



# K2/L2/RC2系列微型无刷直流齿轮减速电机

## K2/L2/RC2 BRUSHLESS DC GEAR MOTOR

# 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

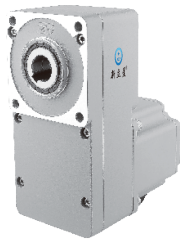
- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>速度控制范围100~2000r/min<br/>The speed control range is 100~2000r/min</li> <li>转速调整率±0.5%<br/>Speed adjustment rate ±0.5%</li> <li>多段变速运行（8段速）<br/>Multi-speed section (Maximum 8)</li> <li>使能保持力矩（最大为额定转矩的50%）<br/>Vector can maintain torque (Up to 50% of rated torque)</li> <li>外置参数键盘接口及485通讯接口<br/>External parameter keyboard interface and 485 communication interface</li> <li>备有可用于测试及避免出现故障的监控、测试功能<br/>Equipped with monitoring and testing functions that can be used to test and avoid failure</li> <li>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<br/>The motor is designed with no hall sensor, and the connecting wire between the motor and the driver is 50m long</li> </ol> | <ol style="list-style-type: none"> <li>高效率低能耗。<br/>High efficiency and low energy consumption.</li> <li>合理的电磁方案设计，电机运行更平稳、更低噪<br/>Reasonable electromagnetic design, motor running more stable, lower noise</li> <li>防尘、防水（防护等级IP54）<br/>Dustproof and waterproof (Protection class IP54)</li> <li>出轴端无凸台，便于安装<br/>No protrusion at the output end for easy installation</li> <li>合理的齿轮参数，可靠的箱体结构，承载力更强<br/>Reasonable gear parameters, reliable box structure, stronger bearing capacity</li> <li>高可靠密封结构，低锥入度油脂润滑，寿命更长<br/>High reliable sealing structure, low taper grease lubrication, longer life</li> <li>体积小、重量轻，节省安装空间<br/>Small size, light weight, save more installation space</li> </ol> |
|---|---|

### 可选的三种减速电机 Three 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                  | DF1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                  | DF1系列 Series |
|              | 40W               | 80       |                      |                       |              |
|              | 120W              | 90       |                      |                       |              |
|              | 200W              | 90       |                      |                       |              |
|              | 200W              | 100      |                      |                       |              |
| RC2系列 Series | 40W               | 80       | 5、10、15、20、30、50、100 | IP54                  | DF1系列 Series |
|              | 120W              | 90       |                      |                       |              |
|              | 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

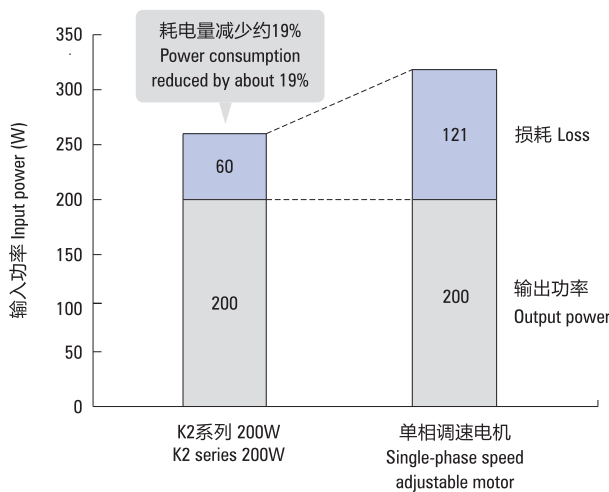
| 产品群<br>Product group  | 速度控制范围*<br>Speed control range* | 速度比<br>Ratio |
|---|---------------------------------|--------------|
| K2/L2系列 K2/L2 series  | 100~2000r/min                   | 1:20         |
| 变频器控制三相感应电机<br>Three-phase induction motor<br>controlled by frequency converter | 200~2400r/min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

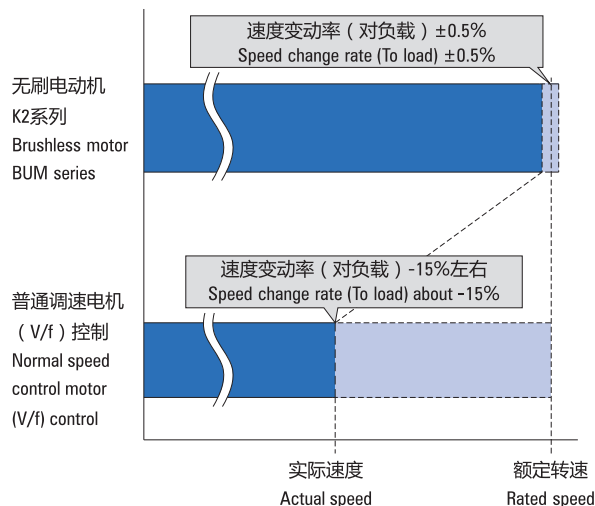


### ■ 优越的速度稳定性 Superior speed stability

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)

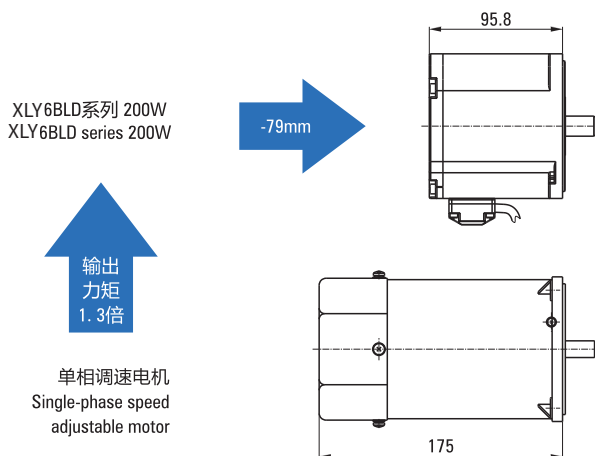


### ■ 薄型、轻量 Thin, lightweight

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

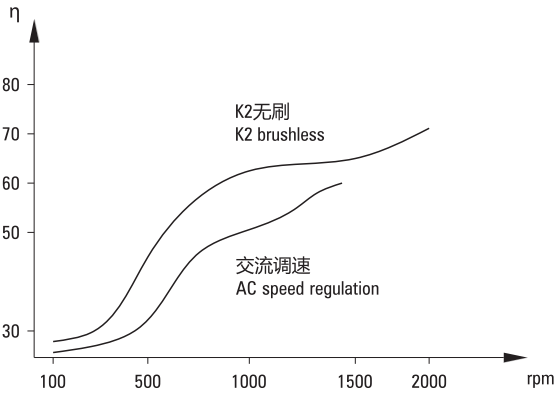
## BASIC CHARACTERISTICS OF INDUCTION BRUSHLESS MOTORS

### ■ 显著的效率提升 Significant efficiency gains

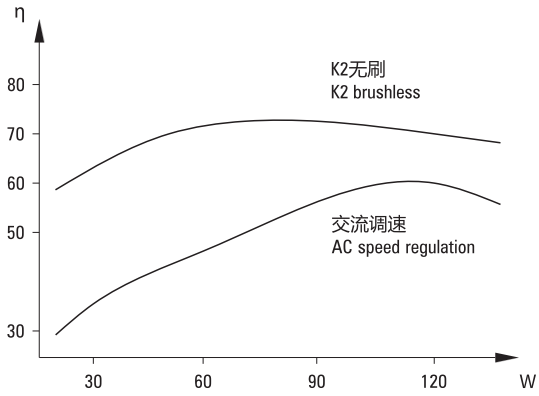
从低速到高速，从轻载到满载，平均效率比交流电机有无比优越性。

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



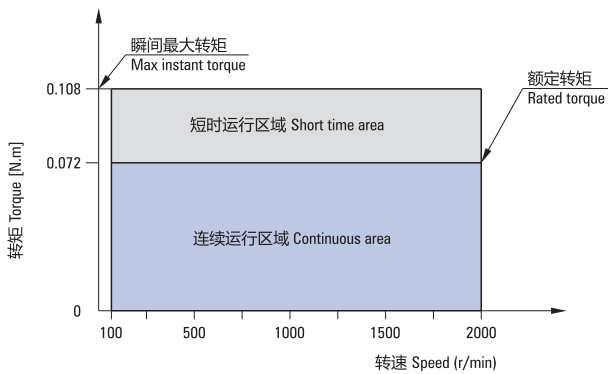
## 转速—转矩特性

### SPEED — TORQUE CHARACTERISTICS

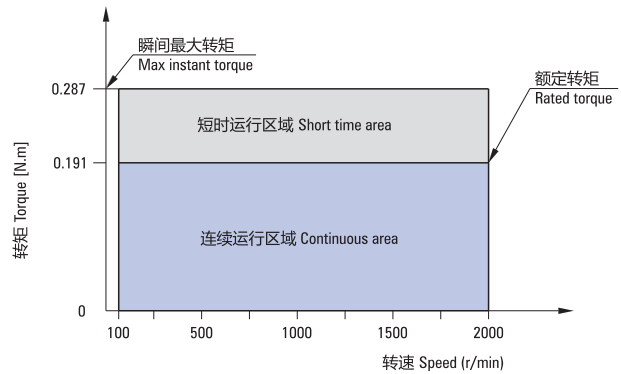
连续运行区域：可做连续运行的区域。Continuous operation field: The field in which continuous operation can be done.

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.

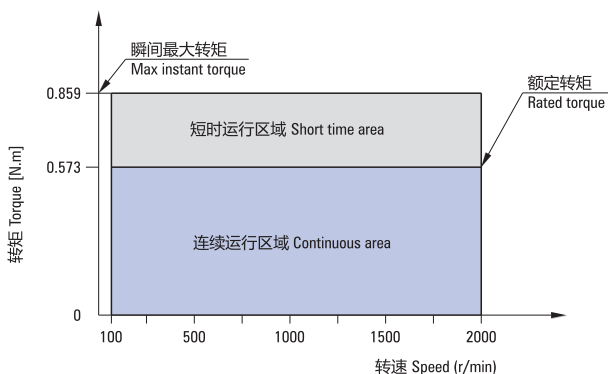
#### ● 15W



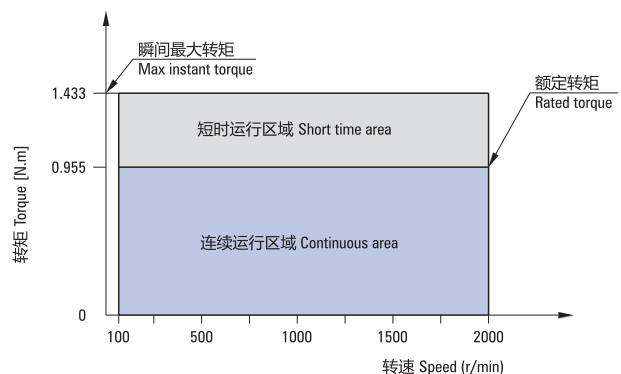
#### ● 40W

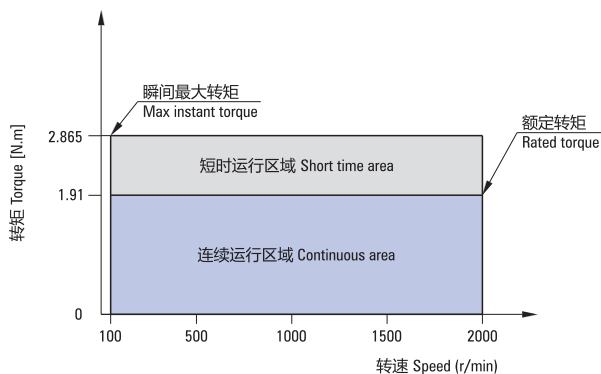
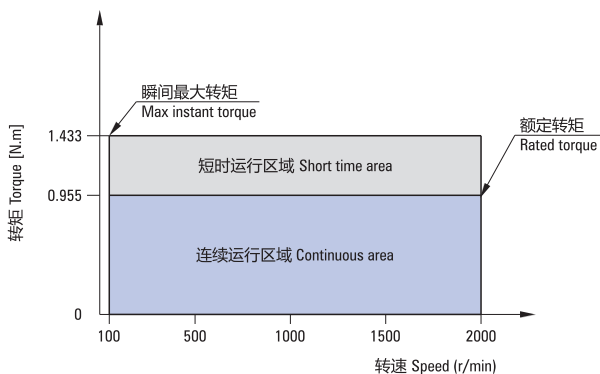


#### ● 120W (90)



#### ● 200W (90)





## 电机的一般规格 GENERAL SPECIFICATION

| 项目 Projects                          | 电机 Electric motor   | 驱动器 Driver  |
|--------------------------------------|---|---|
| 绝缘电阻<br>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。<br>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。<br>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<br>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。<br>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。<br>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<br>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。<br>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。<br>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<br>Service environment          | 环境温度<br>Ambient temperature   | -10 ~ +40°C (无结冰)<br>-10 ~ +40°C (No icing)   |
|                                      | 环境湿度<br>Ambient humidity  | 85%以下 (无结露) Less than 85% (No dew)  |
|                                      | 海拔<br>Altitude  | 海拔1000m以下 Below 1000m   |
| 保存环境*2<br>Storage environment *2     | 介质环境<br>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。<br>No corrosive gas and dust. Can Not contain radioactive material, magnetic field and vacuum and other special environment.   |
|                                      | 环境温度<br>Ambient temperature   | -20 ~ +70°C (无结冰)<br>-20 ~ +70°C (No icing)   |
|                                      | 环境湿度<br>Ambient humidity  | 90%以下 (无结露) Less than 90% (No dew)  |
| 保护等级 *3 Protection level *3          | 海拔3000m以下 Below 3000m   | 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) ]

### 减速度输出轴转速 Reducer output shaft speed

单位 Unit: r/min

| 电机转速<br>Motor speed | 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

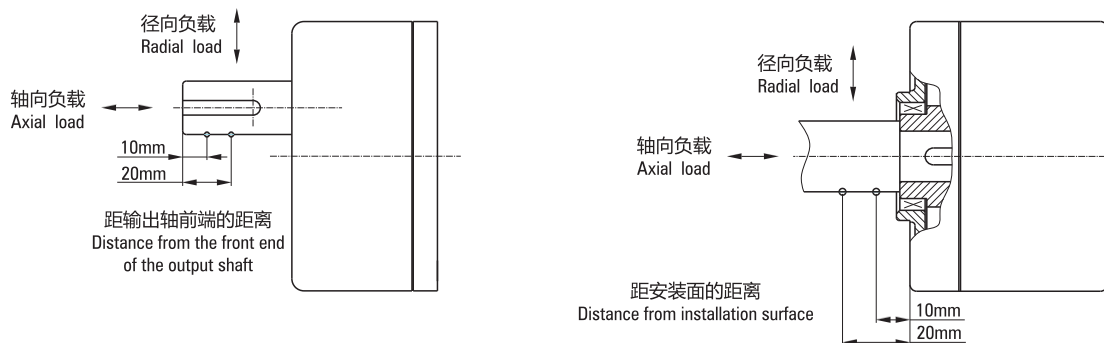
L / L2 gearbox load torque comparison within the speed ratio range of 5~100

**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<br>Reducer size | 减速比 Ratio<br>(电机 Motor 2000rpm) | 容许径向负载 (N) Permissible radial load                           |      | 容许轴向负载 (N)<br>Allowable axial load (N) |
|---------------------|---------------------------------|--|------|--|
|                     |                                 | 距输出轴前端的距离<br>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                                    |

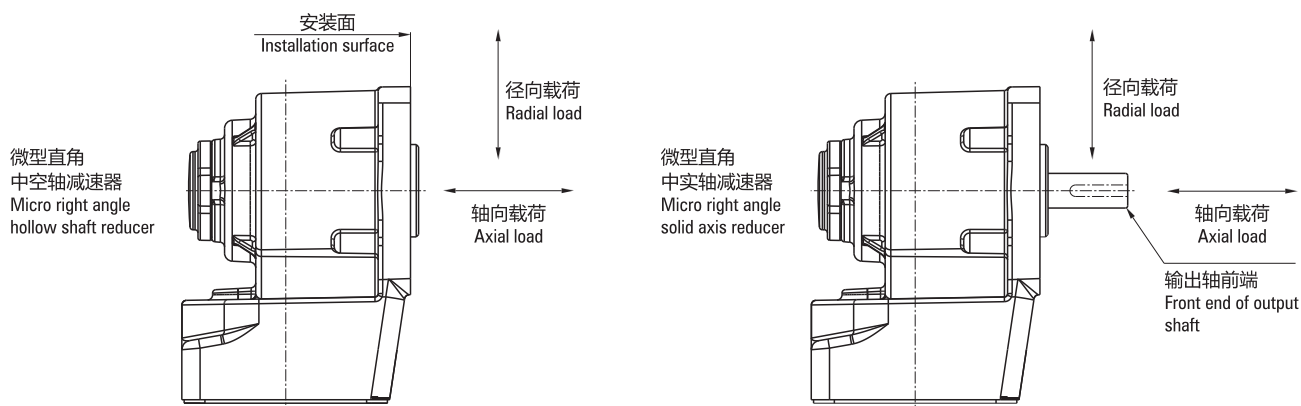
**微型L2减速器最大容许径向和轴向负载 Permissible radial load permissible axial load**

| 机座号<br>Reducer size | 减速比 Ratio<br>(电机 Motor 2000rpm) | 容许径向负载 (N) Permissible radial load            |      | 容许轴向负载 (N)<br>Allowable axial load (N) |
|---------------------|---------------------------------|---|------|--|
|                     |                                 | 距安装面的距离<br>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<br>Reducer size | 输出轴型<br>Output shaft type | 容许径向负载 (N) Permissible radial load   |      | 容许轴向负载 (N)<br>Allowable axial load (N) |
|---------------------|---------------------------|--|------|--|
|                     |                           | 中实自输出轴前端起距离、中空自安装面距离<br>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


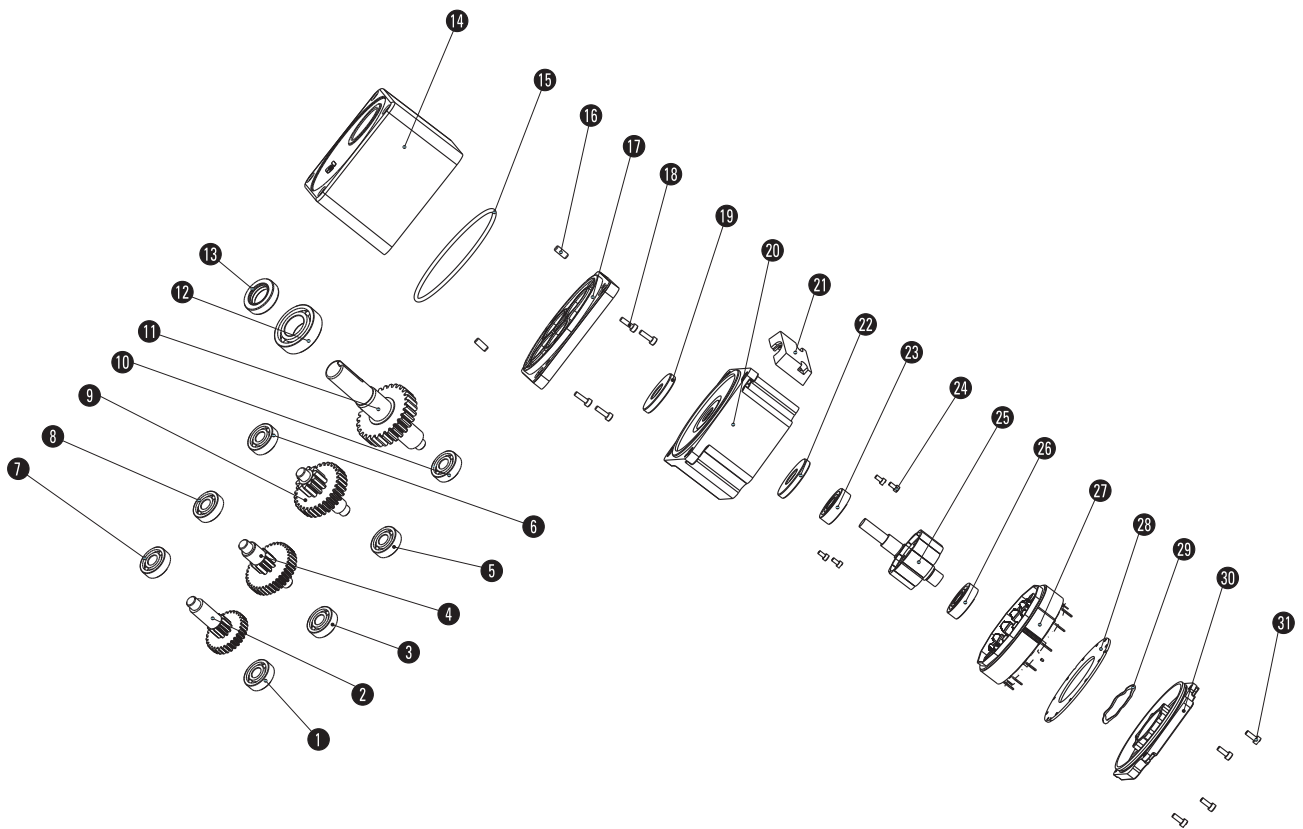
# 型号阅读方法 PRODUCT CODE

## ■ K2系列电机 K2-series

**XLY5**      **BLD**      **120**    -    **220**      **GK**    -    **20S**    /    **5GU**      **20K2**  
 ①            ②            ③            ④            ⑤            ⑥            ⑦            ⑧

|   |  |  |
|---|--|--|
| ① | 机座号：XLY2-60X60/XLY4-80X80/XLY5-90X90/XLY6-104X104        | Size: XLY2-60X60/XLY4-80X80/XLY5-90X90/XLY6-104X104              |
| 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<br>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<br>3rd follower | 16: 定位销 Locating pin                       | 23: 轴承 Bearing                           | 29: 波形弹性垫圈<br>Spring wave washer         |
| 4: 二级传动轴<br>2nd follower | 10: 轴承 Bearing           | 17: 箱盖 Gearbox cover                       | 24: 内六角圆柱头螺钉<br>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<br>Hexagon socket head screws | 25: 转子 Rotor                             | 31: 内六角圆柱头螺钉<br>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<br>Model number         | 电机型号<br>Motor type  | 减速器型号<br>Type of reducer | 减速比<br>Ratio |
|----------------------------|---------------------|--------------------------|--------------|
| XLY2BLD15-220GK-20S/2GN□K2 | XLY2BLD15-220GK-20S | 2GN□K2                   | 5 ~ 100      |

### 容许力矩 Allowable torque

单位 Unit: N·m

| 输出功率<br>Output power | 电机转速<br>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 |  |

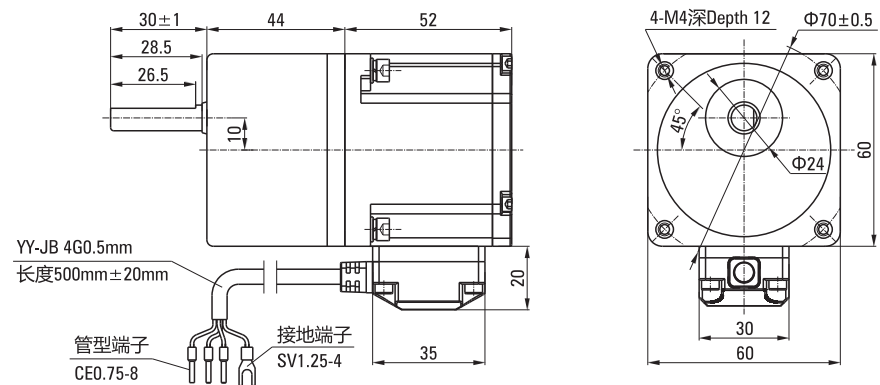
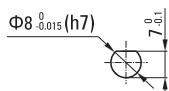
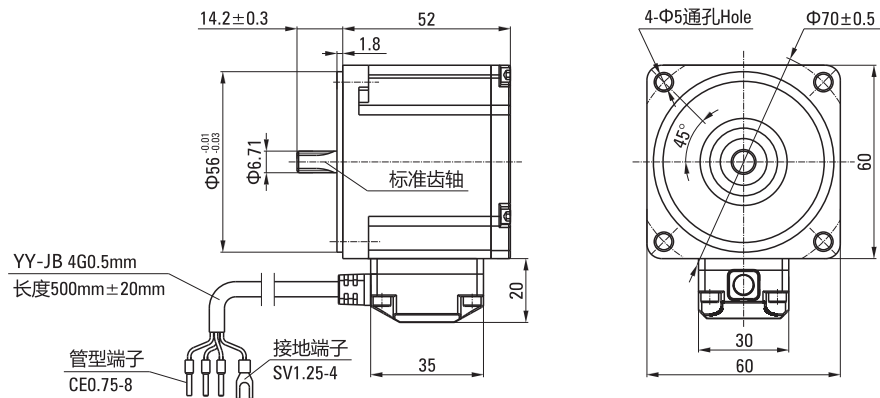
注Note: 表格中  (灰底部分) 表示齿轮箱出轴旋向与电机的旋转方向为反方向。其他则为相同方向。

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<br>Ground line |
|---------------|------------|-----------|--------------------|
| 黄<br>Yellow   | 绿<br>Green | 蓝<br>Blue | 黄绿<br>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<br>Model number         | 电机型号<br>Motor type  | 减速器型号<br>Type of reducer | 减速比<br>Ratio |
|----------------------------|---------------------|--------------------------|--------------|
| XLY4BLD40-220GK-20S/4GN□K2 | XLY4BLD40-220GK-20S | 4GN□K2                   | 5 ~ 100      |

### 容许力矩 Allowable torque

单位 Unit: N·m

| 输出功率<br>Output power | 电机转速<br>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 |

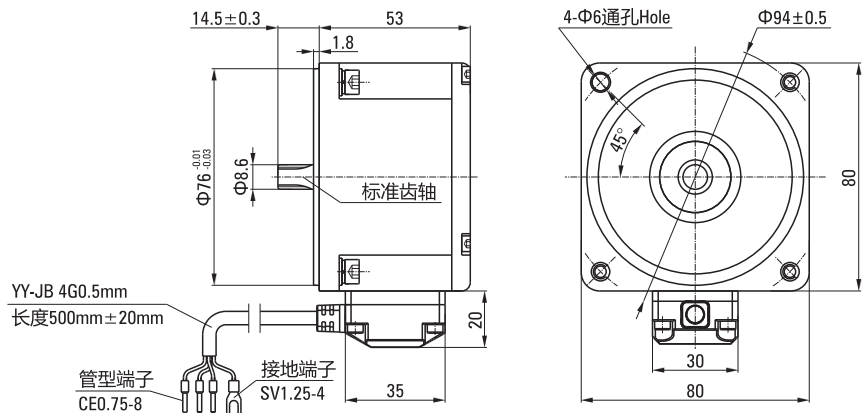
注Note: 表格中  (灰底部分) 表示齿轮箱出轴旋向与电机的旋转方向为反方向。其他则为相同方向。

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.

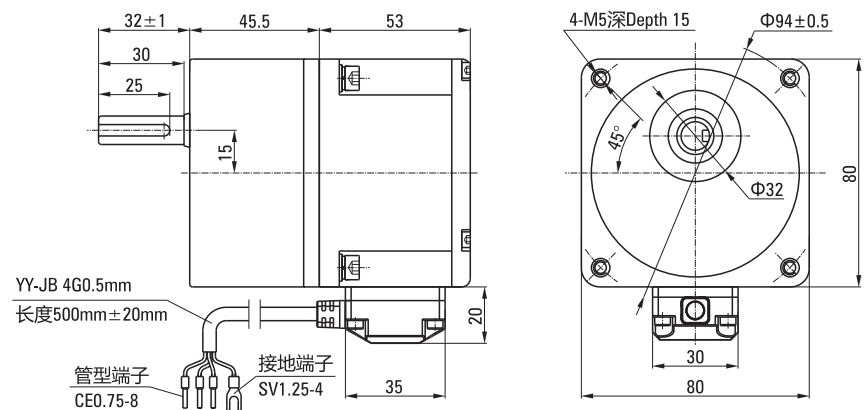
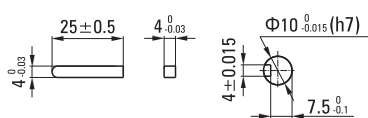
### 外形图 Dimensional drawing

| 相线 Phase line |            |           | 接地线<br>Ground line |
|---------------|------------|-----------|--------------------|
| 黄<br>Yellow   | 绿<br>Green | 蓝<br>Blue | 黄绿<br>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<br>Model number          | 电机型号<br>Motor type   | 减速器型号<br>Type of reducer | 减速比<br>Ratio |
|-----------------------------|----------------------|--------------------------|--------------|
| XLY5BLD120-220GK-20S/5GN□K2 | XLY5BLD120-220GK-20S | 5GN□K2                   | 5 ~ 100      |

### 容许力矩 Allowable torque

单位 Unit: N·m

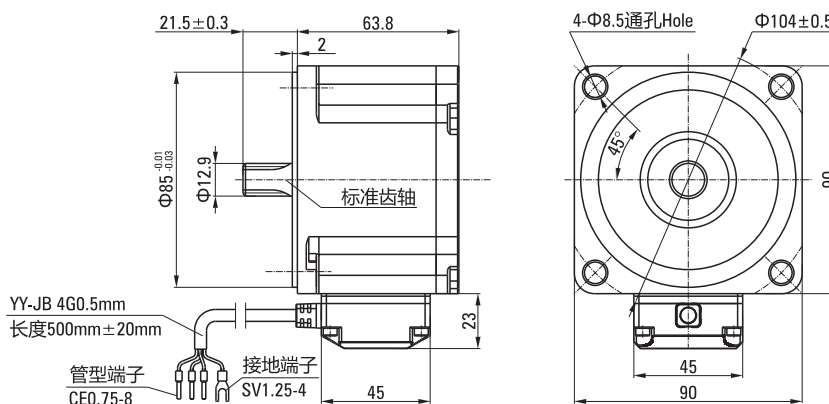
| 输出功率<br>Output power | 电机转速<br>Motor speed | 减速比 Ratio |      |      |      |       |       |       |
|----------------------|---------------------|-----------|------|------|------|-------|-------|-------|
|                      |                     | 5         | 10   | 15   | 20   | 30    | 50    | 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。

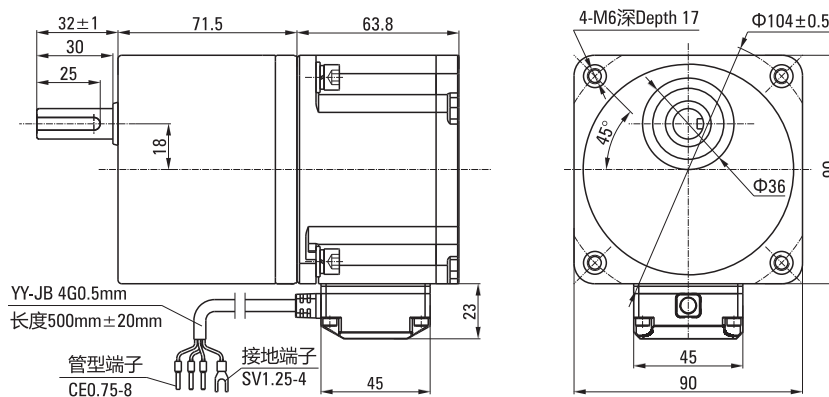
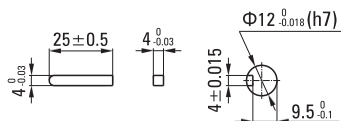
 The  (gray) indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction.

### 外形图 Dimensional drawing

| 相线 Phase line |            |           | 接地线<br>Ground line |
|---------------|------------|-----------|--------------------|
| 黄<br>Yellow   | 绿<br>Green | 蓝<br>Blue | 黄绿<br>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<br>Model number          | 电机型号<br>Motor type   | 减速器型号<br>Type of reducer | 减速比<br>Ratio |
|-----------------------------|----------------------|--------------------------|--------------|
| XLY5BLD120-220GK-20S/5GU□K2 | XLY5BLD120-220GK-20S | 5GU□K2                   | 5 ~ 100      |
| XLY5BLD200-220GK-20S/5GU□K2 | XLY5BLD200-220GK-20S |                          |              |

### 容许力矩 Allowable torque

单位 Unit: N·m

| 输出功率<br>Output power | 电机转速<br>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 |

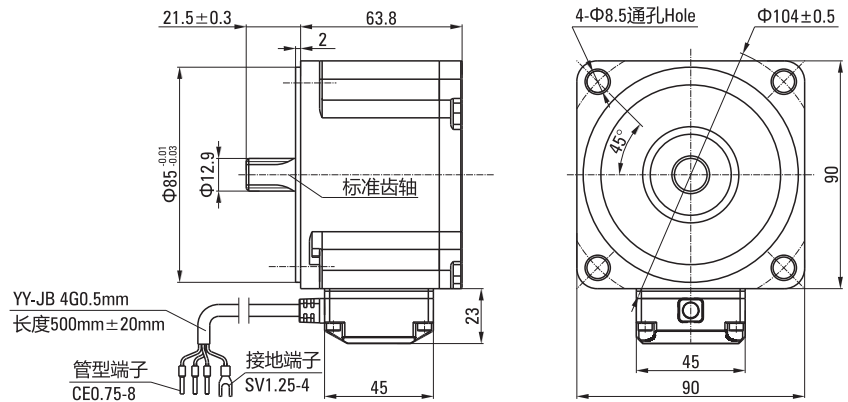
注Note: 表格中   (灰底部分) 表示齿轮箱出轴旋向与电机的旋转方向为反方向。其他则为相同方向。

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.

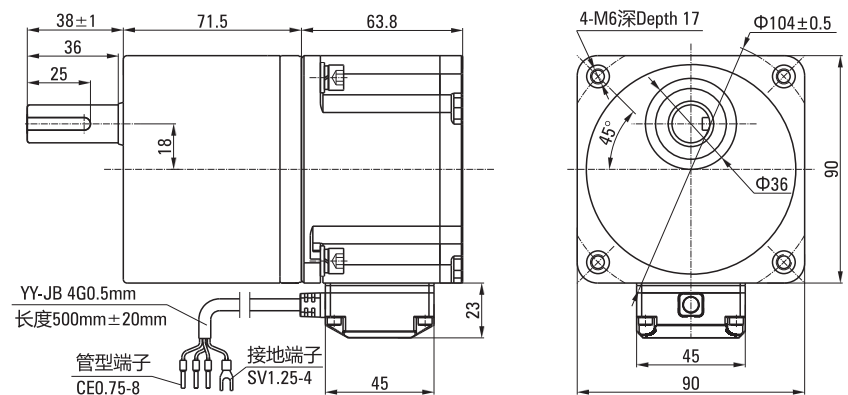
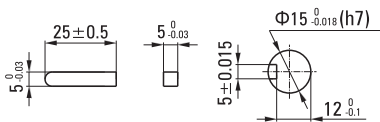
### 外形图 Dimensional drawing

| 相线 Phase line |            |           | 接地线<br>Ground line |
|---------------|------------|-----------|--------------------|
| 黄<br>Yellow   | 绿<br>Green | 蓝<br>Blue | 黄绿<br>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<br>Model number          | 电机型号<br>Motor type   | 减速器型号<br>Type of reducer | 减速比<br>Ratio |
|-----------------------------|----------------------|--------------------------|--------------|
| XLY6BLD200-220GK-20S/6GU□K2 | XLY6BLD200-220GK-20S | 6GU□K2                   | 5 ~ 100      |
| XLY6BLD400-220GK-20S/6GU□K2 | XLY6BLD400-220GK-20S |                          |              |

### 容许力矩 Allowable torque

单位 Unit: N·m

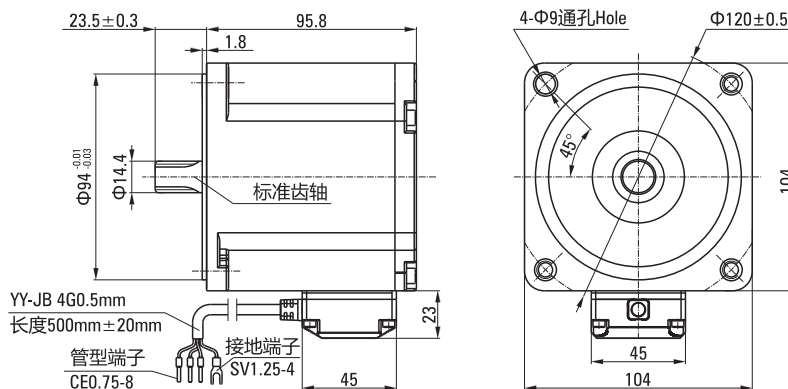
| 输出功率<br>Output power | 电机转速<br>Motor speed | 减速比 Ratio |       |       |       |       |       |       |
|----------------------|---------------------|-----------|-------|-------|-------|-------|-------|-------|
|                      |                     | 5         | 10    | 15    | 20    | 30    | 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。

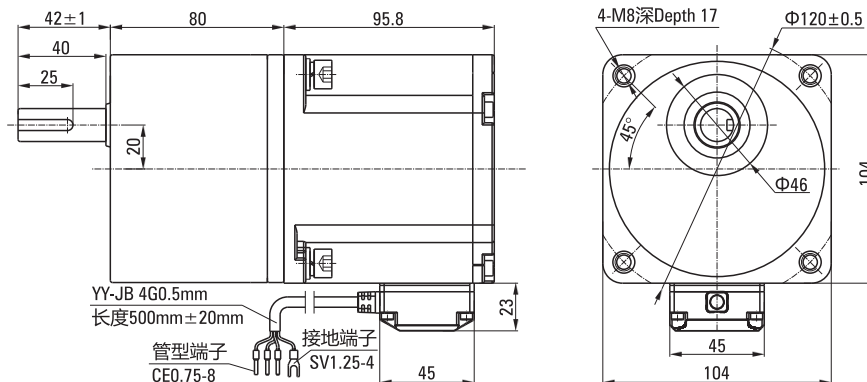
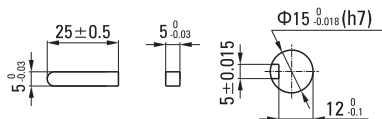
 The  (gray) indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction.

### 外形图 Dimensional drawing

| 相线 Phase line |            |           | 接地线<br>Ground line |
|---------------|------------|-----------|--------------------|
| 黄<br>Yellow   | 绿<br>Green | 蓝<br>Blue | 黄绿<br>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



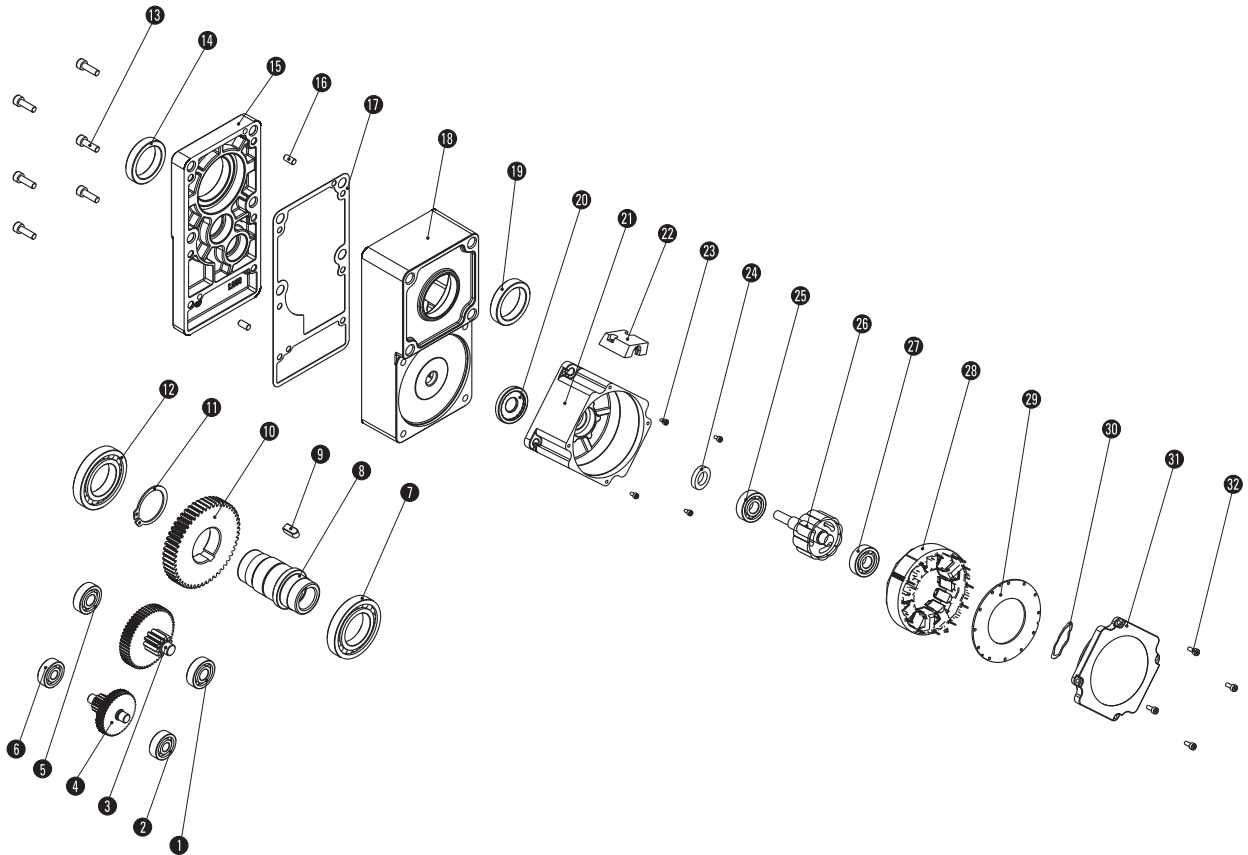
## 型号阅读方法 PRODUCT CODE

### L2系列电动机 L2-series

**XLY5**      **BLD**      **120**      -      **220**      **GKL**      -      **20S**      /      **5GU**      **50L2**  
 ①              ②              ③              ④              ⑤              ⑥              ⑦              ⑧

|   |  |  |
|---|--|--|
| ① | 机座号：XLY2-60X60/XLY4-80X80/XLY5-90X90/XLY6-104X104    | Size: XLY2-60X60/XLY4-80X80/XLY5-90X90/XLY6-104X104          |
| 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<br>2nd follower | 9: 键 Keys                                  | 16: 定位销 Locating pin       | 23: 内六角圆柱头螺钉<br>Hexagon socket head screws | 30: 波形弹性垫圈<br>Spring wave washer           |
| 4: 一级传动轴<br>1st follower | 10: 三级从齿 1rd follower gear                 | 17: 密封垫片 Sealing washer    | 24: 油封 Oil seal                            | 31: 后端盖<br>Back cover                      |
| 5: 轴承 Bearing            | 11: 挡圈 Circlip                             | 18: 箱体 Gearbox housing     | 25: 轴承 Bearing                             |  |
| 6: 轴承 Bearing            | 12: 轴承 Bearing                             | 19: 油封 Oil seal            | 26: 转子 Rotor                               | 32: 内六角圆柱头螺钉<br>Hexagon socket head screws |
|                          | 13: 内六角圆柱头螺钉<br>Hexagon socket head screws | 20: 密封垫圈<br>Sealing washer | 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<br>Model number          | 电机型号<br>Motor type   | 减速器型号<br>Type of reducer | 减速比<br>Ratio |
|-----------------------------|----------------------|--------------------------|--------------|
| XLY2BLD15-220GKL-20S/2GN□L2 | XLY2BLD15-220GKL-20S | 2GN□L2                   | 5 ~ 100      |

### 容许力矩 Allowable torque

单位 Unit: N·m

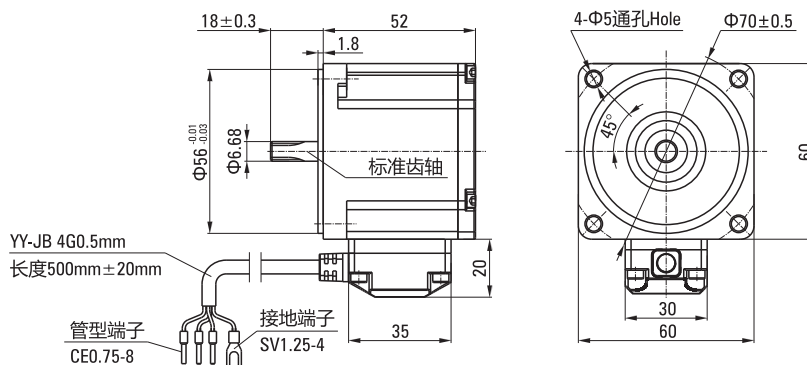
| 输出功率<br>Output power | 电机转速<br>Motor speed | 减速比 Ratio |      |      |      |      |      |      |  |
|----------------------|---------------------|-----------|------|------|------|------|------|------|--|
|                      |                     | 5         | 10   | 15   | 20   | 30   | 50   | 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XLY标准驱动器下测试所得。The torque under different speed and speed ratio is obtained under the XLY standard)

### 外形图 Dimensional drawing

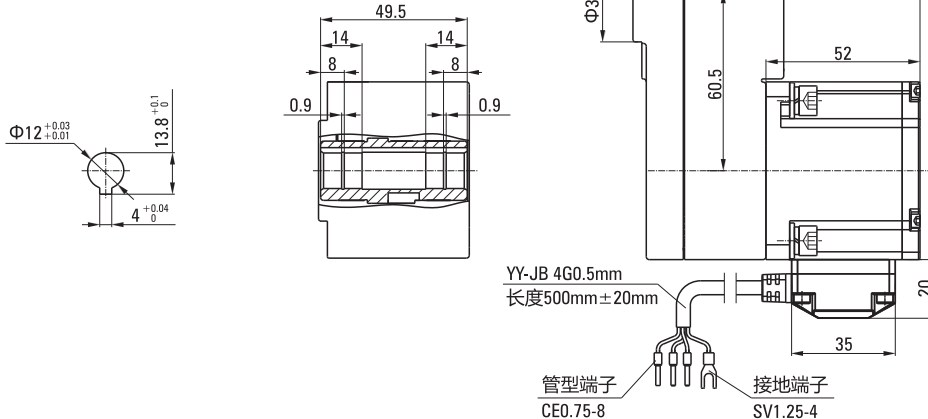
| 相线 Phase line |            |           | 接地线<br>Ground line |
|---------------|------------|-----------|--------------------|
| 黄<br>Yellow   | 绿<br>Green | 蓝<br>Blue | 黄绿<br>Yellow/Green |
| U             | V          | W         | GND                |

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<br>Model number          | 电机型号<br>Motor type   | 减速器型号<br>Type of reducer | 减速比<br>Ratio |
|-----------------------------|----------------------|--------------------------|--------------|
| XLY4BLD40-220GKL-20S/4GN□L2 | XLY4BLD40-220GKL-20S | 4GN□L2                   | 5 ~ 100      |

### 容许力矩 Allowable torque

单位 Unit: N·m

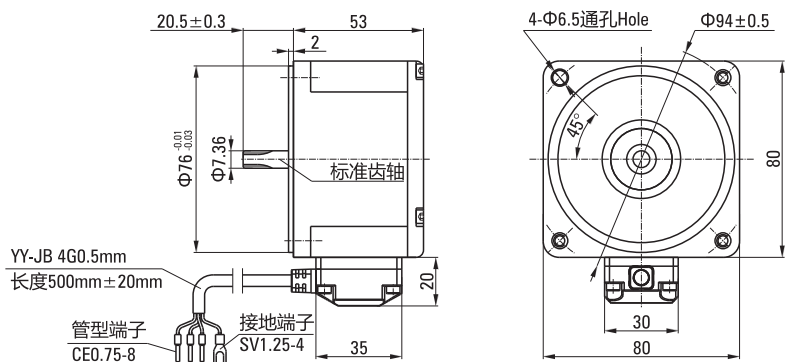
| 输出功率<br>Output power | 电机转速<br>Motor speed | 减速比 Ratio |      |      |      |      |      |       |
|----------------------|---------------------|-----------|------|------|------|------|------|-------|
|                      |                     | 5         | 10   | 15   | 20   | 30   | 50   | 100   |
| 40W                  | 100 ~ 2000rpm       | 0.70      | 1.39 | 2.09 | 2.78 | 4.18 | 6.96 | 14.00 |

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 XLY 标准驱动器下测试所得。The torque under different speed and speed ratio is obtained under the XLY standard)

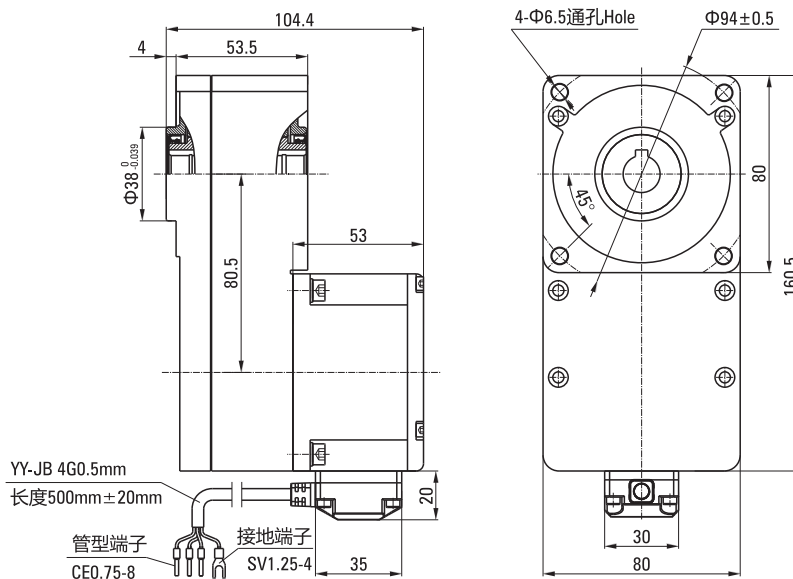
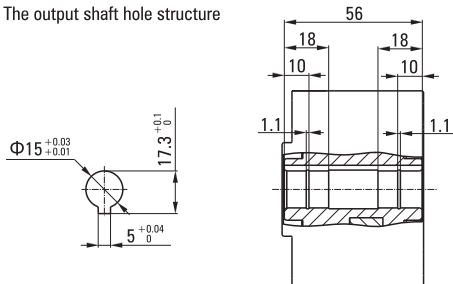
### 外形图 Dimensional drawing

| 相线 Phase line |            |           | 接地线<br>Ground line |
|---------------|------------|-----------|--------------------|
| 黄<br>Yellow   | 绿<br>Green | 蓝<br>Blue | 黄绿<br>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<br>Model number           | 电机型号<br>Motor type    | 减速器型号<br>Type of reducer | 减速比<br>Ratio |
|------------------------------|-----------------------|--------------------------|--------------|
| XLY5BLD120-220GKL-20S/5GU□L2 | XLY5BLD120-220GKL-20S | 5GU□L2                   | 5 ~ 100      |
| XLY5BLD200-220GKL-20S/5GU□L2 | XLY5BLD200-220GKL-20S |                          |              |

### 容许力矩 Allowable torque

单位 Unit: N·m

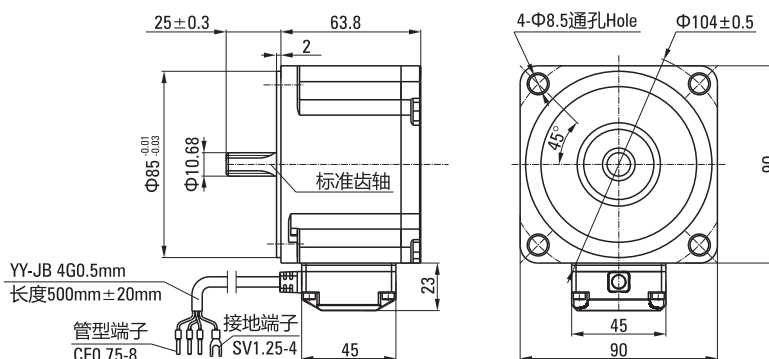
| 输出功率<br>Output power | 电机转速<br>Motor speed | 减速比 Ratio |      |       |       |       |       |       |
|----------------------|---------------------|-----------|------|-------|-------|-------|-------|-------|
|                      |                     | 5         | 10   | 15    | 20    | 30    | 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XLY标准驱动器下测试所得。The torque under different speed and speed ratio is obtained under the XLY standard)

### 外形图 Dimensional drawing

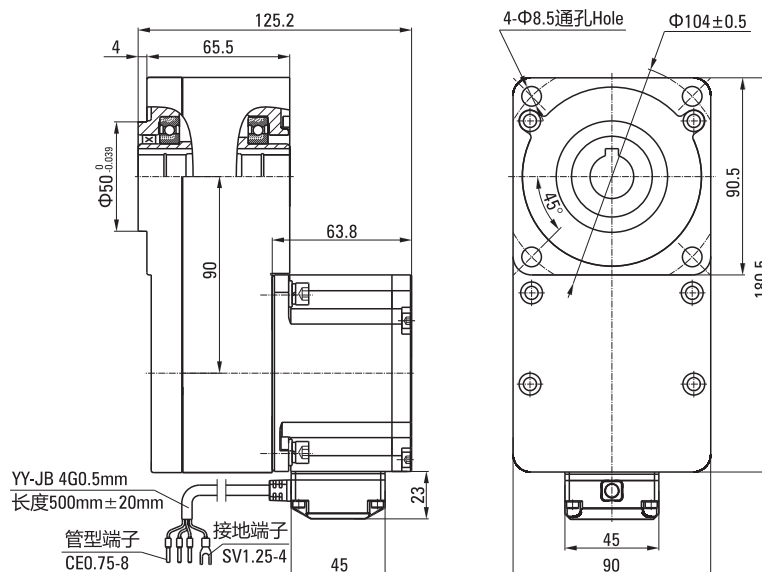
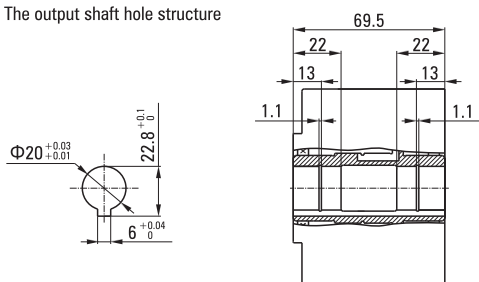
| 相线 Phase line |            |           | 接地线<br>Ground line |
|---------------|------------|-----------|--------------------|
| 黄<br>Yellow   | 绿<br>Green | 蓝<br>Blue | 黄绿<br>Yellow/Green |
| U             | V          | W         | GND                |

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<br>Model number           | 电机型号<br>Motor type    | 减速器型号<br>Type of reducer | 减速比<br>Ratio |
|------------------------------|-----------------------|--------------------------|--------------|
| XLY6BLD200-220GKL-20S/6GU□L2 | XLY6BLD200-220GKL-20S | 6GU□L2                   | 5 ~ 100      |
| XLY6BLD400-220GKL-20S/6GU□L2 | XLY6BLD400-220GKL-20S |                          |              |

### 容许力矩 Allowable torque

单位 Unit: N·m

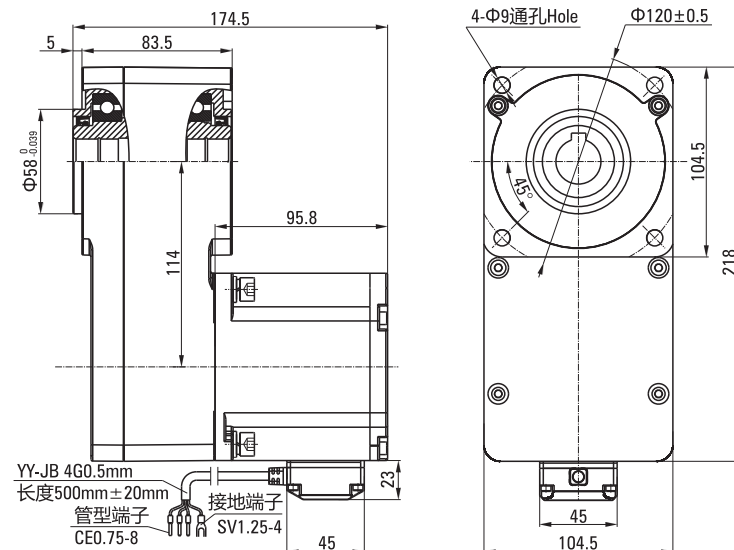
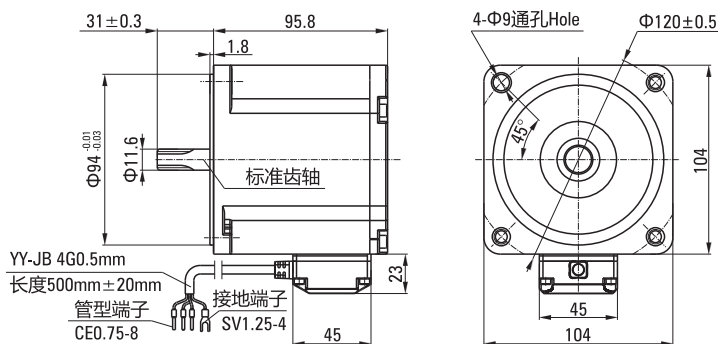
| 输出功率<br>Output power | 电机转速<br>Motor speed | 减速比 Ratio |       |       |       |       |       |        |
|----------------------|---------------------|-----------|-------|-------|-------|-------|-------|--------|
|                      |                     | 5         | 10    | 15    | 20    | 30    | 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XLY标准驱动器下测试所得。The torque under different speed and speed ratio is obtained under the XLY standard)

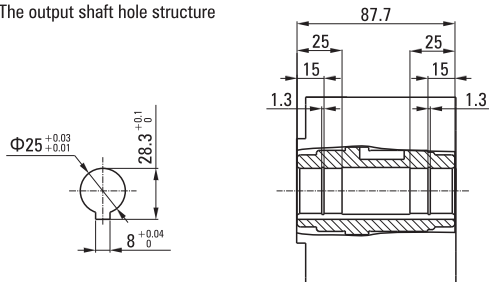
### 外形图 Dimensional drawing

| 相线 Phase line |            |           | 接地线<br>Ground line |
|---------------|------------|-----------|--------------------|
| 黄<br>Yellow   | 绿<br>Green | 蓝<br>Blue | 黄绿<br>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



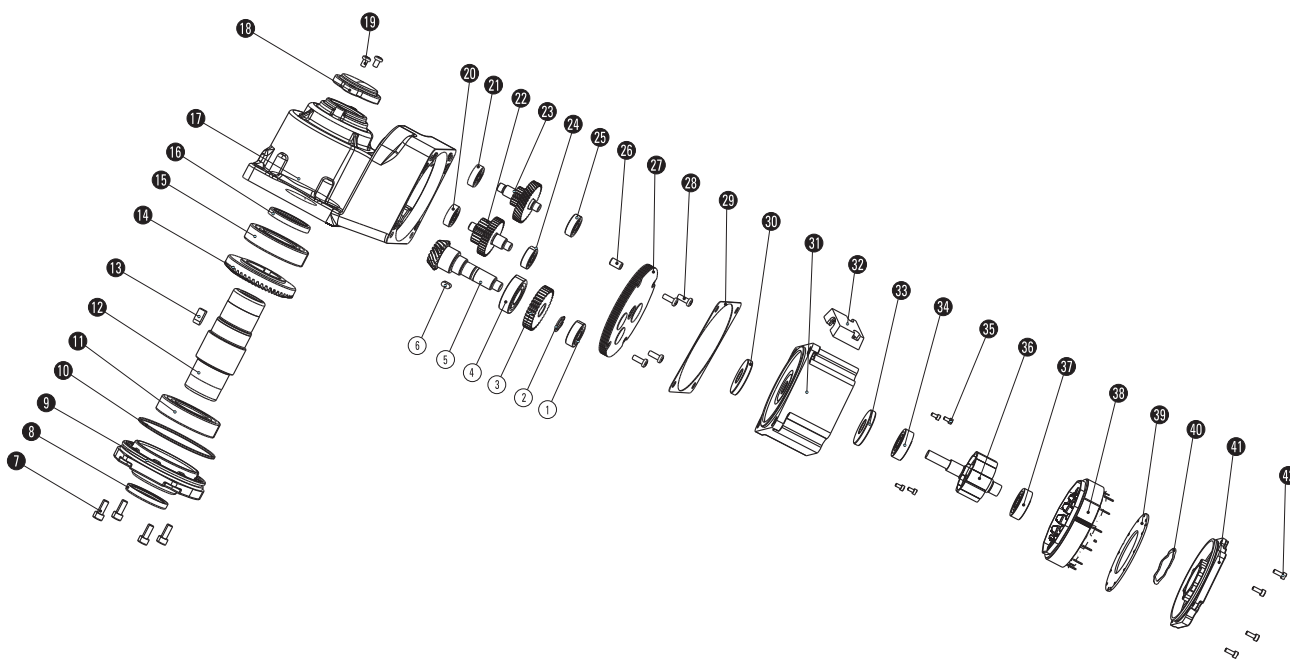
- 输出轴内孔结构  
The output shaft hole structure



**RC2系列电机 RC2-series**

**XLY5**    **BLD**    **120**    -    **220**    **GKR**    -    **20S**    /    **5GU**    **50RC2**  
 ①            ②            ③            ④            ⑤            ⑥            ⑦            ⑧

|   |  |  |
|---|--|--|
| ① | 机座号：XLY4-80X80/XLY5-90X90/XLY6-104X104     | Size: XLY4-80X80/XLY5-90X90/XLY6-104X104           |
| 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 (RC2系列减速器)                       | Type of reducer: GKR (RC2-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<br>Pan head screws with<br>ross recess | 36: 转子 Rotating shaft                    |
| 2: 挡圈 Circlip                             | 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<br>Secondary transmission<br>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<br>Output bevel gear                     | 23: 一级传动轴<br>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<br>Corrugated spring washer   |
| 6: 键 Keys                                 | 16: 油封 Oil seal                                    | 25: 轴承 Bearing                               | 33: 油封 Oil seal                                    | 41: 后端盖<br>Back cover                    |
| 7: 内六角圆柱头螺钉<br>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<br>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<br>Hexagon cylindrical head           |  |
| 9: 箱盖 Box cover                           | 19: 十字槽元机螺钉<br>Pan head screws with<br>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<br>Model number           | 电机型号<br>Motor type   | 减速器型号<br>Type of reducer | 减速比<br>Ratio |
|------------------------------|----------------------|--------------------------|--------------|
| XLY4BLD40-220GKR-20S/4GN□RC2 | XLY4BLD40-220GKR-20S | 4GN□RC2                  | 5 ~ 100      |

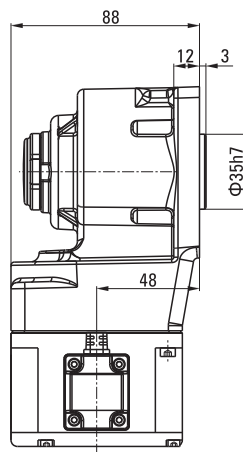
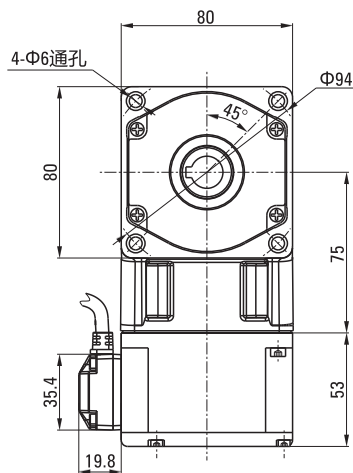
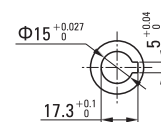
### 容许力矩 Allowable torque

单位 Unit: N·m

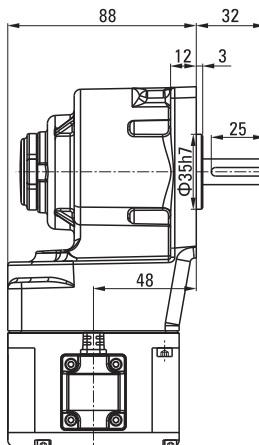
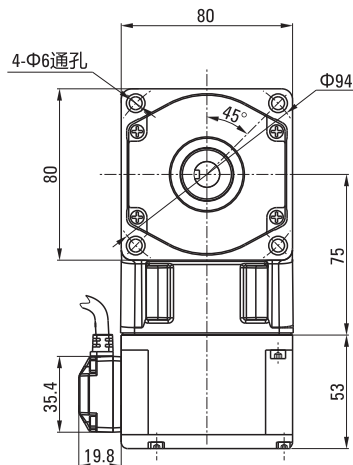
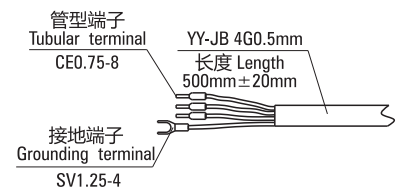
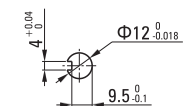
| 输出功率<br>Output power | 电机转速<br>Motor speed | 减速比 Ratio |      |      |      |      |      |       |
|----------------------|---------------------|-----------|------|------|------|------|------|-------|
|                      |                     | 5         | 10   | 15   | 20   | 30   | 50   | 100   |
| 40W                  | 100 ~ 2000rpm       | 0.63      | 1.55 | 2.32 | 3.10 | 4.18 | 6.97 | 12.00 |

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<br>Ground line |
|---------------|------------|-----------|--------------------|
| 黄<br>Yellow   | 绿<br>Green | 蓝<br>Blue | 黄绿<br>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<br>Model number            | 电机型号<br>Motor type    | 减速器型号<br>Type of reducer | 减速比<br>Ratio |
|-------------------------------|-----------------------|--------------------------|--------------|
| XLY5BLD120-220GKR-20S/5GU□RC2 | XLY5BLD120-220GKR-20S | 5GU□RC2                  | 5 ~ 100      |
| XLY5BLD200-220GKR-20S/5GU□RC2 | XLY5BLD200-220GKR-20S |                          |              |

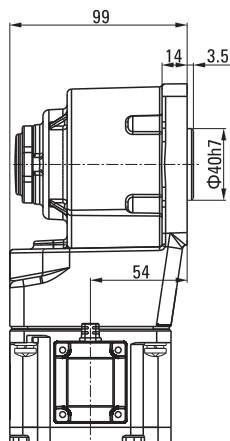
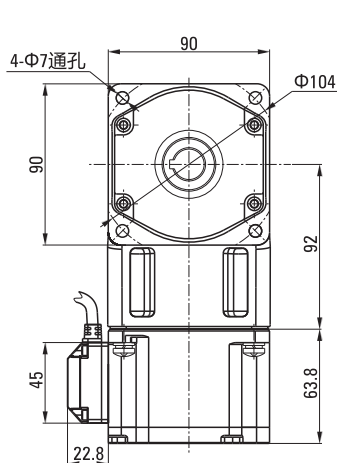
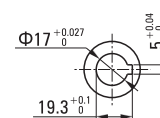
### 容许力矩 Allowable torque

单位 Unit: N·m

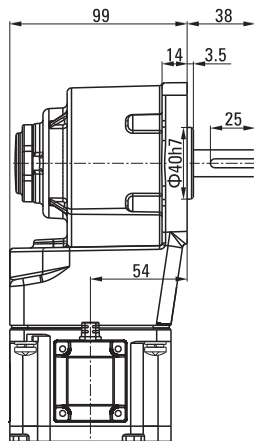
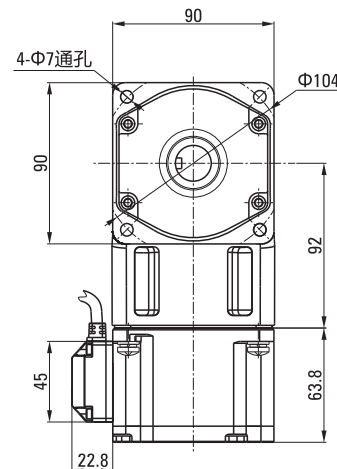
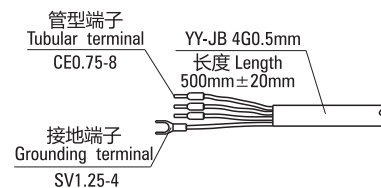
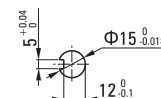
| 输出功率<br>Output power | 电机转速<br>Motor speed | 减速比 Ratio |      |       |       |       |       |       |  |
|----------------------|---------------------|-----------|------|-------|-------|-------|-------|-------|--|
|                      |                     | 5         | 10   | 15    | 20    | 30    | 50    | 100   |  |
| 120W                 | 100 ~ 2000rpm       | 1.88      | 4.18 | 6.27  | 8.37  | 12.55 | 18.82 | 30.00 |  |
| 200W                 |                     | 3.13      | 6.97 | 10.45 | 13.94 | 20.8  | 30.00 | 30.00 |  |

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<br>Ground line |
|---------------|------------|-----------|--------------------|
| 黄<br>Yellow   | 绿<br>Green | 蓝<br>Blue | 黄绿<br>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<br>Model number            | 电机型号<br>Motor type    | 减速器型号<br>Type of reducer | 减速比<br>Ratio |
|-------------------------------|-----------------------|--------------------------|--------------|
| XLY6BLD200-220GKR-20S/6GU□RC2 | XLY6BLD200-220GKR-20S | 6GU□RC2                  | 5 ~ 100      |
| XLY6BLD400-220GKR-20S/6GU□RC2 | XLY6BLD400-220GKR-20S |                          |              |

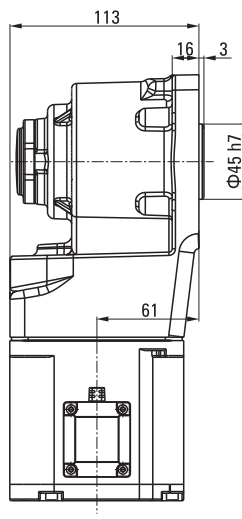
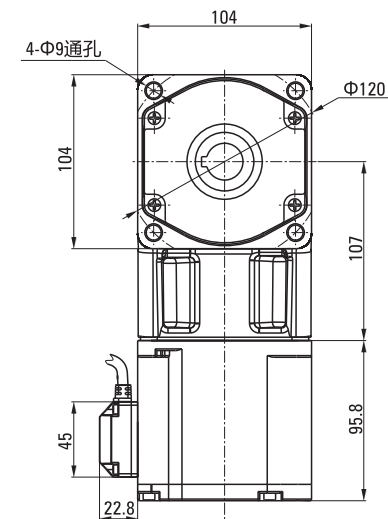
### 容许力矩 Allowable torque

单位 Unit: N·m

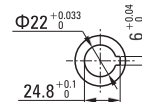
| 输出功率<br>Output power | 电机转速<br>Motor speed | 减速比 Ratio |       |       |       |       |       |      |
|----------------------|---------------------|-----------|-------|-------|-------|-------|-------|------|
|                      |                     | 5         | 10    | 15    | 20    | 30    | 50    | 100  |
| 200W                 | 100 ~ 2000rpm       | 3.13      | 6.97  | 10.45 | 13.94 | 20.91 | 31.37 | 60.0 |
| 400W                 |                     | 6.26      | 13.94 | 20.9  | 27.88 | 41.82 | 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.

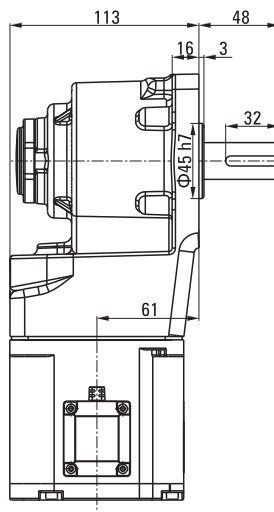
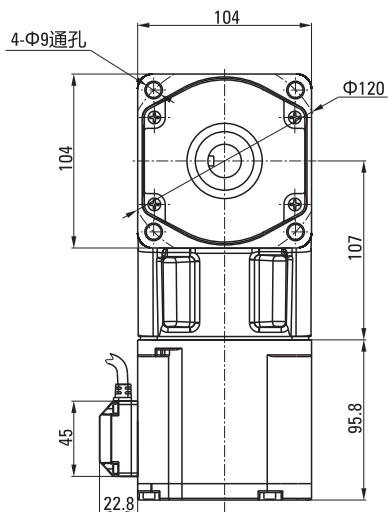
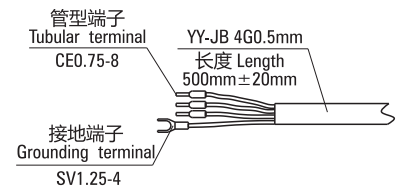
### 外形图 Dimensional drawing



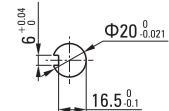
输出轴结构  
Output shaft structure



### 端子图 Terminal diagram



输出轴结构  
Output shaft structure

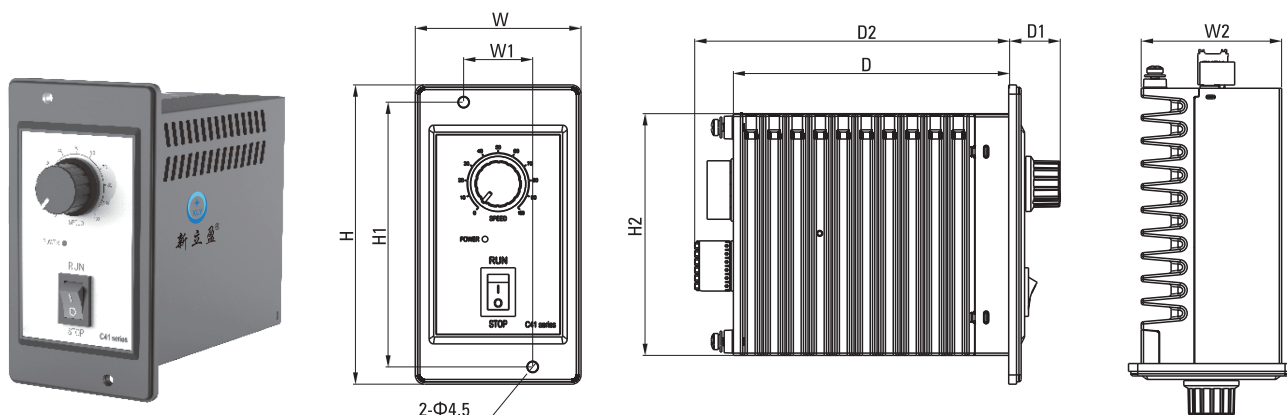


| 相线 Phase line |            |           | 接地线<br>Ground line |
|---------------|------------|-----------|--------------------|
| 黄<br>Yellow   | 绿<br>Green | 蓝<br>Blue | 黄绿<br>Yellow/Green |
| U             | V          | W         | GND                |

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



## DF1 无感驱动器 (面板式) DF1 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 |
| DRV.DF1-15S2-A    | 100                     | 60 | 123 | 80  | 51 | 141.4 | 90                           | -  | 20 |
| DRV.DF1-40S2-A    | 100                     | 60 | 123 | 80  | 51 | 141.4 | 90                           | -  | 20 |
| DRV.DF1-120S2-A   | 100                     | 60 | 123 | 80  | 51 | 141.4 | 90                           | -  | 20 |
| DRV.DF1-200S2-A   | 100                     | 60 | 123 | 80  | 51 | 141.4 | 90                           | -  | 20 |
| DRV.DF1-400S2-R-A | 130                     | 72 | 120 | 105 | 61 | 136.8 | 115                          | 30 | 22 |

## 输入输出接口 Input/output interface

### ● DRV.DF1-200S2-A / DRV.DF1-400S2-R-A

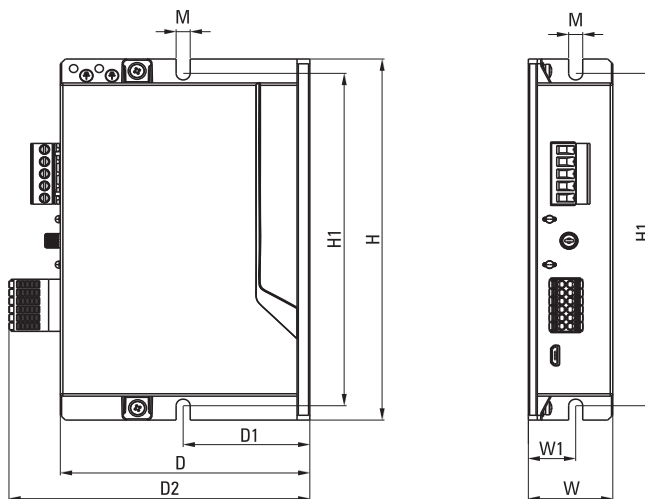
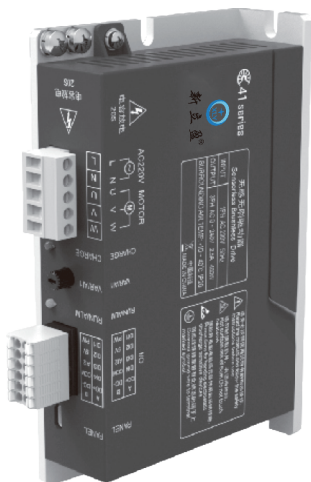
| 引脚编号<br>Pin number | 引脚名称<br>Pin name | 引脚功能<br>Pin function                            |
|--------------------|------------------|---|
| 1                  | W                | 电机动力电源输出端<br>Motor power supply output terminal |
| 2                  | V                |   |
| 3                  | U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

### ● DRV.DF1-200S2-R-A

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

### ● DRV.DF1-400S2-R-A

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

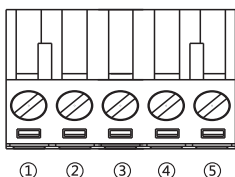
**DF1无感驱动器（内置式） DF1series sensorless driver (Built in)**


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   |
| DRV.DF1-200S2-R-B | 151                     | 33 | 97.5 | 117.5 | 139                          | 18.5 | 49.5 | 5.5 |
| DRV.DF1-400S2-R-B | 151                     | 33 | 97.5 | 117.5 | 139                          | 18.5 | 49.5 | 5.5 |

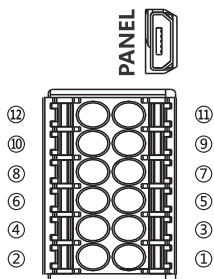
**输入输出接口 Input / output interface**

## ● DRV.DF1-200S2-R-B / DRV.DF1-400S2-R-B



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

## ● DRV.DF1-200S2-R-B / DRV.DF1-400S2-R-B



| 引脚编号<br>Pin number | 引脚名称<br>Pin name | 引脚功能<br>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<br>1 channel digital signal output terminal:<br>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<br>Model parameters           |  | DF1系列无感驱动器 Series sensorless driver  |  |                             |                   |
|------------------------------------|--|--|--|-----------------------------|-------------------|
|                                    |  | DRV,DF1-200S2-A  | DRV,DF1-400S2-R-A  | DRV,DF1-200S2-R-B           | DRV,DF1-400S2-R-B |
| 额定输入电压 Rated input voltage         |  | AC220V/50HZ  | AC220V/50HZ  | AC220V/50HZ                 | AC220V/50HZ       |
| 输出电流<br>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<br>Free cooling, contact cooling  |  |                             |                   |
| 通用功能<br>General functions          | 数字量输入<br>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<br>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<br>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<br>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<br>Analog input function   | 速度调节<br>Speed regulation   |  |                             |                   |
|                                    | 数字量输出<br>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<br>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<br>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<br>Undervoltage protection, overvoltage protection, overload protection, hardware overcurrent protection, software overcurrent protection, over temperature protection, phase loss protection, etc                              |  |                             |                   |
|                                    | 上位机<br>Upper computer  | 不支持<br>Not support   | 支持<br>Support  |                             |                   |
| 操作面板<br>Operation panel            | 可配置中大的手持操作面板, 设置参数和读取数据<br>Can match to ZD handle panel, setting parameters and reading data |  |  |                             |                   |
| 总线控制<br>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<br>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<br>Usage environment          | 工作温度<br>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<br>-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<br>Storage temperature  | -30°C~+60°C, 空气温度变化小于1°C/分<br>-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<br>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<br>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   |  |  |                             |                   |