Corresp-onding Signal Explanation

排线对应的意义									
1	2	3	4	5	6	7	8	9	10
蓝 (粗)	黄 (粗)	黄 (粗)	绿 (粗)	绿 (粗)	蓝 (粗)		金属丝网	红 (粗)	黑 (粗)
W	Hu	U	Hv	V	Hw			Vcc+5V	GND

60W

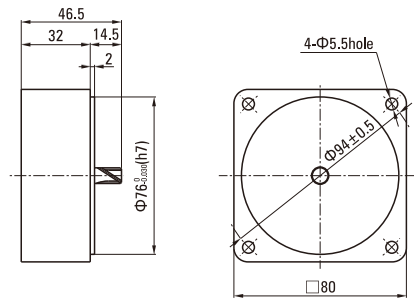
● 平行轴减速机 Parallel Shaft Speed Reducer

Z4BLD60-□GN-25S/4GN□K □—电压 Voltage 24/36/48/110/220
□—速比数值 Velocity Ratio Value



● 中间减速器 Decimal Gearhead

4GN□XK □—速比数值,一般为10 Velocity Ratio Value, Generally 10



减速器型号 Gearhead Model	减速比 Gear Ratio	L尺寸 Dimension
4GN□K	3~18	32&43.5
	20~200	43.5

● 减速器型号的□中为减速比的数值
Enter the gear ratio in the box (□) within the model name

①Connector: 5557-8R/10R (MOLEX) ②The sheath length of lead line 300mm ③Round terminal: SRA-21T-4 (Low ground)

● Z4BLD40-□GN-25S/4GN□K整机容许力矩 (单位: N.m) Z4BLD40-□GN-25S/4GN□K Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	减速比 Reduction 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	200
Z4BLD40-□GN	200~1500RPM	0.48	0.58	0.80	0.97	1.21	1.45	1.61	2.01	2.41	2.90	2.90	3.63	4.35	5.22	7.25	7.87	8.00	8.00	8.00	8.00	8.00	8.00	8.00
	2000RPM	0.47	0.56	0.78	0.93	1.16	1.40	1.55	1.94	2.33	2.79	3.10	3.48	4.17	5.00	6.95	7.56	8.00	8.00	8.00	8.00	8.00	8.00	8.00
	2500RPM	0.37	0.45	0.62	0.74	0.93	1.11	1.24	1.55	1.86	2.23	2.47	2.79	3.35	4.02	5.58	6.05	7.56	8.00	8.00	8.00	8.00	8.00	8.00

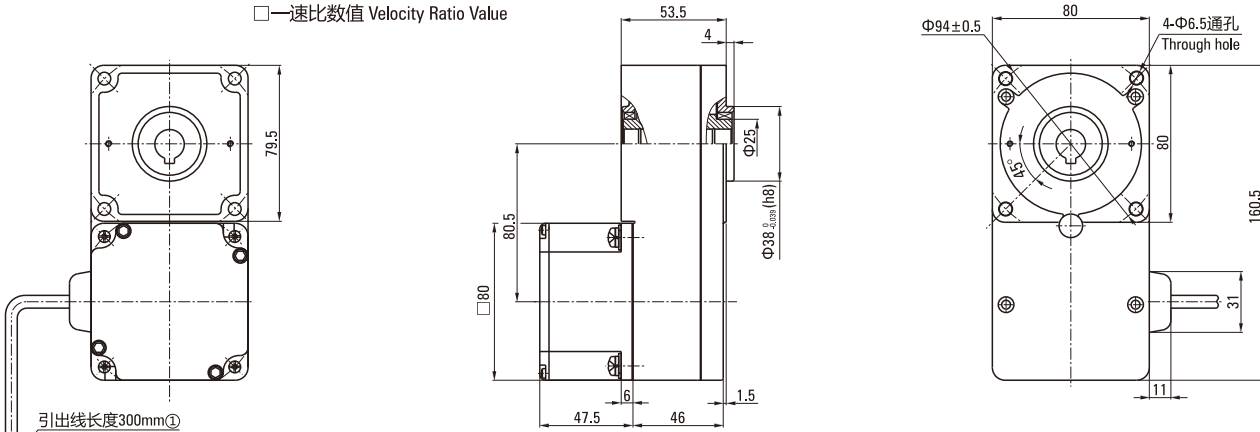
● Z4BLD60-□GN-25S/4GN□K整机容许力矩 (单位: N.m) Z4BLD60-□GN-25S/4GN□K Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	减速比 Reduction 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	200
Z4BLD60-□GN	200~1500RPM	0.72	0.87	1.21	1.45	1.81	2.17	2.41	3.02	3.62	4.34	4.35	5.44	6.53	7.83	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
	2000RPM	0.70	0.84	1.16	1.39	1.74	2.09	2.32	2.90	3.48	4.18	4.64	5.23	6.27	7.52	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
	2500RPM	0.56	0.67	0.93	1.11	1.39	1.67	1.86	2.32	2.78	3.34	3.71	4.18	5.02	6.02	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00

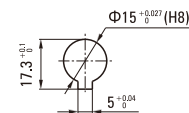
注Note: 表格中的□(灰底部分)表示旋转方向与电机转向一致。The □(gray) in the table indicates that the rotation direction is consistent with the motor. (不同转速及速比下的力矩为ZD标准驱动器下测试所得。The torque under different speed and speed ratio is obtained under the ZD standard.)

● L型减速机 L Type Speed Reducer

Z4BLD60-□GNL-60S/4GN□LC □—电压 Voltage 24/36/48/110/220
□—速比数值 Velocity Ratio Value



● 输出轴内孔结构 The Output Shaft Hole Structure



①Lead wire length 300mm ②Connector: 5557-8R/10R (MOLEX)
③Round terminal: SRA-21T-4 (Low ground)

● Z4BLD40-□GNL-25S/4GN□LC整机容许力矩 (单位: N.m) Z4BLD40-□GNL-25S/4GN□LC Machine Allowable Torque (Unit: N.m)

电机轴转速 Motor Speed	5	10	15	20	30	50	100	200
200~1500RPM	0.73	1.45	2.18	2.90	4.35	7.25	14.5	29.0
2000RPM	0.61	1.23	1.84	2.45	3.68	6.13	12.3	24.5
2500RPM	0.56	1.12	1.67	2.23	3.35	5.58	11.2	22.3

● Z4BLD60-□GNL-25S/4GN□LC整机容许力矩 (单位: N.m) Z4BLD60-□GNL-25S/4GN□LC Machine Allowable Torque (Unit: N.m)

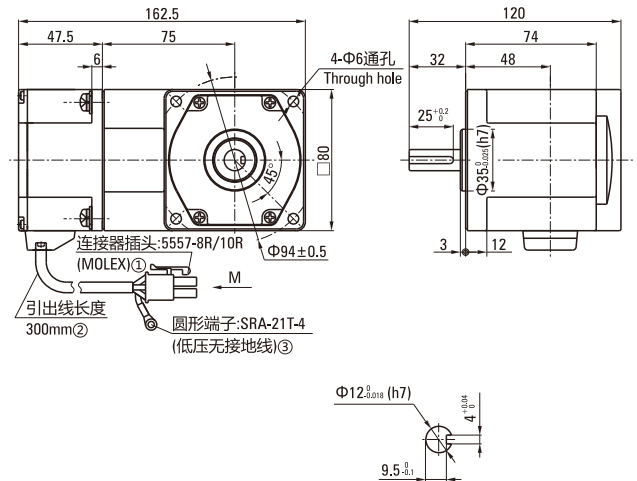
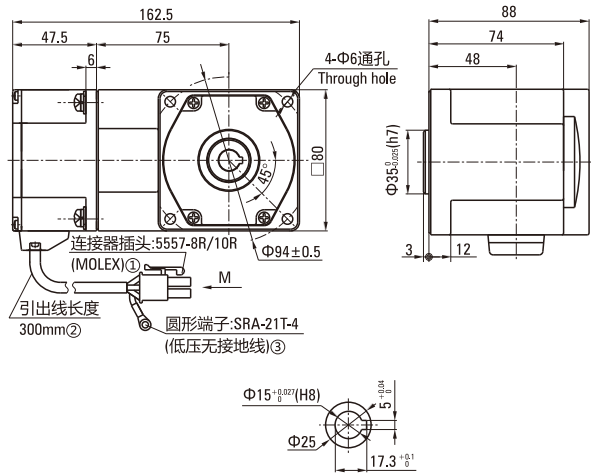
电机轴转速 Motor Speed	5	10	15	20	30	50	100	200
200~1500RPM	1.21	2.41	3.62	4.83	6.53	10.9	21.8	39.3
2000RPM	1.02	2.04	3.06	4.08	5.52	9.20	18.4	33.3
2500RPM	0.83	1.67	2.51	3.35	5.02	8.37	16.7	30.3

注Note: 表格中的所有速比旋转方向与电机转向相反。All gearbox output turn direction in form are opposite as motor turn direction, (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.)

● 弧锥直角减速电机 Arc Cone Right Angle Speed Reducer Motor

Z4BLD60-□GN-25S/4GN□RC □—电压 Voltage 24/36/48/110/220
□—速比数值 Velocity Ratio Value

Z4BLD60-□GN-25S/4GN□RT □—电压 Voltage 24/36/48/110/220
□—速比数值 Velocity Ratio Value



①Connector: 5557-8R/10R (MOLEX) ②The sheath length of lead line 300mm ③Round terminal: SRA-21T-4 (Low ground)

● Z4BLD40-□GN-25S/4GN□RC/RT整机容许力矩 (单位: N.m) Z4BLD40-□GN-25S/4GN□RC/RT Machine Allowable Torque (Unit: N.m)

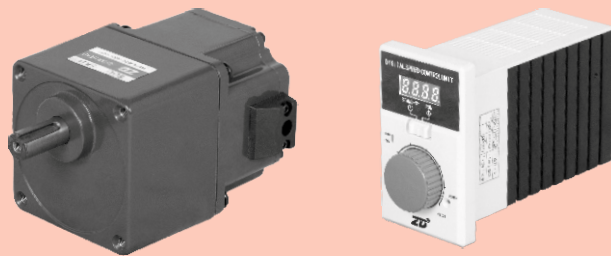
型号 Model	电机轴转速 Motor Speed	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
Z4BLD40-□GN	200~1500RPM	1.21	1.45	1.61	2.01	2.41	2.90	2.90	3.63	4.35	5.22	7.25	7.87	8.00	8.00	8.00	8.00	8.00	8.00
	2000RPM	1.02	1.23	1.36	1.70	2.04	2.52	2.80	3.50	4.20	5.04	7.00	7.56	8.00	8.00	8.00	8.00	8.00	8.00
	2500RPM	0.83	1.00	1.12	1.39	1.67	2.01	2.23	2.79	3.35	4.02	5.58	6.05	7.56	8.00	8.00	8.00	8.00	8.00

● Z4BLD60-□GN-25S/4GN□RC/RT整机容许力矩 (单位: N.m) Z4BLD60-□GN-25S/4GN□RC/RT Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
Z4BLD60-□GN	200~1500RPM	1.81	2.17	2.41	3.02	3.62	4.34	4.35	5.44	6.53	7.83	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
	2000RPM	1.57	1.88	2.09	2.61	3.14	3.76	4.18	5.23	6.27	7.52	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
	2500RPM	1.25	1.51	1.67	2.09	2.51	3.01	3.35	4.18	5.02	6.02	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00

注Note: 表格中的 (灰底部分) 表示旋转方向与电机转向一致。The (gray) in the table indicates that the rotation direction is consistent with the motor. (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.)

90系列直流无刷减速电机 (GN型) 90 SERIES OF BRUSHLESS DC MOTOR (GN TYPE)



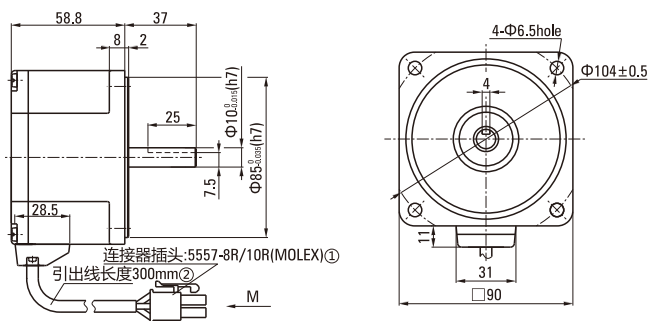
电机基本特性 Basic Characteristics Of Motor

● 60W (DC电源时适用于24VDC/36VDC/48VDC) 60W (DC Power Supply When Applied To 24VDC/36VDC/48VDC)

额定功率(连续) Rated power (Continuous)	W	60 (40W/60W)			
额定转速 Rated speed	r/min	2500			
额定转矩 Rated torque	N.m	0.230			
瞬时最大转矩 Instantaneous maximum torque	N.m	0.345			
转子转动惯量 Rotor moment of inertia	J:×10 ⁻⁴ kg.m ²	0.082			
速度控制范围 Speed control range	RPM	高压High pressure 200-2500RPM (低压Low pressure 200-3000RPM)			
速率变化率 Speed control range	对负载 On load	±1.0%以下: 条件 0~额定转矩、额定转速、额定电压、常温 Below ±1%: condition 0~rated torque, rated speed, rated voltage, room temperature			
	对电压 On voltage	±1.0%以下: 条件 额定电压±10%、额定转速、额定负载、常温 Below ±1%: condition rated voltage ±10%, rated speed, rated load, room temperature			
	对温度 On temperature	±1.0%以下: 条件 使用环境温度0~+40°C 额定转速、额定负载、额定电压 Below ±1%: Conditions of ambient temperature 0~+40°C rated voltage, rated load and rated speed			
电源输入 Power input	额定电压 Rated voltage	V	单相Single phase 110V	单相Single phase 220V	24VDC(可选Optional 36VDC/48VDC)
	电压容许范围 Voltage tolerance range		±10%		
	频率 Frequency	Hz	50/60	/	
	频率容许范围 Frequency tolerance range		±5%	/	
	额定输入电流 Rated input current	A	1.7	1.0	3.7
	瞬时最大输入电流 Instantaneous maximum input current	A	3.3	1.9	5.6

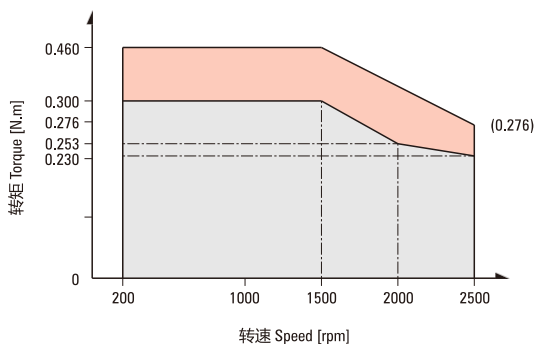
圆轴型光电机 Circular Shaft Type Optical Motor

● Z5BLD60-□A-25S □—电压 Voltage 24/36/48/110/220



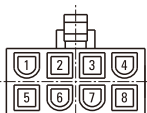
①Connector: 5557-8R/10R (MOLEX) ②Lead wire length 300mm

● Z5BLD60-220A-25S 曲线图 Diagram (ZD标准驱动器 ZD Standard Drive)



● 低压电机接线插孔对应信号说明

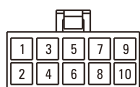
Low Voltage Wire Plughole Corresponding Signal Explanation



plughole	1	2	3	4
signal	U	W	Hv	Hu
plughole	5	6	7	8
signal	V	GND	Hw	Vcc

● 高压电机接线插孔对应信号说明

High Voltage Wire Plughole Corresponding Signal Explanation

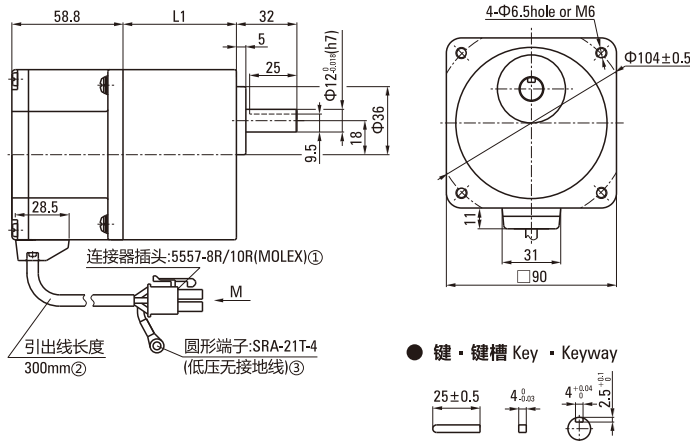


排线对应的意义									
1	2	3	4	5	6	7	8	9	10
蓝 (用)	黄 (用)	黄 (用)	绿 (用)	绿 (用)	蓝 (用)		金属丝网	红 (用)	黑 (用)
W	Hu	U	Hv	V	Hw			Vcc+5V	GND

60W

● 平行轴减速机 Parallel Shaft Speed Reducer

Z5BLD60-□GN-25S/5GN□K □—电压 Voltage 24/36/48/110/220
□—速比数值 Velocity Ratio Value

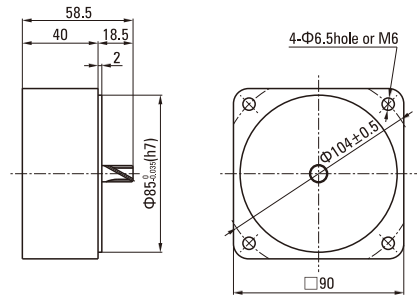


连接器插头:5557-8R/10R(MOLEX)①
引出线长度 300mm②
圆形端子:SRA-21T-4 (低压无接地线)③

● 键·键槽 Key · Keyway

● 中间减速器 Decimal Gearhead

5GN□XK □—速比数值,一般为10 Velocity Ratio Value, Generally 10



减速器型号 Gearhead Model	减速比 Gear Ratio	L尺寸 Dimension
5GN□K	3~18	42&60
	20~200	60

● 减速器型号的□中为减速比的数值
Enter the gear ratio in the box (□) within the model name

①Connector: 5557-8R/10R (MOLEX) ②The sheath length of lead line 300mm ③Round terminal: SRA-21T-4 (Low ground)

● Z5BLD40-□GN-25S/5GN□K整机容许力矩 (单位: N.m) Z5BLD40-□GN-25S/5GN□K Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	减速比 Reduction 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	200
Z5BLD40-□GN	200~1500RPM	0.48	0.58	0.80	0.97	1.21	1.45	1.61	2.01	2.41	2.90	2.90	3.63	4.35	5.22	7.25	7.87	9.83	10.0	10.0	10.0	10.0	10.0	10.0
	2000RPM	0.46	0.56	0.77	0.93	1.16	1.39	1.55	1.93	2.34	2.51	2.79	3.49	4.18	5.10	6.30	7.56	9.45	10.0	10.0	10.0	10.0	10.0	10.0
	2500RPM	0.37	0.45	0.62	0.74	0.93	1.11	1.24	1.55	1.86	2.01	2.23	2.79	3.35	4.02	5.04	6.05	7.56	9.08	10.0	10.0	10.0	10.0	10.0

● Z5BLD60-□GN-25S/5GN□K整机容许力矩 (单位: N.m) Z5BLD60-□GN-25S/5GN□K Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	减速比 Reduction 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	200
Z5BLD60-□GN	200~1500RPM	0.72	0.87	1.21	1.45	1.81	2.17	2.41	3.02	3.62	4.34	4.35	5.44	6.53	7.83	9.83	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	2000RPM	0.70	0.84	1.16	1.39	1.74	2.09	2.32	2.90	3.48	3.76	4.18	5.23	6.27	7.54	9.45	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	2500RPM	0.56	0.67	0.93	1.11	1.39	1.67	1.86	2.32	2.78	3.01	3.35	4.18	5.02	6.02	7.56	9.08	10.0	10.0	10.0	10.0	10.0	10.0	10.0

注Note: 表格中的□ (灰底部分) 表示旋转方向与电机转向一致。The □ (gray) in the table indicates that the rotation direction is consistent with the motor. (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.)

90系列直流无刷减速电机 (GU型) 90 SERIES OF BRUSHLESS DC MOTOR (GU TYPE)



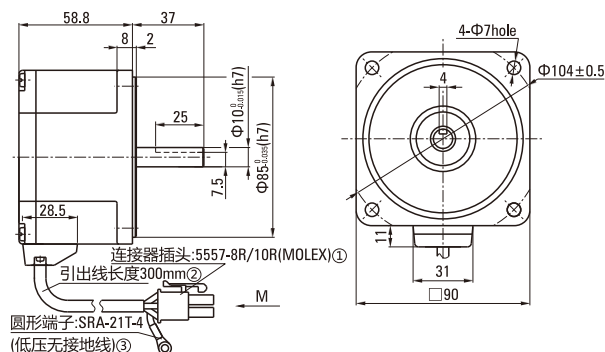
电机基本特性 Basic Characteristics Of Motor

● 120W (DC电源时适用于24VDC/36VDC/48VDC) 120W (DC Power Supply When Applied To 24VDC/36VDC/48VDC)

额定功率(连续) Rated power (Continuous)	W	120 (60W/90W/120W)			
额定转速 Rated speed	r/min	2500			
额定转矩 Rated torque	N.m	0.458			
瞬时最大转矩 Instantaneous maximum torque	N.m	0.687			
转子转动惯量 Rotor moment of inertia	J·X10 ⁻⁴ kg.m ²	0.250			
速度控制范围 Speed control range	RPM	高压High pressure 200-2500RPM (低压Low pressure 200-3000RPM)			
速率变化率 Speed control range	对负载 On load	±1.0%以下: 条件 0~额定转矩、额定转速、额定电压、常温 Below ±1%: condition 0~rated torque, rated speed, rated voltage, room temperature			
	对电压 On voltage	±1.0%以下: 条件 额定电压±10%、额定转速、额定负载、常温 Below ±1%: condition rated voltage ±10%, rated speed, rated load, room temperature			
	对温度 On temperature	±1.0%以下: 条件 使用环境温度0~+40°C 额定转速、额定负载、额定电压 Below ±1%: Conditions of ambient temperature 0~+40°C rated voltage, rated load and rated speed			
电源输入 Power input	额定电压 Rated voltage	V	单相Single phase 110V	单相Single phase 220V	24VDC(可选Optional 36VDC/48VDC)
	电压容许范围 Voltage tolerance range		±10%		
	频率 Frequency	Hz	50/60	/	
	频率容许范围 Frequency tolerance range		±5%	/	
	额定输入电流 Rated input current	A	3.5	2.0	6.8
	瞬时最大输入电流 Instantaneous maximum input current	A	7.0	4.5	13.0

圆轴型光电机 Circular Shaft Type Optical Motor

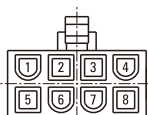
● Z5BLD120-□A-25S □—电压 Voltage 24/36/48/110/220



①Connector: 5557-8R/10R (MOLEX) ②Lead wire length 300mm ③Round terminal: SRA-21T-4 (Low ground)

● 低压电机接线插孔对应信号说明

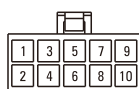
Low Voltage Wrie Plughole Corresp-onding Signal Explanation



plughole	1	2	3	4
signal	U	W	Hv	Hu
plughole	5	6	7	8
signal	V	GND	Hw	Vcc

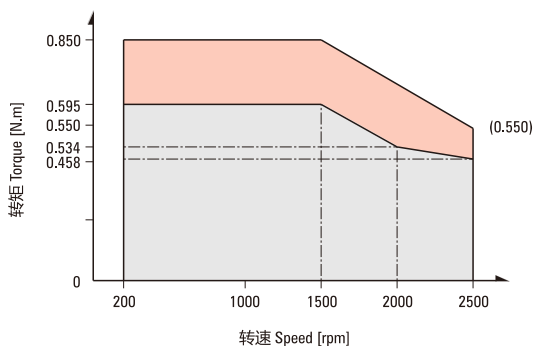
● 高压电机接线插孔对应信号说明

High Voltage Wrie Plughole Corresp-onding Signal Explanation



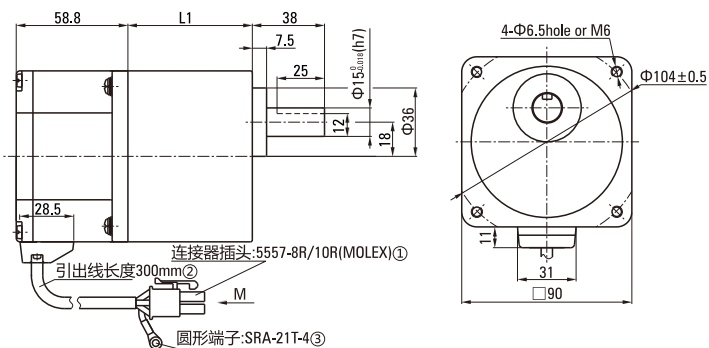
排线对应的意义									
1	2	3	4	5	6	7	8	9	10
蓝 (用)	黄 (用)	黄 (用)	绿 (用)	绿 (用)	蓝 (用)		金属丝网	红 (用)	黑 (用)
W	Hu	U	Hv	V	Hw			Vcc+5V	GND

● Z5BLD120-220A-25S 曲线图 Diagram (ZD标准驱动器 ZD Standard Drive)

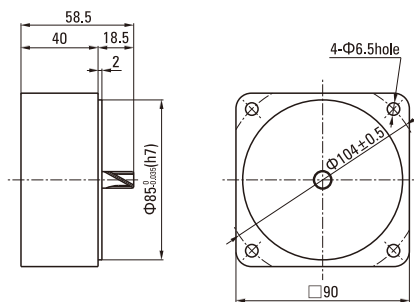


120W

- 平行轴减速机 Parallel Shaft Speed Reducer
Z5BLD120-□GU-25S/5GU□K □—电压 Voltage 24/36/48/110/220
□—速比数值 Velocity Ratio Value



- 中间减速器 Decimal Gearhead
5GU□XK
□—速比数值,一般为10 Velocity Ratio Value, Generally 10



减速器型号 Gearhead Model	减速比 Gear Ratio	L尺寸 Dimension
5GU□K	3~200	65.5

● 减速器型号的□中为减速比的数值
Enter the gear ratio in the box (□) within the model name

①Connector: 5557-8R/10R (MOLEX) ②The sheath length of lead line 300mm ③Round terminal: SRA-21T-4

● Z5BLD60-□GU-25S/5GU□K整机容许力矩 (单位: N.m) Z5BLD60-□GU-25S/5GU□K Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	减速比 Reduction 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	200
Z5BLD60-□GU	200~1500RPM	0.72	0.87	1.21	1.45	1.81	2.17	2.41	3.02	3.62	4.34	4.35	5.44	6.53	7.83	9.83	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	2000RPM	0.69	0.84	1.16	1.39	1.74	2.09	2.09	2.61	3.14	3.76	3.78	4.72	5.67	6.80	9.45	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	2500RPM	0.56	0.67	0.93	1.11	1.39	1.67	1.67	2.09	2.51	3.01	3.03	3.78	4.54	5.45	7.56	9.08	10.0	10.0	10.0	10.0	10.0	10.0	10.0

● Z5BLD90-□GU-25S/5GU□K整机容许力矩 (单位: N.m) Z5BLD90-□GU-25S/5GU□K Machine Allowable Torque (Unit: N.m)

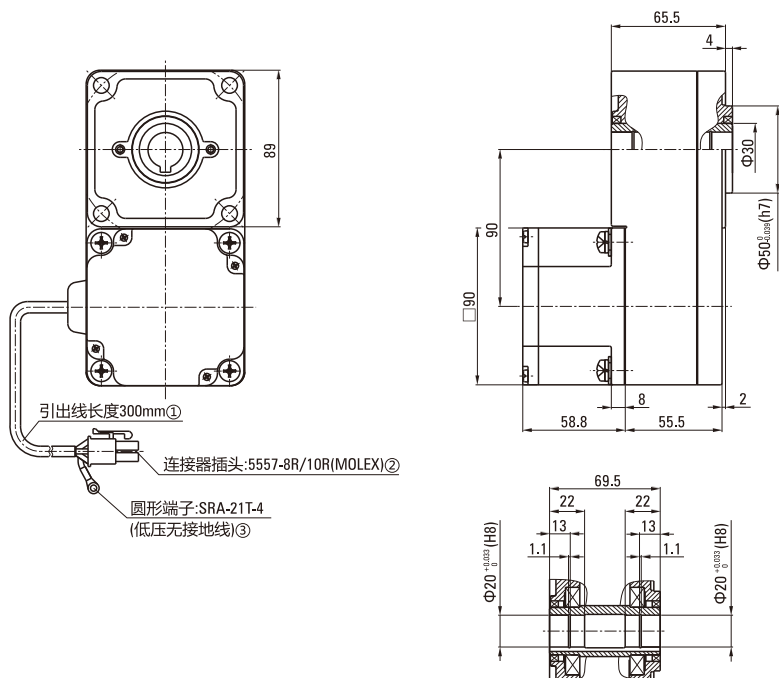
型号 Model	电机轴转速 Motor Speed	减速比 Reduction Ratio																						
		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180	200
Z5BLD90-□GU	200~1500RPM	1.09	1.30	1.81	2.18	2.72	3.26	3.62	4.53	5.43	6.52	6.53	8.16	9.79	11.8	14.7	17.7	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	2000RPM	1.04	1.25	1.74	2.09	2.61	3.13	3.14	3.92	4.71	5.65	5.67	7.09	8.51	10.2	14.2	17.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	2500RPM	0.84	1.00	1.39	1.67	2.09	2.51	2.51	3.14	3.76	4.52	4.53	5.67	6.81	8.17	11.3	13.6	17.0	20.0	20.0	20.0	20.0	20.0	20.0

● Z5BLD120-□GU-25S/5GU□K整机容许力矩 (单位: N.m) Z5BLD120-□GU-25S/5GU□K Machine Allowable Torque (Unit: N.m)

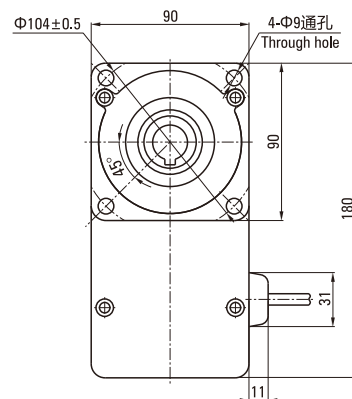
型号 Model	电机轴转速 Motor Speed	减速比 Reduction Ratio																						
		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180	200
Z5BLD120-□GU	200~1500RPM	1.45	1.74	2.41	2.90	3.62	4.34	4.35	5.44	6.53	7.83	7.87	9.83	11.8	14.2	19.7	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	2000RPM	1.39	1.67	2.32	2.78	3.48	4.18	4.18	5.23	6.27	7.53	7.56	9.45	11.3	13.6	18.9	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	2500RPM	1.11	1.34	1.86	2.23	2.78	3.34	3.35	4.18	5.02	6.02	6.05	7.56	9.08	10.9	15.1	18.2	20.0	20.0	20.0	20.0	20.0	20.0	20.0

注Note: 表格中的□ (灰底部分) 表示旋转方向与电机转向一致。The □ (gray) in the table indicates that the rotation direction is consistent with the motor. (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.)

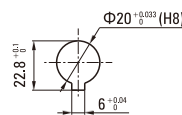
- L型减速机 L Type Speed Reducer
- Z5BLD120-□GUL-25S/5GU□LC □—电压 Voltage 24/36/48/110/220
- 速比数值 Velocity Ratio Value



①Lead wire length 300mm ②Connector: 5557-8R/10R (MOLEX) ③Round terminal: SRA-21T-4 (Low ground)



● 输出轴内孔结构 The Output Shaft Hole Structure



● Z5BLD60-□GUL-25S/5GU□LC整机容许力矩 (单位: N.m) Z5BLD60-□GUL-25S/5GU□LC Machine Allowable Torque (Unit: N.m)

电机轴转速 Motor Speed	减速比 Reduction Ratio	5	10	15	20	30	50	100	200
200~1500RPM		1.09	2.18	3.26	4.35	6.53	10.9	21.8	43.5
2000RPM		0.92	1.84	2.76	3.68	5.52	9.20	18.4	36.8
2500RPM		0.84	1.67	2.51	3.35	5.02	8.37	16.7	33.5

● Z5BLD90-□GUL-25S/5GU□LC整机容许力矩 (单位: N.m) Z5BLD90-□GUL-25S/5GU□LC Machine Allowable Torque (Unit: N.m)

电机轴转速 Motor Speed	减速比 Reduction Ratio	5	10	15	20	30	50	100	200
200~1500RPM		1.63	3.26	4.90	6.53	9.79	16.3	32.6	65.3
2000RPM		1.38	2.76	4.14	5.52	8.28	13.8	27.6	55.2
2500RPM		1.25	2.51	3.76	5.02	7.53	12.5	25.1	50.2

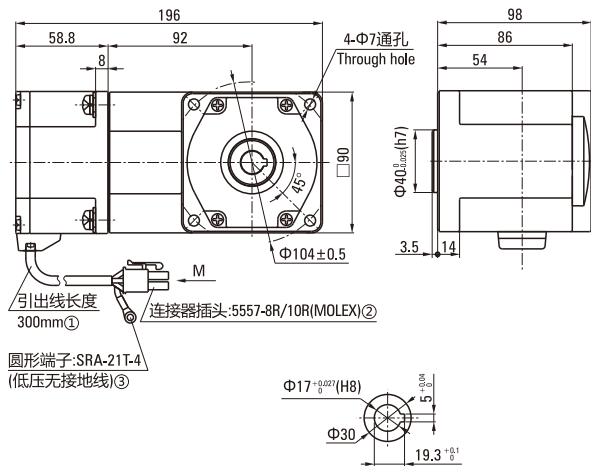
● Z5BLD120-□GUL-25S/5GU□LC整机容许力矩 (单位: N.m) Z5BLD120-□GUL-25S/5GU□LC Machine Allowable Torque (Unit: N.m)

电机轴转速 Motor Speed	减速比 Reduction Ratio	5	10	15	20	30	50	100	200
200~1500RPM		2.41	4.83	7.24	9.65	13.1	21.8	43.5	68.0
2000RPM		2.04	4.08	6.13	8.17	11.0	18.4	36.8	66.6
2500RPM		1.67	3.35	5.02	6.69	10.0	16.7	33.5	60.5

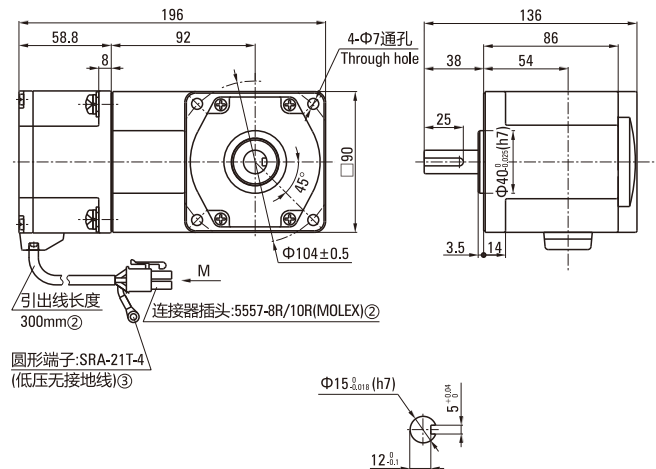
注Note: 表格中的所有速比旋转方向与电机转向相反。All gearbox output turn direction in form are opposite as motor turn direction.
(不同转速及速比下的力矩为ZD标准驱动器下测试所得。The torque under different speed and speed ratio is obtained under the ZD standard.)

● 弧锥直角减速电机 Arc Cone Right Angle Speed Reducer Motor

Z5BLD120-GU-25S/5GURC —电压 Voltage 24/36/48/110/220
—速比数值 Velocity Ratio Value



Z5BLD120-GU-25S/5GURT —电压 Voltage 24/36/48/110/220
—速比数值 Velocity Ratio Value



①The sheath length of lead line 300mm ②Connector: 5557-8R/10R (MOLEX) ③Round terminal: SRA-21T-4 (Low ground)

● Z5BLD60-GU-25S/5GURC/RT整机容许力矩 (单位: N.m) Z5BLD60-GU-25S/5GURC/RT Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	减速比 Reduction Ratio																	
		7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
Z5BLD60- <input type="checkbox"/> GU	200~1500RPM	1.81	2.17	2.41	3.02	3.62	4.34	4.35	5.44	6.53	7.83	9.83	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	2000RPM	1.57	1.88	2.09	2.61	3.04	3.76	4.18	5.23	6.27	6.81	9.45	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	2500RPM	1.25	1.51	1.67	2.09	2.51	3.01	3.35	4.18	5.02	5.45	7.56	9.08	10.0	10.0	10.0	10.0	10.0	10.0

● Z5BLD90-GU-25S/5GURC/RT整机容许力矩 (单位: N.m) Z5BLD90-GU-25S/5GURC/RT Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	减速比 Reduction Ratio																	
		7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
Z5BLD90- <input type="checkbox"/> GU	200~1500RPM	2.72	3.26	3.62	4.53	5.43	6.52	6.53	8.16	9.79	11.8	14.7	17.7	20.0	20.0	20.0	20.0	20.0	20.0
	2000RPM	2.36	2.83	3.14	3.93	4.71	5.65	6.28	7.85	9.42	10.2	14.2	17.0	20.0	20.0	20.0	20.0	20.0	20.0
	2500RPM	1.88	2.24	2.50	3.12	3.74	4.93	4.99	6.24	7.49	9.04	11.3	13.6	17.0	20.0	20.0	20.0	20.0	20.0

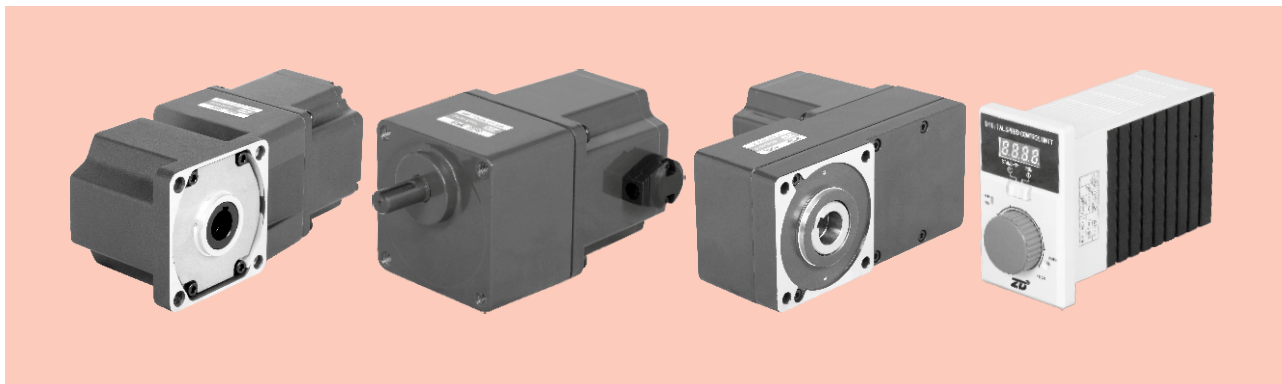
● Z5BLD120-GU-25S/5GURC/RT整机容许力矩 (单位: N.m) Z5BLD120-GU-25S/5GURC/RT Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	减速比 Reduction Ratio																	
		7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
Z5BLD120- <input type="checkbox"/> GU	200~1500RPM	3.62	4.34	4.35	5.44	6.53	7.83	7.87	9.83	11.8	14.2	19.7	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	2000RPM	3.14	3.76	4.18	5.23	6.27	7.52	8.36	10.5	12.5	13.6	18.9	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	2500RPM	2.50	3.01	3.35	4.18	5.02	6.02	6.69	8.37	10.0	10.9	15.1	18.2	20.0	20.0	20.0	20.0	20.0	20.0

注Note: 表格中的 (灰底部分) 表示旋转方向与电机转向一致。The (gray) in the table indicates that the rotation direction is consistent with the motor. (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.)

104系列直流无刷减速电机

104 SERIES OF BRUSHLESS DC MOTOR



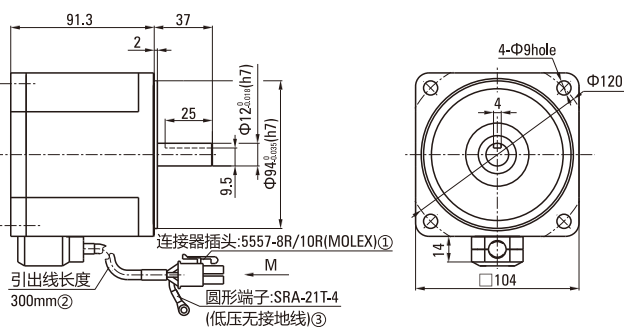
电机基本特性 Basic Characteristics Of Motor

● 200W (DC电源时适用于24VDC/36VDC/48VDC) 200W (DC Power Supply When Applied To 24VDC/36VDC/48VDC)

额定功率(连续) Rated power (Continuous)	W	200 (200W/400W)			
额定转速 Rated speed	r/min	2500			
额定转矩 Rated torque	N.m	0.764			
瞬时最大转矩 Instantaneous maximum torque	N.m	1.146			
转子转动惯量 Rotor moment of inertia	J:×10 ⁻⁴ kg.m ²	0.460			
速度控制范围 Speed control range	RPM	高压High pressure 200-2500RPM (低压Low pressure 200-3000RPM)			
速率变化率 Speed control range	对负载 On load	±1.0%以下: 条件 0~额定转矩、额定转速、额定电压、常温 Below ±1%: condition 0~rated torque, rated speed, rated voltage, room temperature			
	对电压 On voltage	±1.0%以下: 条件 额定电压±10%、额定转速、额定负载、常温 Below ±1%: condition rated voltage ±10%, rated speed, rated load, room temperature			
	对温度 On temperature	±1.0%以下: 条件 使用环境温度0~+40°C 额定转速、额定负载、额定电压 Below ±1%: Conditions of ambient temperature 0~+40°C rated voltage, rated load and rated speed			
电源输入 Power input	额定电压 Rated voltage	V	单相Single phase 110V	单相Single phase 220V	36VDC(可选Optional 48VDC)
	电压容许范围 Voltage tolerance range		±10%		
	频率 Frequency	Hz	50/60	/	
	频率容许范围 Frequency tolerance range		±5%	/	
	额定输入电流 Rated input current	A	4.7	2.4	7.5
	瞬时最大输入电流 Instantaneous maximum input current	A	9.0	4.8	11.5

圆轴型光电机 Circular Shaft Type Optical Motor

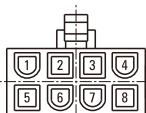
● Z6BLD200-□A-25S □—电压 Voltage 24/36/48/110/220



①Connector: 5557-8R/10R (MOLEX) ②Lead wire length 300mm ③Round terminal: SRA-21T-4 (Low ground)

● 低压电机接线插孔对应信号说明

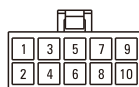
Low Voltage Wire Plughole Corresponding Signal Explanation



plughole	1	2	3	4
signal	U	W	Hv	Hu
plughole	5	6	7	8
signal	V	GND	Hw	Vcc

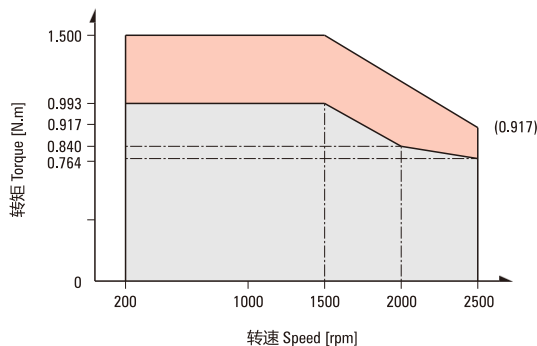
● 高压电机接线插孔对应信号说明

High Voltage Wire Plughole Corresponding Signal Explanation



排线对应的意义									
1	2	3	4	5	6	7	8	9	10
蓝 (用)	黄 (用)	黄 (用)	绿 (用)	绿 (用)	蓝 (用)		金属丝网	红 (用)	黑 (用)
W	Hu	U	Hv	V	Hw			Vcc+5V	GND

● Z6BLD200-220A-25S 曲线图 Diagram (ZD标准驱动器 ZD Standard Drive)

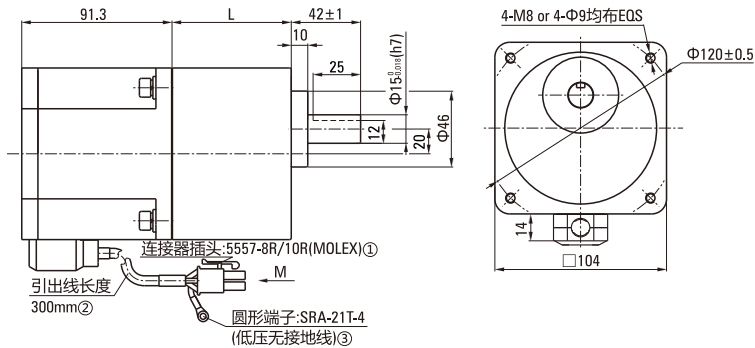


200W

● 平行轴减速机 Parallel Shaft Speed Reducer

Z6BLD200-□GU-25S/6GU□K □—电压 Voltage 24/36/48/110/220

□—速比数值 Velocity Ratio Value



● 键 • 键槽 Key • Keyway



减速器型号 Gearhead Model	减速比 Gear Ratio	L尺寸 Dimension
6GU□K	3~200	72

● 减速器型号的□中为减速比的数值
Enter the gear ratio in the box (□) within the model name

①Connector: 5557-8R/10R (MOLEX) ②The sheath length of lead line 300mm ③Round terminal: SRA-21T-4 (Low ground)

● Z6BLD200-□GU-25S/6GU□K整机容许力矩 (单位: N.m) Z6BLD200-□GU-25S/6GU□K Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	减速比 Reduction Ratio																				
		3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	200
Z6BLD200-□GU	200~1500RPM	2.41	2.90	4.02	4.83	6.03	7.24	9.06	10.9	13.1	16.4	19.7	23.6	32.8	39.3	40.0	40.0	40.0	40.0	40.0	40.0	40.0
	2000RPM	2.04	2.45	3.40	4.08	5.11	6.13	7.67	9.20	11.0	13.9	16.6	20.0	27.7	33.3	40.0	40.0	40.0	40.0	40.0	40.0	40.0
	2500RPM	1.86	2.23	3.09	3.71	4.64	5.57	6.97	8.37	10.0	12.6	15.1	18.2	25.2	30.3	37.8	40.0	40.0	40.0	40.0	40.0	40.0

● Z6BLD400-□GU-25S/6GU□K整机容许力矩 (单位: N.m) Z6BLD400-□GU-25S/6GU□K Machine Allowable Torque (Unit: N.m)

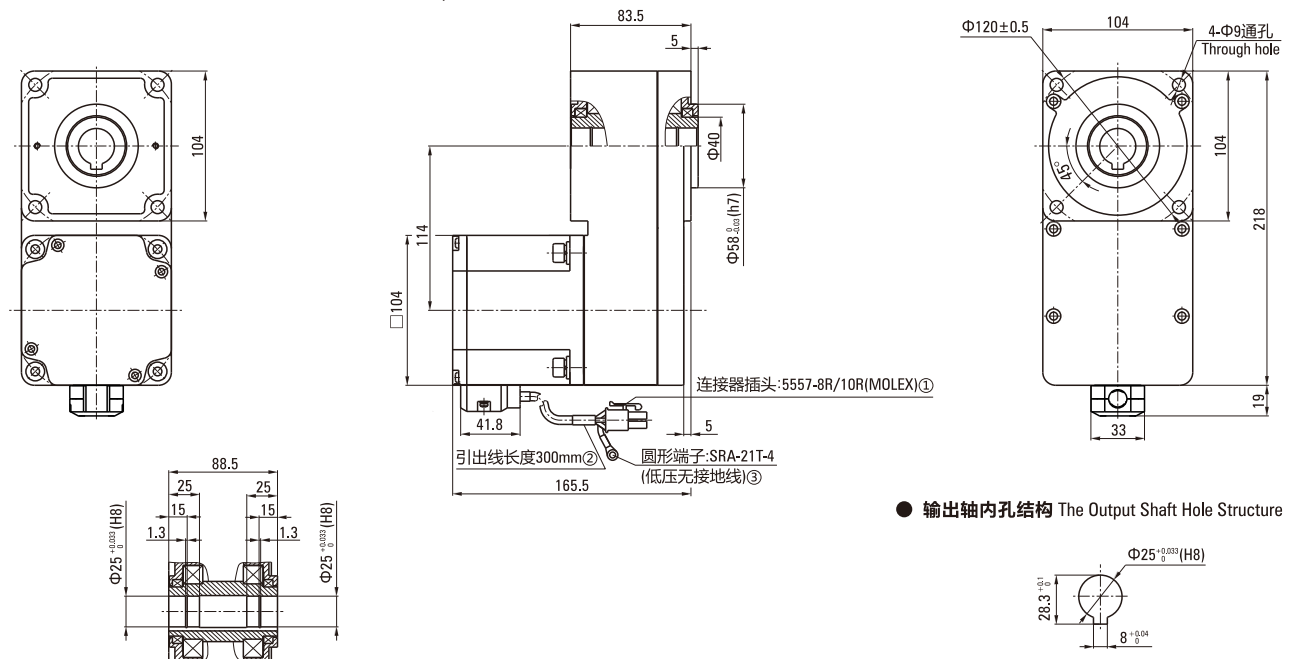
型号 Model	电机轴转速 Motor Speed	减速比 Reduction Ratio																				
		3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	200
Z6BLD400-□GU	200~1500RPM	4.83	5.79	8.04	9.65	12.1	14.5	14.5	18.1	21.8	26.1	26.2	32.8	39.3	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
	2000RPM	4.08	4.90	6.81	9.17	10.2	12.3	12.3	15.3	18.4	22.1	22.2	27.7	33.3	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
	2500RPM	3.71	4.46	6.19	7.42	9.28	11.1	11.2	13.9	16.7	20.1	20.2	25.2	30.3	36.3	40.0	40.0	40.0	40.0	40.0	40.0	40.0

注: 表格中的□ (灰底部分) 表示旋转方向与电机转向一致。The □ (gray) in the table indicates that the rotation direction is consistent with the motor.
(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.)

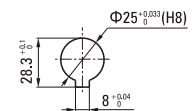
● L型减速机 L Type Speed Reducer

Z6BLD200-□GUL-25S/6GU□LC □—电压 Voltage 24/36/48/110/220

□—速比数值 Velocity Ratio Value



● 输出轴内孔结构 The Output Shaft Hole Structure



①Connector: 5557-8R/10R (MOLEX) ②Lead wire length 300mm ③Round terminal: SRA-21T-4 (Low ground)

● Z6BLD200-□GUL-25S/6GU□LC 整机容许力矩 (单位: N.m) Z6BLD200-□GUL-25S/6GU□LC Machine Allowable Torque (Unit: N.m)

电机轴转速 Motor Speed	5	10	15	20	30	50	100	200
200~1500RPM	4.02	8.04	12.1	16.1	21.8	36.3	72.5	120
2000RPM	3.40	6.81	10.2	13.6	18.4	30.7	61.3	110
2500RPM	2.79	5.58	8.37	11.2	16.7	27.9	55.8	100

● Z6BLD400-□GUL-25S/6GU□LC 整机容许力矩 (单位: N.m) Z6BLD400-□GUL-25S/6GU□LC Machine Allowable Torque (Unit: N.m)

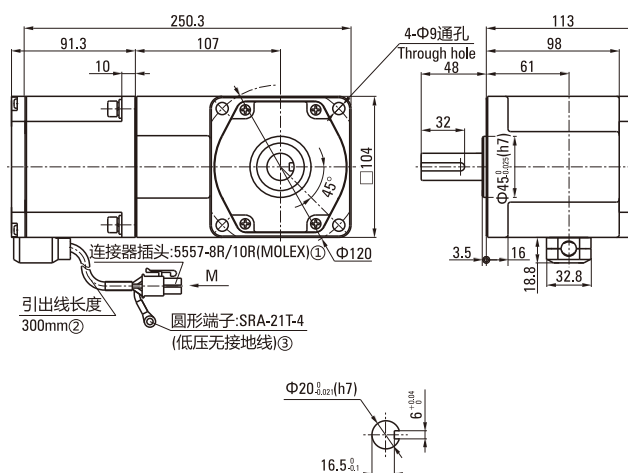
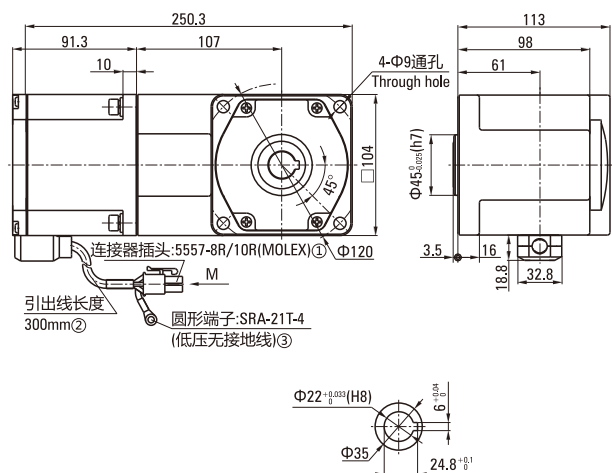
电机轴转速 Motor Speed	5	10	15	20	30	50	100	200
200~1500RPM	7.25	14.5	21.8	29.0	43.5	72.5	120	120
2000RPM	6.13	12.3	18.4	24.5	36.8	61.3	120	120
2500RPM	5.58	11.2	16.7	22.3	33.5	55.8	112	120

注Note: 表格中的所有速比旋转方向与电机转向相反。All gearbox output turn direction in form are opposite as motor turn direction.
(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.)

● 弧锥直角减速电机 Arc Cone Right Angle Speed Reducer Motor

Z6BLD200-□GU-25S/6GU□RC □—电压 Voltage 24/36/48/110/220
□—速比数值 Velocity Ratio Value

Z6BLD200-□GU-25S/6GU□RT □—电压 Voltage 24/36/48/110/220
□—速比数值 Velocity Ratio Value



①Connector: 5557-8R/10R (MOLEX) ②The sheath length of lead line 300mm ③Round terminal: SRA-21T-4 (Low ground)

● Z6BLD200-□GU-25S/6GU□RC/RT整机容许力矩 (单位: N.m) Z6BLD200-□GU-25S/6GU□RC/RT Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	200
Z6BLD200-□GU	200~1500RPM	6.03	7.24	9.06	10.9	13.1	16.4	19.7	23.6	32.8	39.3	40.0	40.0	40.0	40.0	40.0	40.0	40.0
	2000RPM	5.23	6.27	8.71	10.5	12.6	17.4	20.9	25.1	31.5	37.8	40.0	40.0	40.0	40.0	40.0	40.0	40.0
	2500RPM	4.18	5.02	6.97	8.37	10.0	13.9	16.7	20.1	25.2	30.3	37.8	40.0	40.0	40.0	40.0	40.0	40.0

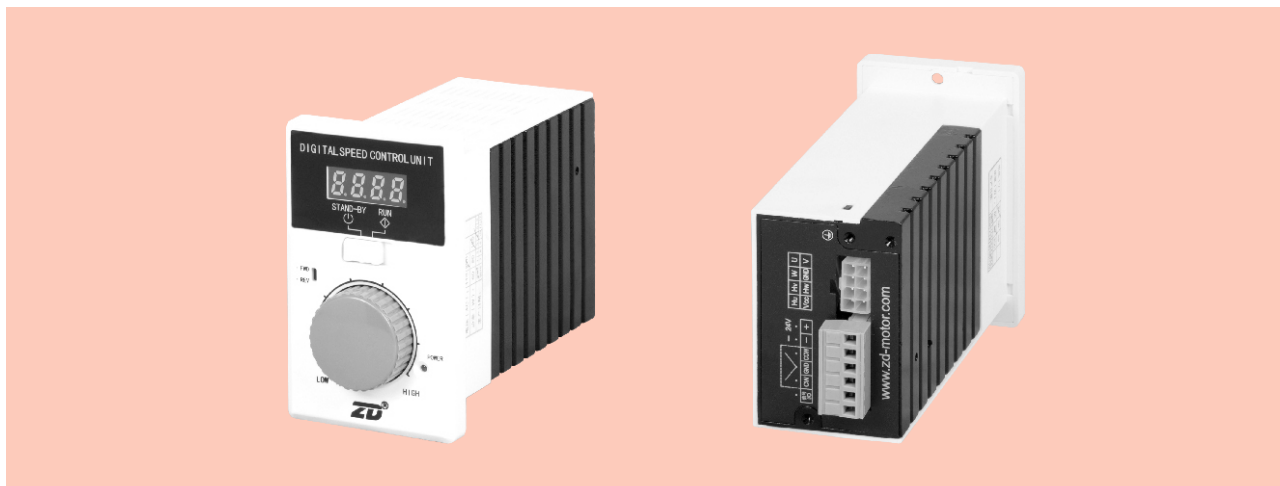
● Z6BLD400-□GU-25S/6GU□RC/RT整机容许力矩 (单位: N.m) Z6BLD400-□GU-25S/6GU□RC/RT Machine Allowable Torque (Unit: N.m)

型号 Model	电机轴转速 Motor Speed	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	200
Z6BLD400-□GU	200~1500RPM	12.1	14.5	14.5	18.1	21.8	26.1	26.2	32.8	39.3	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
	2000RPM	10.4	12.5	17.4	20.9	25.0	34.8	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
	2500RPM	8.37	10.0	13.9	16.7	20.1	27.8	33.5	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0

注Note: 表格中的□(灰底部分)表示旋转方向与电机转向一致。The □(gray) in the table indicates that the rotation direction is consistent with the motor.
(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.)

控制器 CONTROLLER

■ 控制器 Controller



■ 控制器外形图纸 Drawing Of Controller

$\frac{Z}{1}$ $\frac{BLD.CON}{2}$ - $\frac{220}{3}$ $\frac{A}{4}$ $\frac{10}{5}$ - $\frac{V1}{6}$

电机参数 Motor Parameters	①	Z:	中大电机 ZD Motor
	②	BLD.CON:	直流无刷驱动器 BLDC Driver
	③	电压 Voltage:	220V
	④	A:	AC, 无A时为DC AC, without A is DC
	⑤	功率 Power:	10W
	⑥	V1:	驱动器特性 Feature of driver

■ 特点 Characteristic

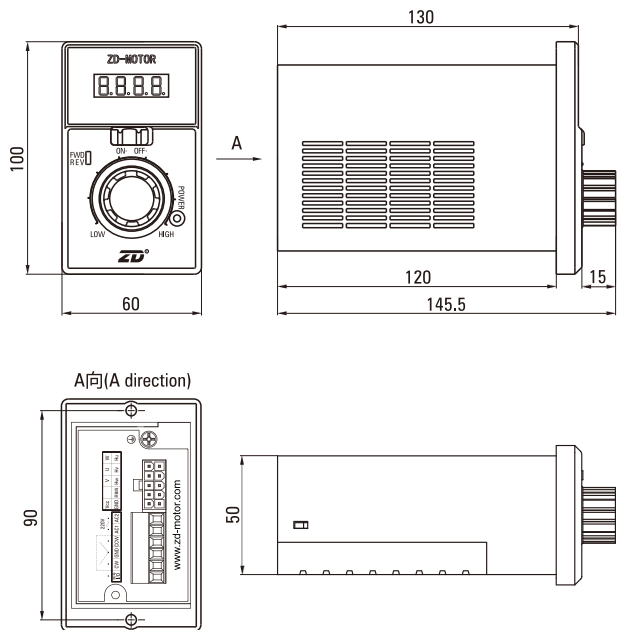
- 采用新型高压功率模块控制技术，功能齐全，性能优越。
- 采用霍尔信号进行速度闭环控制，系统控制稳定可靠。
- 采用数字显示转速及报警提示，简洁直观。
- 可实现启动加速度快慢调整，加速度时间0.5~5秒可调，出厂值为0.5秒，外接开关操作或485通讯操作。
- 外接开关操作或通讯协议。
- 保护功能齐全、保护动作灵敏可靠。
- Use new high-voltage control of power, complete function, better performance.
- Use hall signal to closed-loop control the speed, making the control system more stable and reliable.
- Use digital display to show speed and alarm, simple and direct.
- Manage to adjust the accelerating speed, adjusting range 0.5-5s, default value is 0.5s, external switch control, 485 communication control.
- External switch operation or communication protocol.
- Under fully protection, reliable and smart.

■ 注意事项 Note

- 此驱动器尺寸适用于本册样本上所有无刷电机。
- 通电使用前必须保证驱动器及电机接地线接地良好。
- 驱动器应置于散热性能好，外在干扰小的场所。
- 驱动器使用环境温度-10°C~+10°C。
- 驱动器防护等级IP00，不得工作于有铁质等导体碎屑、潮湿等不良存在的场所；空气相对湿度不大于80%，无结冰及凝露。
- The speed controller is applicable for all brushless motor in this catalogue.
- Before power on, be sure to ground the motor and controller.
- Put the control in good heat dispersion and low interference environment.
- Working ambient temperature -10°C~+10°C.
- Protection grade IP00, avoid scrap iron. Humidity lower than 80%, no freezing and frosting.

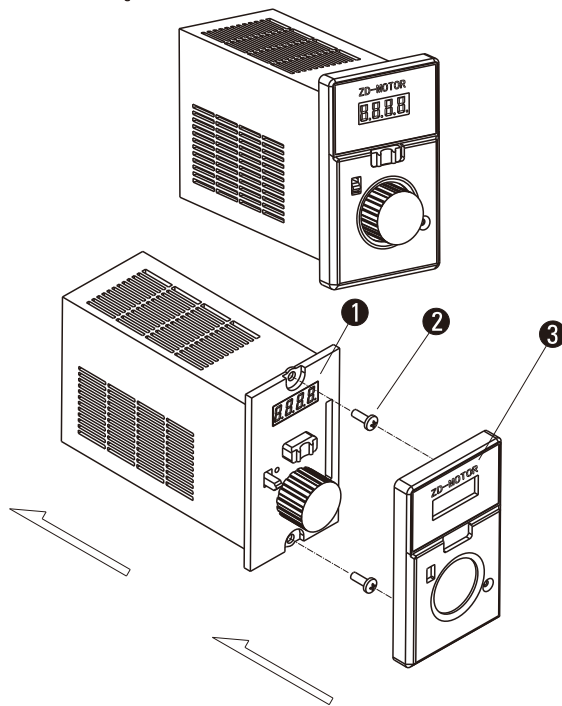
控制器 CONTROLLER

■ 整体尺寸 Overall Size

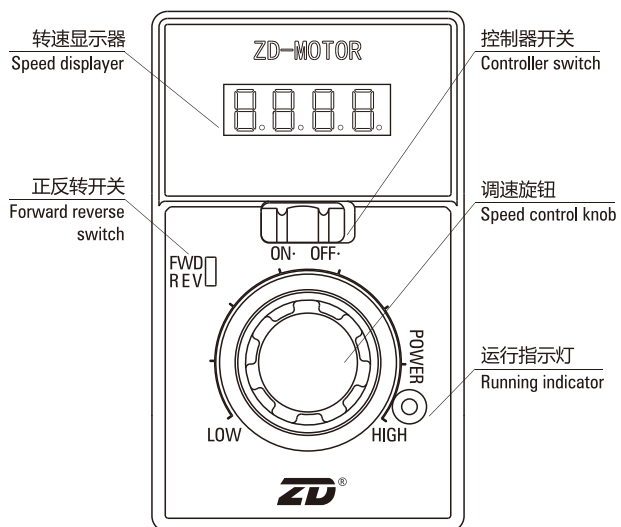


■ 安装固定 Fixed Installation

1. 打开面板 ③。 Open panel ③.
2. 将驱动器本体 ① 插入固定位置。 Insert drive body ① in a fixed position.
3. 用M4沉头螺钉(GB68-85) ② 固定连接。 M4 head screw (GB68-85) ② fixed connection.
4. 将面板 ③ 压扣到位如示意图。 Place the panel ③ button in place as a schematic diagram.



■ 面板说明 Notes



● 注意Note :

- 如果电机方向为尾部控制，则面板无正反方向开关。
- 正反反转开关只适用于调试时正反切换，不适用于工作过程中频繁切换，有频繁切换时用尾部控制模式。
- If the direction of the motor is the tail control, the panel has no positive or negative direction.
- The reverse switch is only suitable for the adjustment of the positive and negative switch, and is not suitable for frequent switching in the work process, the use of the tail control module when frequent switching type.

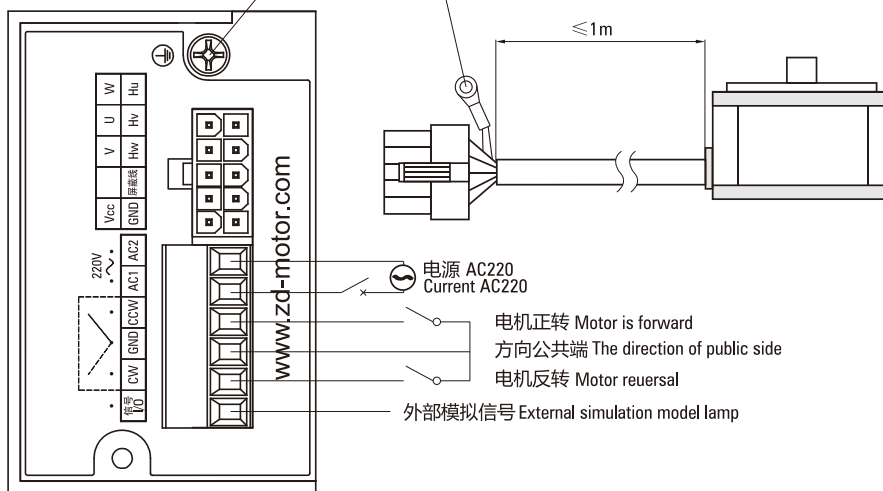
控制器 CONTROLLER

接线端口说明 Connection Port Description

驱动器接地螺钉，使用时一定要接地后方能使用。
The grounding screw of drive, It must be connected when you use it.

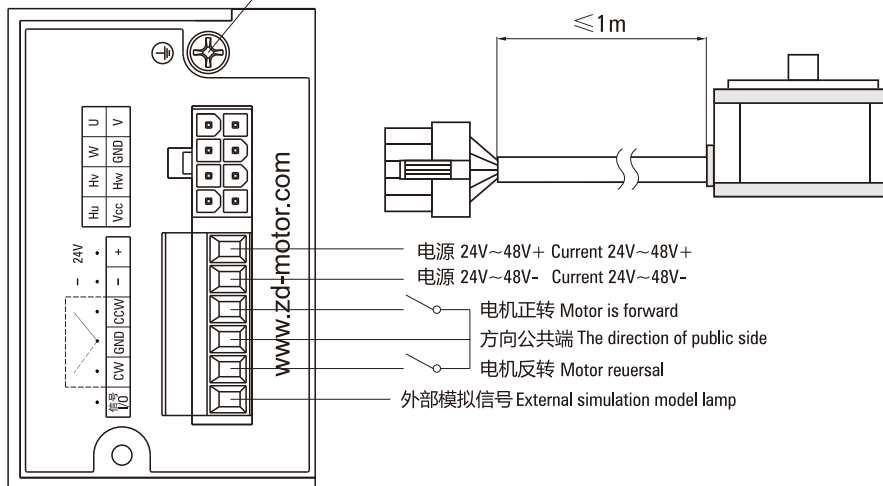
电机接地螺钉，使用时一定要接地后方能使用。
The grounding screw of motor, It must be connected when you use it.

高压驱动接线说明 HIGH VOLTAGE DRIVE WIRING



驱动器接地螺钉，使用时一定要接地后方能使用。
The grounding screw of drive, It must be connected when you use it.

低压驱动接线说明 LOW VOLTAGE DRIVE WIRING



注意Note :

- 如果电机方向需远程控制，则需通过继电器或485通讯控制方向切换。
- 通电使用前必须保证驱动器及电机接地线接地良好。
- If the direction of the motor needs to be controlled remotely, it is necessary to control the direction of the relay or 485 communication.
- Must ensure that the drive and the motor grounding wire is good before the power use.

电源、控制端 Power Supply, Control Terminal

引角名 Lead Angle	中文定义 Definition of Chinese
AC1	交流220V火线 AC 220V live wire
AC2	交流220V零线 AC 220V zero line
信号I/O Signal I/O	外部模拟信号 External analog signal
CW	电机正转 Motor forward
GND	方向公共端 Direction common
GND	电机反转 Motor reverse

电机连接端 Motor Connecting End

引角名 Lead Angle	中文定义 Definition of Chinese	颜色 Colour
U	电机U相 Motor U phase	灰(黄) Ash (yellow)
V	电机V相 Motor V phase	粉(绿) Powder (green)
W	电机W相 Motor W phase	蓝(蓝) Blue (blue)
Hu	霍尔信号U相输入端 Holzer signal U phase input	黄(黄) Yellow (yellow)
Hv	霍尔信号V相输入端 Holzer signal V phase input	绿(绿) Green (green)
Hw	霍尔信号W相输入端 Holzer signal W phase input	棕(蓝) Brown (blue)
Vcc	霍尔信号电源线 Holzer signal power line	红(红) Red (red)
GND	霍尔信号地线 Holzer signal ground	白(黑) White (black)
屏蔽线 Shielding wire	信号屏蔽线 Signal shielding line	银(银) Silver (silver)

控制器 CONTROLLER

故障报警 Fault Alarm

- 驱动器内部出现电流过流、温度过高或其他异常时，会进入保护状态，停止工作。同时数码管闪烁并且显示故障类型。
- 在断电情况下，根据故障类型参照故障事项说明，检查相应问题，排除故障重新上电，解除报警。
- When current too high, or overheating, or other abnormal situation happens, the speed control will enter protection status, and stop working, in the meantime the digital displayer will flash and show error type.
- Power Off, refer to fault-shooting instruction, check and solve the problem.

故障事项 Trouble

故障显示 Fault Display	故障内容 Fault Content	解决方案 Solution
ERR 1	短路异常 Short-circuit anomaly	检查驱动器、电机线是否短路 Check whether the drive, motor line is short circuit
ERR 2	霍尔异常 Holzer anomaly	检查电机连接端接触是否良好 Check motor connection end contact is good
ERR 3	电流异常 Current anomaly	检查电机是否堵转、超出额定负载 Check if the motor is locked up, beyond the rated load
ERR 4	电压异常 Voltage abnormality	检查输入电压是否正常 Check whether the input voltage is normal
ERR 5	方向异常 Direction anomaly	检查电机方向信号是否同时短路 Check motor direction signal is short circuit
ERR 6	过热保护 Overheat protection	检查驱动器散热环境是否良好 Check whether the drive cooling environment is good
ERR 7	系统异常 Abnormal system	内部系统出错 Internal system error
<p>⚠️ 检查、排除故障时务必切断输入交流总电源，然后重新上电，如仍有故障存在，请联系我们。 To check and eliminate the fault, we must cut off the total power supply, and then re power, if there is still a failure, please contact us.</p>		

注意事项 Notes

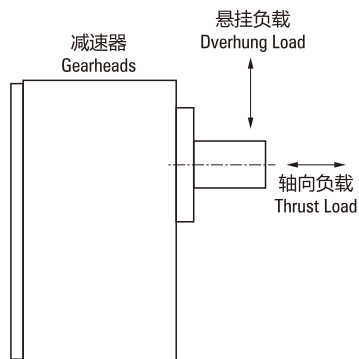
- 正确插接好电机引线，外接电源线并保证电机和驱动器接地线良好可靠。
- 打开电源开关，电源指示灯亮。
- 选择电机运行方向。
- 调整电位器旋钮位置至所需要转速，速电位器旋钮顺时针旋为速度增加。
- Right, well spliced lead wire of the motor, the external power line and ensure the motor and drive ground is good and reliable.
- Open the power switch, the power indicator light.
- Selection of motor running direction.
- Adjust the potentiometer knob to the desired speed, the speed potentiometer knob clockwise rotation to increase.

通用规格 COMMON SPECIFICATIONS

■ 电动机的容许悬挂负载·容许轴向负载 Permissible Overhung Load And Permissible Thrust Load Of Motor

容许悬挂负载 Permissible Overhung Load

电动机 Motor		容许悬挂负载 Permissible Overhung Load	
安装尺寸 Motor Frame Size □(mm)	输出轴直径 Output Shaft Diameter □(mm)	距轴端的距离 Distance From Shaft End	
		10mm	20mm
42	5	40	-
60	6	50	110
70	6	40	60
80	8	90	140
	10	110	120
90	10	140	200
	12	240	270
100	14	320	350



- 容许轴向负载。
- 请尽量不要施加轴向负载。即使不得已的情况下，请将轴向负载控制在电动机重量的一半以下。
- Permissible thrust load.
- Avoid thrust loads as much as possible. If thrust load is unavoidable, keep it to half or less of the motor mass.

■ 电动机的容许悬挂负载·容许轴向负载 Allowable Suspension Load Of Motor • Allowable Axial Load

型号 Model	减速比 Gear Ratio	最大容许转矩 Maximum Permissible Torque N.m	容许悬挂负载 Permissible Overhung Load N		容许轴向 Permissible Thrust Load N
			距轴端10mm 10mm From Shaft End	距轴端20mm 20mm From Shaft End	
2GN□K	3~18	3.0	50	80	30
	25~200		120	180	
4GN□K	3~18	8.0	100	150	50
	25~200		200	300	
5GN□K	3~18	10	250	350	100
	25~200		300	450	
5GU□KB 5GU□K	3~9	20	400	500	150
	12.5~18		450	600	
	25~200		500	700	
6GU□K	3~200	40	1100	1500	300

■ 减速器的容许负载惯性惯量J Permissible Load Inertia For Gearhead J

- 连接到减速器上的负载惯性惯量 (J) 较大的情况下，在频繁的间歇运转的起动瞬间 (或以电磁制动及制动器进行急停时) 会出现瞬时较大的转矩。该冲击负载过大会导致减速器及电动机损坏。
- 下面列出了电动机轴上的容许负载惯性惯量的值，使用时请控制在此数值下。三相电动机的容许负载惯性惯量是指从一旦停止运转后再进行反转时的数值。
- 请利用下面的公式计算减速器输出轴上的容许惯性惯量 (J) 。
- 通过带电磁制动电动机、制动器及速度控制电动机的瞬时停止来运转容许负载惯性惯量时的使用寿命为200万次。
- When a high load inertia (J) is connected to a gearhead, high torque is exerted instantaneously on the gearhead when starting up in frequent, discontinuous operations (or when stopped by an electromagnetic brake, or when stopped instantaneously by a brake pack). Excessive impact loads can cause the gearhead or motor damage.
- The table below gives values for permissible load inertia on the motor shaft. Use the motor and gearhead within these parameters. The permissible inertial load value shown for three-phase motors is the value when reversing after a stop.
- The permissible load inertia (J) on the gearhead output shaft is calculated with the following equation.
- The life of the gearhead when operating at the permissible inertial load with instantaneous stops of the motors with electromagnetic brakes, brake packs or speed control motors is at least 2 million cycles.

■ 减速器输出轴上的容许负载惯性惯量 Permissible Load Inertia For Gear Head Output Shaft

减速比1/3 ~ 1/50时 JG=JM×I

JG: 减速器输出轴容许负载惯性惯量J (×10kg.m平方)

减速比1/60以上时 JG=JM×2500

JM: 减速器输出轴容许负载惯性惯量J (×10kg.m平方)

I: 减速比 (例: 减速比1/3时 i=3)

Gear ratio 1/3 ~ 1/50 JG=JM×I

JG: Permissible load inertia gearhead output shaft J (×10kg.m²)

Gear ratio 1/60 or high JG=JM×2500

JM: Permissible load inertia at the motor shaft J (×10kg.m²)

I: Gear ratio (Example: i=3 means the gear ratio or 1/3)

■ 电动机轴上的容许负载惯性惯量 Permissible Load Inertia At The Motor Shaft

电动机电源相数 No.Of Phase	安装尺寸 Motor Frame Size	输出功率 Output Power	电动机轴上的容许负载惯性惯量 Permissible Load Inertia At The Motor Shaft	
			J(×10 ⁻⁴ kg.m ²)	GD ² (kg.m ²)
单相 Single-phase	42	1W, 3W	0.016	0.07
	60	3W※, 6W	0.062	0.25
	70	6W※, 15W	0.14	0.52
	80	10W※, 25W	0.31	1.2
	90	20W※, 40W	0.75	3
		60W	1.1	4.6
		90W	1.1	4.6
		120W	1.1	4.6
	100	120W	2	8
		140W	2	8
180W		2	8	
60		6W	0.062	0.25
三相 Three-phase	70	15W	0.14	0.52
	80	25W	0.31	1.2
	90	40W	0.75	3
		60W	1.1	4.6
		90W	1.1	4.6
		120W	1.1	4.6
	100	120W	2	8
		140W	2	8
		180W	2	8
		60	6W, 10W, 15W	0.062
直流 DC Power	70	15W	0.14	0.52
	80	25W, 40W	0.31	1.2
	90	40W	0.75	3
		60W	1.1	4.6
		90W	1.1	4.6
		120W	1.1	4.6
	100	250W	2	8

※是指转矩电动机的输出功率 ※Output power for torque motors

■ 减速器容许转矩的计算 The Calculation For The Permissible Torque Of Gearhead

部分机型并未列在容许转矩表上, 需要时可按以下公式计算。

Permissible torque for some products are omitted. In that case, use the equation below to calculate the permissible torque.

容许转矩 Permissible torque TG=TM×i×η

TG: 减速器容许转矩 Permissible torque of gearhead

TM: 电动机转矩 Motor torque

i: 减速器减速比 Gear ratio gearhead

η: 减速器传动效率 Gearhead efficiency

■ 减速器传动效率 Gearhead Efficiency

型号Model	3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180	200	
2GN□K	81%											73%		66%								
4GN□K 4GN□RC/RT	81%											73%		66%								
5GN□K	81%											73%		66%								
5GU□KB 5GU□RC/RT	81%											73%		66%								
6GU□K 6GU□RC/RT	81%											73%		66%								

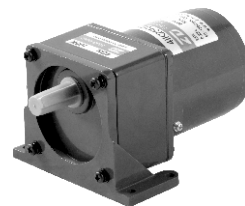
型号Model	5	10	15	20	30	50	100	200
2GN□L	83%	89%						
4GN□L	74%	89%						
5GU□L	74%	89%						
6GU□L	74%	89%						

选购配件 ACCESSORIES

电动机·减速器用安装底座 Motor • Gearhead Mounin Brackets

便于安装固定电动机、减速器的专用安装底座。为可对应大功率电动机、减速器的高强度型产品。安装底座上钻有螺孔，请用减速器附属的螺丝来组合电动机与减速器。安装电动机单体时，请另用安装用螺丝。

Eight kinds of mounting brackets for motors and gearheads are available. They are high-strength type, which can be used with high power motor/gearheads. These brackets come with tapped. To mount the motor and gearhead, simply fasten with the screws provided to the gearhead. To mount the motor alone, mounting screws must be provided separately.

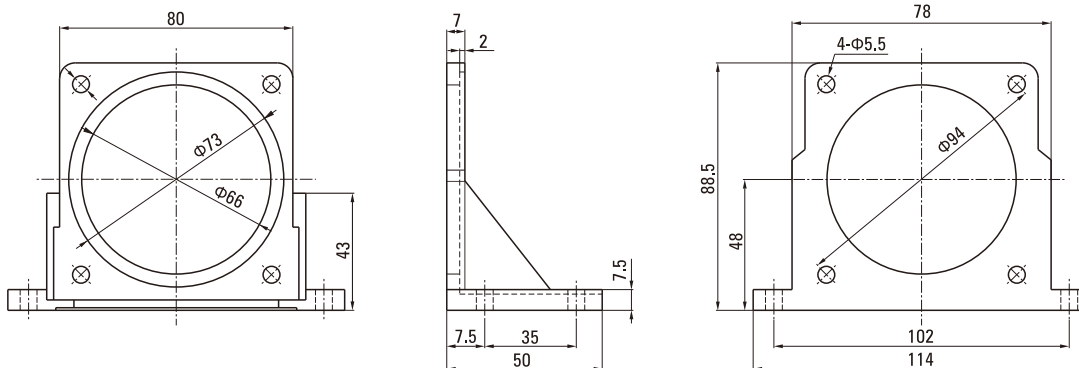


安装尺寸80mm用 Motor Frame Size: 80mm

型号 Model: ZD4M5 重量 Weight: 200g 材质 Material: 铝合金 Aluminum

适用产品 Applicable products: 4GN 减速器 4GN Gearhead

安装尺寸 □80mm 电动机 Motor with the frame size of □80mm

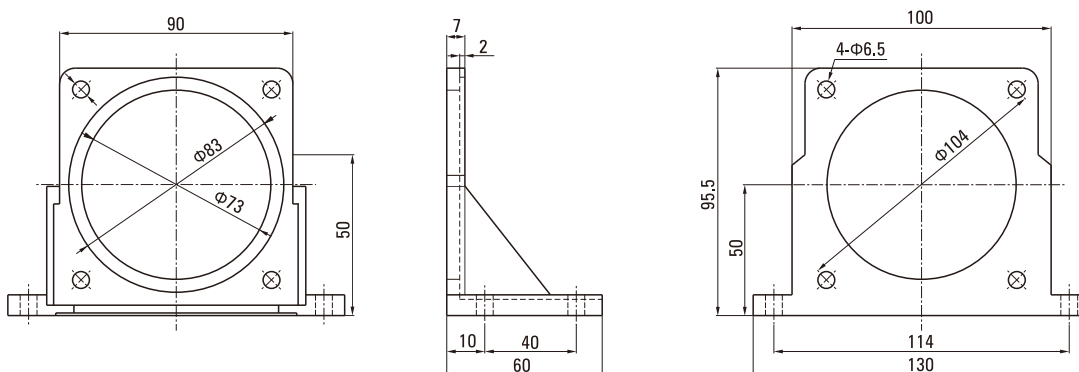


安装尺寸90mm用 Motor Frame Size: 90mm

型号 Model: ZD5M5 重量 Weight: 270g 材质 Material: 铝合金 Aluminum

适用产品 Applicable products: 5GN、5GU 减速器 5GN、5GU Gearhead

安装尺寸 □90mm 电动机 Motor with the frame size of □90mm



CATALOGUE



PLANETARY GEAR BOX
ZDR/ZDGF(S)系列
高精度行星减速机

ZD 中大力德



AC & DC RIGHT ANGLE GEAR MOTOR
交、直流直角轴减速机

ZD 中大力德



TRANSMISSION PLANETARY
传动行星减速机

ZD 中大力德



PLANETARY GEAR BOX
ZB/ZE系列
高精度行星减速机

ZD 中大力德



SMALL AC GEAR MOTOR
小型交流平行轴输出减速机

ZD 中大力德



PLANETARY GEAR BOX
ZDE/ZDF/ZDWE/ZDWF/ZDS系列
高精度行星减速机

ZD 中大力德

DC BRUSHLESS GEAR MOTOR CATALOGUE

宁波中大力德智能传动股份有限公司
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