



# SMALL AC GEAR MOTOR

小型交流平行轴齿轮减速电机



# 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 66666m<sup>2</sup> (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.

# 小型交流减速电机型号说明方法

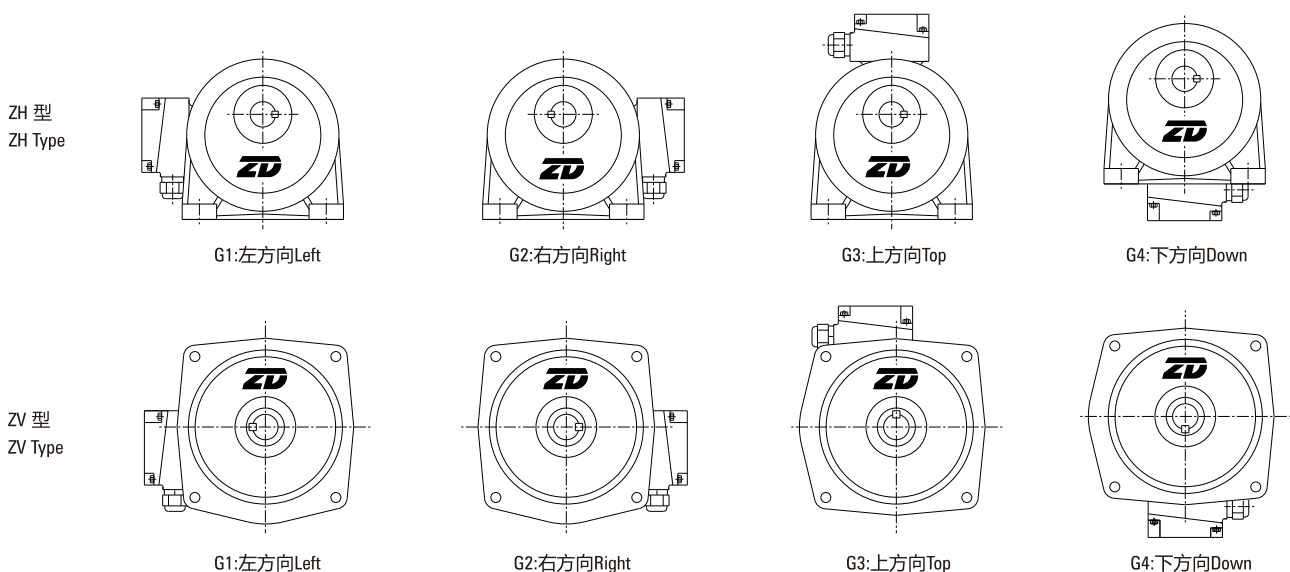
## TYPE AND MOTOR MODEL

### ■ 减速电机型号说明 Description Of Motor Model

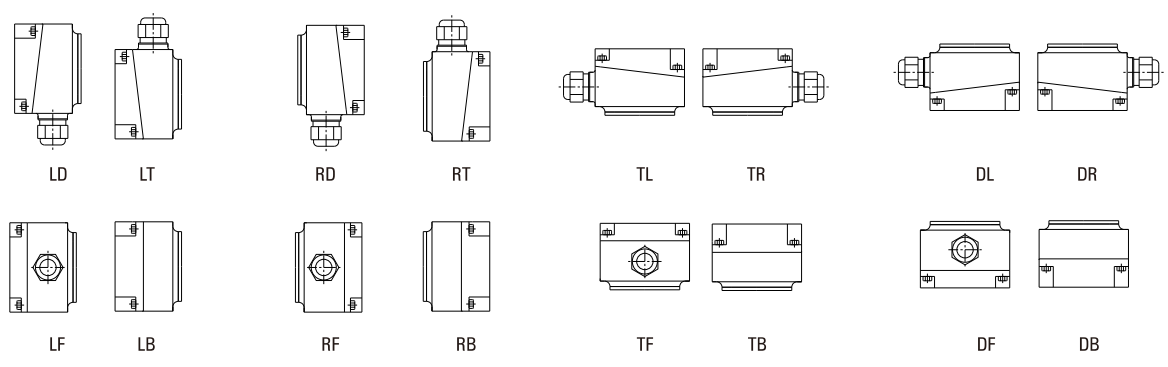
ZH - 100 - 50 - SZ - B - G1 - LD - Q1

①      ②      ③      ④      ⑤      ⑥      ⑦      ⑧

|   |   |
|---|---|
| ① | 箱体结构基本代号 Basic structure; ZH (卧式 Horizontal), ZV (立式 Vertical)  |
| ② | 输出功率 Output: 100W, 200W, 400W, 750W, 1100W, 1500W, 2200W, 3000W, 3700W  |
| ③ | 齿轮箱的减速比 Gear ratio: 3, 5, 10...1800   |
| ④ | 电机的基本结构 Motor basic data:<br>S: 三相电机 3-Phase motor, 220-240/380-415V, 50/60Hz<br>C: 单相电机 1-Phase motor, 220V, 50/60Hz<br>E: 单相电机 1-Phase motor, 110V, 50/60Hz<br>DV: 单相双电压电机 Double voltage motor, 110V/220V, 50/60Hz<br>Z: 缩框型减速电机 Light type duty<br>(标准型省略 Standard type omit) |
| ⑤ | 刹车器 Brake unit<br>B: DC断电刹车器 Brake unit (另配交变直快速整流器 With quick rectifier from AC to DC)<br>YB: 手持放刹车器 Manual brake unit<br>F1: 110V轴流风机, F2: 220V轴流风机, F3: 380V轴流风机 F1: 110V axial fan, F2: 220V axial fan, F3: 380V axial fan  |
| ⑥ | 出轴端看接线盒方位 (如图示) Terminal box direction from output shaft (As shown)<br>G1: 左方向 Left    G2: 右方向 Right    G3: 上方向 Top    G4: 下方向 Down   |

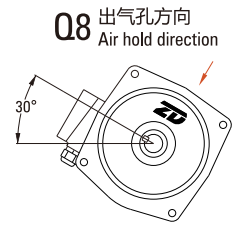
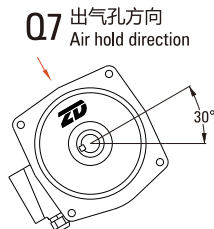
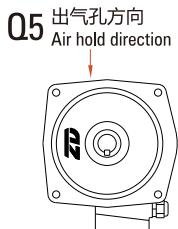
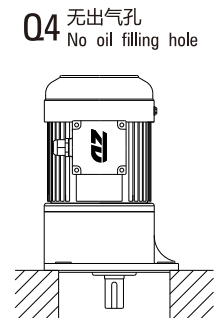
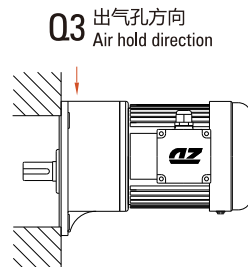
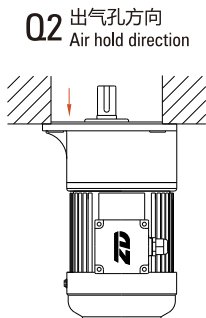
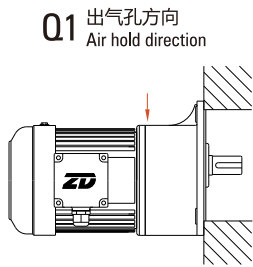
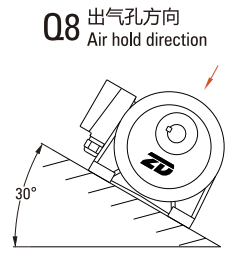
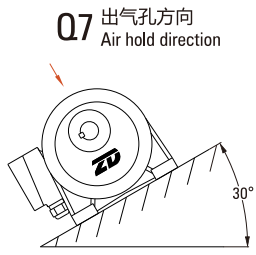
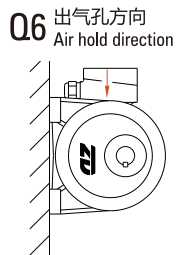
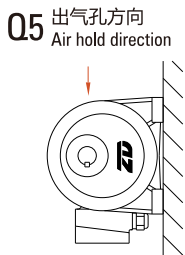
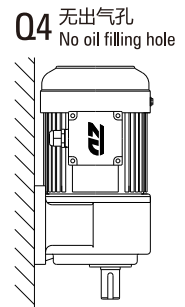
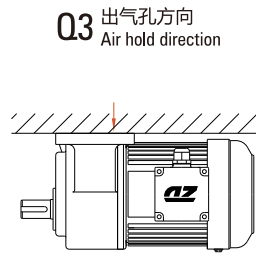
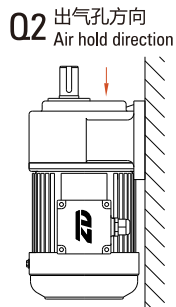
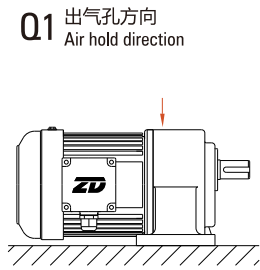


|   |  |
|---|--|
| ⑦ | 出轴端看引出线方位 (如图示) Lead direction from output shaft (As shown)<br>T: 向上 Top    D: 向下 Down    F: 向前 Forward    B: 向后 Back    L: 向左 Left    R: 向右 Right |
|---|--|



# 小型交流减速电机型号说明方法 TYPE AND MOTOR MODEL

⑧ 出厂标准安装形式：Standard installaion method  
 本公司出厂所有减速器适用如图安装形式  
 All of our company's reducer can be applied to the following kinds of installation method  
 图中Q1、Q4、Q7、Q8中注油孔方向为标准型  
 In the diagram, Q1, Q4, Q7, Q8 are our standard types of oil hole direction  
 注油孔在特殊位置的，请特别告知，本公司将修改出气孔位置  
 Pls inform us if the location of oil hole is special, we will modify it  
 实际使用时，建议将注油孔中的堵油销拔出，以平衡减速箱内的压力  
 Pls pull out the pin of the oil plug to reduce the pressure in the gearbox during running



备注：  
 订购变频电机时，请说明变频范围，减速电机的使用环境工作方式等。  
 带刹车减速电机总长度需增加10mm。  
 Note:  
 For motors supplied by transducer please tell us detailed working modes and working ambient.  
 The total length of brake motors will be 10mm longer than standard motors.

电机基本规范 Motor Specification

| 项目 Item             | 三相电机 3-Phase Motor   | 单相电机 1-Phase Motor   |
|---------------------|--|--|
| 防护等级 Protection     | 铝合金壳接线盒为IP54, 铁壳接线盒为IP20<br>IP54 with alum alloy terminal box, and other is IP20   |  |
| 外壳材质 Frame material | 100W~3700W机壳为铝合金, 1#, 2#, 3#, 4#齿轮箱为铝合金, 5#, 6#齿轮箱为铸铁<br>Alum alloy for 100W~2200W frame, alum alloy for 1#, 2#, 3#, 4# gear case, 5#, 6# cast iron for others |  |
| 工作方式 Duty           | 连续运转 / Continuous running<br>S1工作制 Duty: S1  |  |
| 绝缘等级 INS.class      | B级(F级)可选/Optional<br>常规B级 ( F级可选 ) Regular class B (Class F can choose)  |  |
| 适用环境 Environment    | 温度 / Temp: -10°C~+40°C<br>湿度 / Humidity: ≤90%  |  |
| 使用电压 Voltage        | 220-240/380-415V, 50/60Hz  | 110V/50/60Hz, 220V/50/60Hz                                   |
| 极数 Pole             | 4P (6P)  | 4P   |
| 海拔 Height           | ≤1000m   |  |
| 起动方式 Starting       | 全压起动 Direct start  | 0.1-0.2Kw单电容起动 Capacitor<br>0.4-1.5Kw双电容起动 Double capacitors |
| 依据标准 Standard       | GB755/IEC-60034  |  |

单相电机配套电容值, 电容运转形式 Capacitor For 1-phase Motor, C-running Type

| 输出功率<br>Output Power | 运转电容<br>Running Capacitor | 起动电容<br>Starting Capacitor | 运转电容+起动电容 (离心开关)<br>Running+Starting Capacitor (Ceutrifugal Switch) |
|----------------------|---------------------------|----------------------------|---|
| 100W, 1/8HP          | 8μF/450V                  | /                          | /   |
| 200W, 1/4HP          | 12μF/450V                 | /                          | /   |
| 400W, 1/2HP          | /                         | /                          | 15μF/450V+75μF/250V   |
| 750W, 1HP            | /                         | /                          | 20μF/450V+150μF/250V  |
| 1500W, 2HP           | /                         | /                          | 40μF/450V+200μF/250V  |

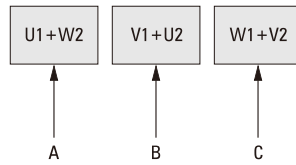
刹车性能说明 Function For Brake Unit

| 输出功率<br>Output Power        | 允许最高转速<br>Permit Max Rpm | 刹车制动力<br>Torque (kg.m) | 刹车间隙<br>Clearance (mm) | 重量<br>Weight (kg) |
|-----------------------------|--------------------------|------------------------|------------------------|-------------------|
| 1/8HP4P-1/4HP4P (100W-200W) | 4000                     | 0.15-0.4               | 0.3-0.5                | 2.0               |
| 1/2HP4P-1HP4P (400W-750W)   | 3600                     | 0.25-0.7               | 0.4-0.6                | 4.3               |
| 1.5HP4P-2HP4P (1100W-1500W) | 3600                     | 0.92-2.0               | 0.5-0.7                | 6.3               |
| 3HP4P-5HP4P (2200W-3700W)   | 3600                     | 1.80-3.5               | 0.6-0.8                | 7.0               |

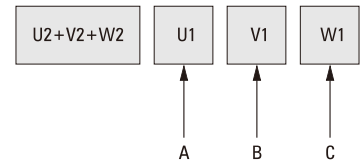
# 接线方式 WIRING DIAGRAM

## 三相电机接线方式 FOR 3-PHASE MOTOR

### 三相电机接线方式 FOR 3-PHASE MOTOR

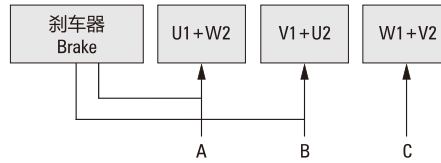


Δ接法/220V-240V



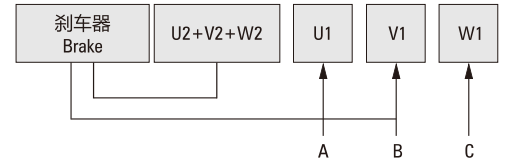
Y接法/380V-415V

### 三相电机与刹车器接线方式 THE CONNECTION MODE FOR THREE PHASE MOTOR AND BRAKE



Δ接法/220V-240V

※注: 刹车器两根电源线接任意两根接线端。  
Note: Brake wires can connect to either pin.

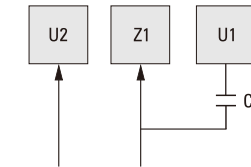


Y接法/380V-415V

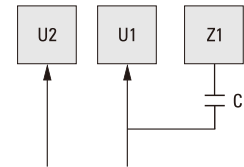
※注: 刹车器电源线一根接电机公共端, 另外一根接电机任意一组。  
Note: One of brake wire connect to motor public and the other wire connects to either motor wire.

## 单相电机接线方式 FOR 1-PHASE MOTOR C表示电容 C FOR CAPACITOR

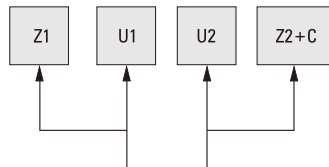
### 单相电机接线方式 FOR 1-PHASE MOTOR



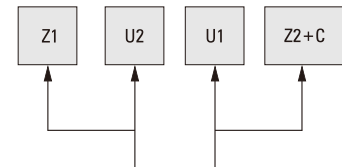
100W/200W逆时针接法/CCW Connection



100W/200W顺时针接法/CW Connection

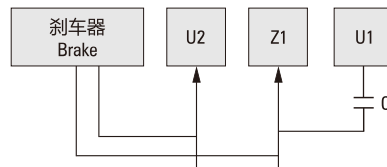


400W/750W/1500W顺时针接法/CW Connection

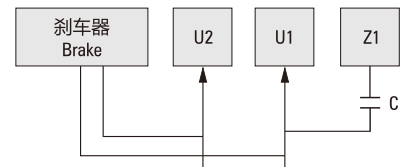


400W/750W/1500W逆时针接法/CCW Connection

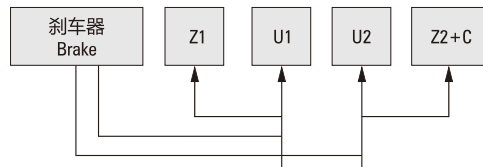
### 单相电机与刹车器接线方式 THE CONNECTION MODE FOR SINGLE PHASE MOTOR AND BRAKE



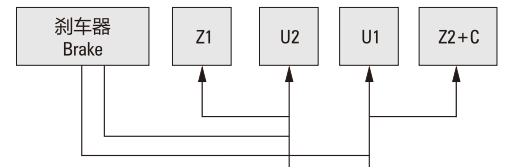
100W/200W逆时针接法/CCW Connection



100W/200W顺时针接法/CW Connection



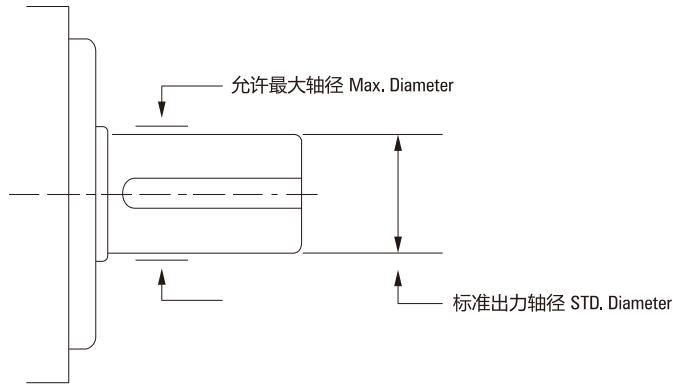
400W/750W顺时针接法/CW Connection



400W/750W逆时针接法/CCW Connection

※备注: 电机变频时, 刹车器请单独接电源。电机使用频率低于30Hz时, 必须带轴流风机, 轴流风机须单独接电源。  
※Note: Please connect brake wire to power single when motor frequency converts. Motor must match a separate fan when run under 30Hz.

■ 输出轴允许最大轴径 Available Max Output Shaft Diameter

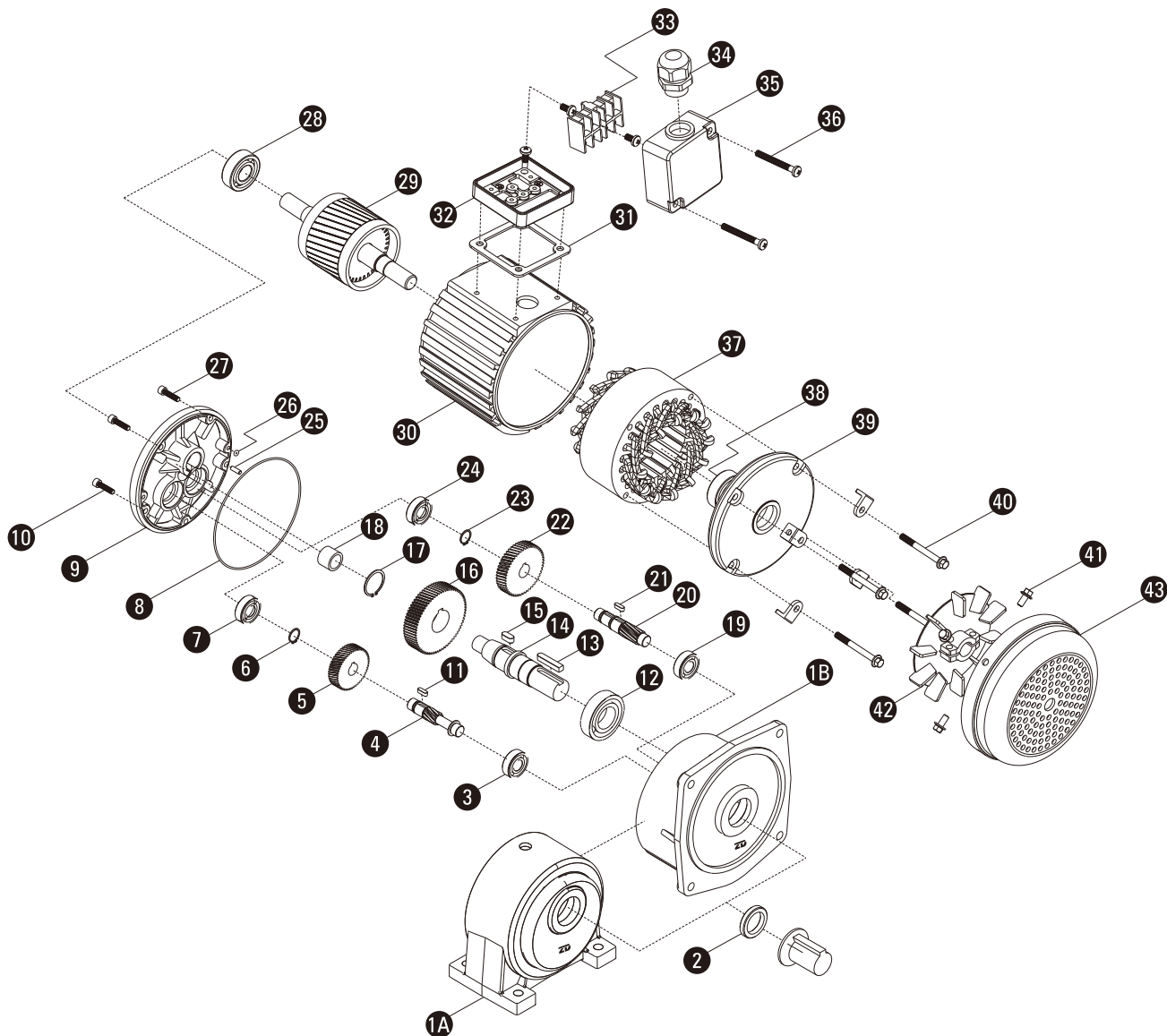


| 齿轮箱型号<br>Gear Box | 标准出轴直径<br>Standard Output Shaft Dia | 最大允许直径<br>Max Available Shaft Dia | 输出端轴承<br>Output End Bearing |
|-------------------|-------------------------------------|-----------------------------------|-----------------------------|
| 1#                | Φ18                                 | Φ20                               | 6004                        |
| 2#                | Φ22                                 | Φ25                               | 6205                        |
| 3#                | Φ28                                 | Φ30                               | 6206                        |
| 4#                | Φ32                                 | Φ35                               | 6207                        |
| 5#                | Φ40                                 | Φ45                               | 6209                        |
| 6#                | Φ50                                 | Φ55                               | 6211                        |

■ 减速电机各零件部分大致说明 Main Parts Notes

| 部件名称 Parts Name  | 说明 Notes  |
|------------------|---|
| 箱体 Gearbox       | 1#、2#、3#、4#箱体出轴直径为18、22、28、32，箱体采用铝合金，5#、6#箱体出轴直径为40、50，箱体采用铸铁。<br>The output shaft diameter of gearbox 1#, 2#, 3#, 4# are 18, 22, 28, 32 separately. The material of gearbox is Al. alloy. 5#, 6# are 40, 50 respectively. Gearbox is made of cast iron. |
| 齿轮片 Gear piece   | 齿轮材料为40Cr，调质HB280，高精度滚齿，齿部高频淬火HRC50，齿面磨齿，齿轮精度6级。<br>The material 40Cr mixes to HB280, then dealt with high frequency quencher HRC50. Gear should be processed by milling with high precision. The class is 6.   |
| 齿轮轴 Gear shaft   | 齿轮材料为20CrMnTi，高精度滚齿，渗碳淬火HRC60，齿面二次刮削，精度6级。<br>The material 20CrMnTi will be changed into HRC60 through processing of cementite quencher. Gear shaft will be processed with gear hobbing. Precision class is 6.  |
| 电机轴 Motor shaft  | 齿轮材料为20CrMnTi，高精度滚齿，渗碳淬火HRC60，齿面二次刮削，精度6级。<br>The material 20CrMnTi will be changed into HRC60 through processing of cementite quencher. Gear shaft will be processed with gear hobbing. Precision class is 6.  |
| 轴承 Ball bearing  | 电机部分轴承采用高精度等级精密轴承，以确保长期运转寿命。<br>We adopt tight bearing with high precision, to make sure longterm running life.   |
| 油封 Oil seal      | 电机轴以耐高温油封为主，可有效防止油脂渗漏。<br>Gear shaft gives priority to enduring high temp, avoiding oil infiltration.   |
| 接线盒 Terminal box | 有两种：一种是铝合金接线盒，有较好的防水及防尘性能，防护等级为IP54。另外一种为铁壳的接线盒，结构轻巧，防护等级IP20。<br>Two type. One is Al alloy, which equipes good capability of waterproof and dustproof. Protection grade is Ip54. The other is steel case with deft structure. Protection grade is IP20.  |

产品结构图  
DETAILS PARTS LIST



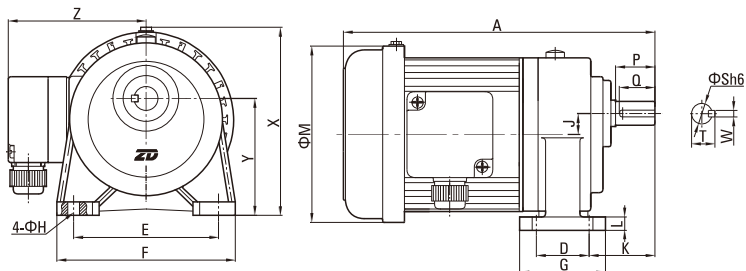
■ 明细表 Parts List

| 序号<br>Item | 名称 Name                        | 序号<br>Item | 名称 Name                        | 序号<br>Item | 名称 Name                 |
|------------|--------------------------------|------------|--------------------------------|------------|-------------------------|
| 1A         | 卧式 Horizontal housing          | 15         | 三级小齿轴键 Key-3RD pinion          | 30         | 机壳 Shell                |
| 1B         | 立式 Vertical housing            | 16         | 三级大齿轮 Gear-3RD stage           | 31         | 密封垫 A seal              |
| 2          | 输出轴油封 Oil seal-output shaft    | 17         | C-挡圈 Snap ring                 | 32         | 接线盒底座 Junction box base |
| 3          | 二级齿轴承 Bearing-2ND stage pinion | 18         | 输出轴自润轴承 Oilless bearing        | 33         | 接线端子 Terminal block     |
| 4          | 二级小齿轴 Pinion-3ND stage         | 19         | 二级齿轴承 Bearing-2ND stage pinion | 34         | 锁紧器 Locking device      |
| 5          | 一级大齿轮 Gear-1ST stage           | 20         | 三级小齿轴 Pinion-2ND stage         | 35         | 接线盒盖 Junction box       |
| 6          | C-挡圈 Snap ring                 | 21         | 三级小齿轴键 Key-3RD stage pinion    | 36         | 固定螺钉 Fixed screw        |
| 7          | 二级齿轴承 Bearing-2ND stage pinion | 22         | 二级大齿轮 Gear-2RD stage           | 37         | 定子总成 Stator             |
| 8          | O型圈 Oil ring                   | 23         | C-挡圈 Snap ring                 | 38         | 电机轴承 Bearing of shaft   |
| 9          | 电机前盖 Front cover               | 24         | 三级齿轴承 Bearing-3ND stage pinion | 39         | 后端盖 Back cover          |
| 10         | 内六角螺钉 Hex-head screw           | 25         | 定位销 Pin                        | 40         | 固定螺栓 Fixed bolt         |
| 11         | 二级小齿轴键 Key-2RD stage pinion    | 26         | O型圈 Oil ring                   | 41         | 内六角螺钉 Hex-head screw    |
| 12         | 输出轴承 Bearing-output shaft      | 27         | 内六角螺钉 Hex-head screw           | 42         | 风叶 Fan                  |
| 13         | 输出轴键 Key-output shaft          | 28         | 电机轴承 Bearing of shaft          | 43         | 风罩 Fan cover            |
| 14         | 输出轴 Output shaft               | 29         | 转子 Rotor                       |            |                         |

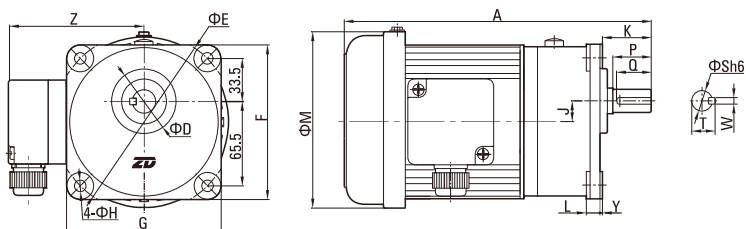


# 1#齿轮箱出轴直径Φ18mm配三相电机技术参数 1# GEARBOX WITH SHAFT DIA Φ18mm WITH 3-PHASE MOTOR PARAMETERS

## 卧式 Horizontal



## 立式 Vertical



## 尺寸表 Size Table

单位 Unit:mm

| 功率 Power      | 减速比 Ratio  | A   | D      | E        | F        | G       | H | J  | K        | L      | M   | X      | Y       | Z   | S  | P  | Q  | W | T    | 重量 Weight |
|---------------|------------|-----|--------|----------|----------|---------|---|----|----------|--------|-----|--------|---------|-----|----|----|----|---|------|-----------|
| 100W<br>1/8HP | 标准型 3-50   | 240 | 40(50) | 110(140) | 135(120) | 65(120) | 9 | 16 | 50(39.5) | 10(12) | 135 | 143(/) | 88.5(2) | 105 | 18 | 30 | 27 | 5 | 20.2 | 5.7       |
|               | 缩框型 60-200 | 240 | 40(50) | 110(140) | 135(120) | 65(120) | 9 | 16 | 50(39.5) | 10(12) | 135 | 143(/) | 88.5(2) | 105 | 18 | 30 | 27 | 5 | 20.2 | 5.7       |
| 200W<br>1/4HP | 标准型 3-10   | 270 | 40(50) | 110(140) | 135(120) | 65(120) | 9 | 16 | 50(39.5) | 10(12) | 135 | 143(/) | 88.5(2) | 105 | 18 | 30 | 27 | 5 | 20.2 | 7.0       |
|               | 缩框型 15-90  | 270 | 40(50) | 110(140) | 135(120) | 65(120) | 9 | 16 | 50(39.5) | 10(12) | 135 | 143(/) | 88.5(2) | 105 | 18 | 30 | 27 | 5 | 20.2 | 7.0       |

※表中“( )”内为立式箱体尺寸。

※Labulation“( )”denote vertical box dimension.

## 输出轴容许扭矩 Output Torque

单位 Unit:kg.m

| 功率 Power      | 类型 Type                | 速 频 率 | 速 率  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------|------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|               |                        |       | 3    | 5    | 10   | 15   | 20   | 25   | 30   | 40   | 45   | 50   | 60   | 70   | 80   | 90   | 100  | 120  | 140  | 160  | 180  | 200  |      |
| 100W<br>1/8HP | 标准型<br>Standard type   | 50Hz  | 0.20 | 0.30 | 0.60 | 0.80 | 1.10 | 1.40 | 1.70 | 2.30 | 2.50 | 2.80 | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    |
|               |                        | 60Hz  | 0.10 | 0.20 | 0.50 | 0.70 | 0.90 | 1.20 | 1.40 | 1.90 | 2.10 | 2.30 | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    |
|               | 缩框型<br>Light duty type | 50Hz  | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 |
|               |                        | 60Hz  | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 |
| 200W<br>1/4HP | 标准型<br>Standard type   | 50Hz  | 0.30 | 0.60 | 1.10 | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    |
|               |                        | 60Hz  | 0.30 | 0.50 | 0.90 | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    |
|               | 缩框型<br>Light duty type | 50Hz  | /    | /    | /    | 1.70 | 2.30 | 2.80 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | /    | /    | /    | /    | /    | /    | /    |
|               |                        | 60Hz  | /    | /    | /    | 1.40 | 1.90 | 2.30 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | /    | /    | /    | /    | /    | /    | /    |

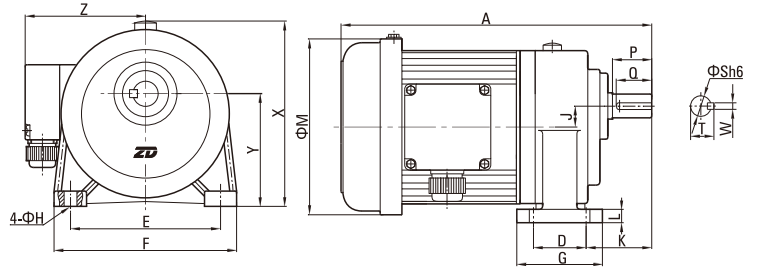
## 2#齿轮箱出轴直径 $\Phi 22\text{mm}$ 配三相电机技术参数 2#GEARBOX WITH SHAFT DIA $\Phi 22\text{mm}$ WITH 3-PHASE MOTOR PARAMETERS

■ 卧式 Horizontal

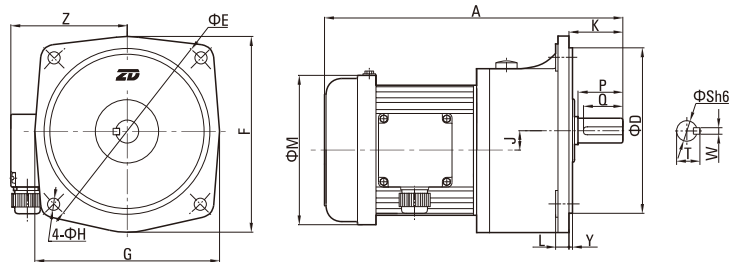
■ 立式 Vertical



■ 卧式 Horizontal



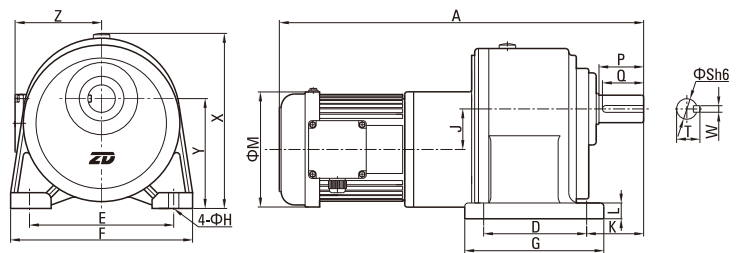
■ 立式 Vertical



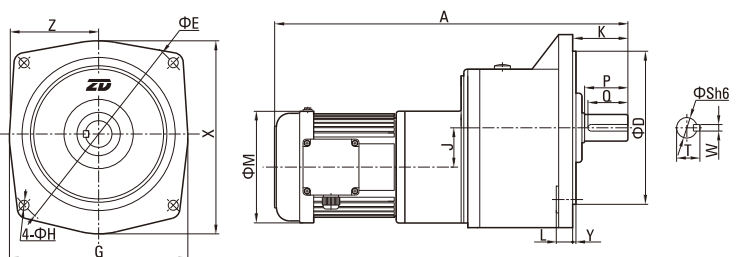
■ 高速比(1#+2#) High Ratio(1#+2#)



■ 卧式 Horizontal



■ 立式 Vertical



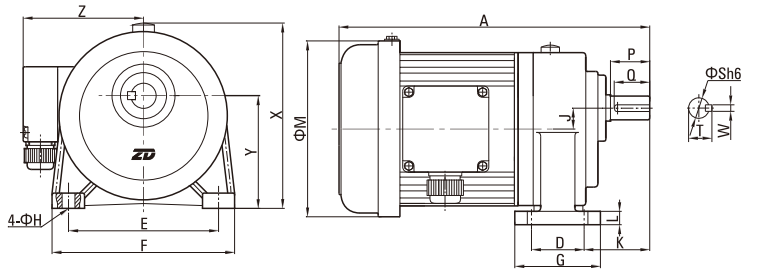


# 3#齿轮箱出轴直径 $\Phi 28\text{mm}$ 配三相电机技术参数 3#GEARBOX WITH SHAFT DIA $\Phi 28\text{mm}$ WITH 3-PHASE MOTOR PARAMETERS

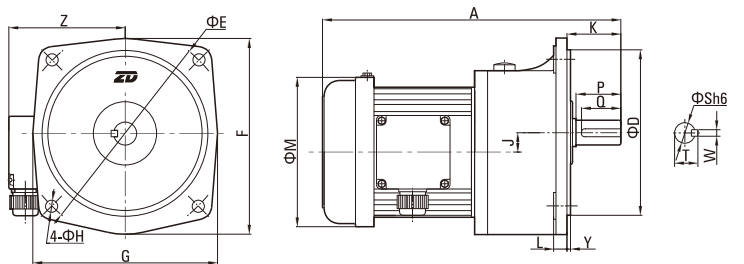
■ 卧式 Horizontal      ■ 立式 Vertical



■ 卧式 Horizontal



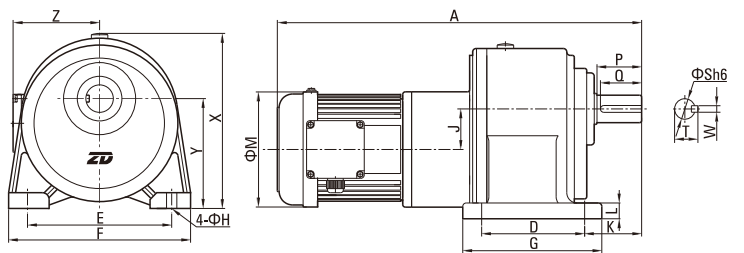
■ 立式 Vertical



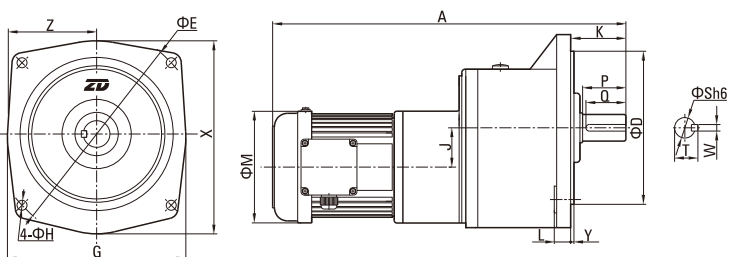
■ 高速比(1#+3#) High Ratio(1#+3#)



■ 卧式 Horizontal



■ 立式 Vertical





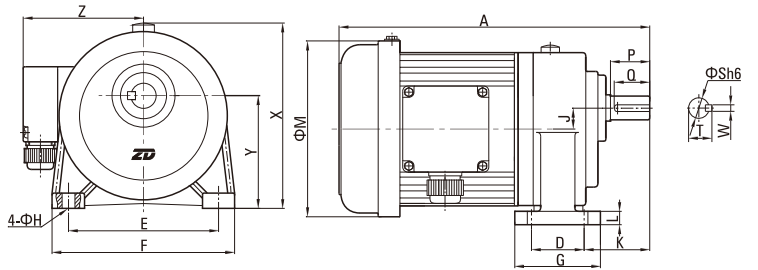
# 4#齿轮箱出轴直径 $\Phi 32\text{mm}$ 配三相电机技术参数

## 4# GEARBOX WITH SHAFT DIA $\Phi 32\text{mm}$ WITH 3-PHASE MOTOR PARAMETERS

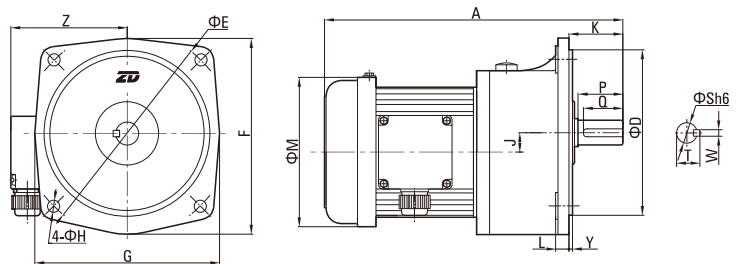
■ 卧式 Horizontal      ■ 立式 Vertical



■ 卧式 Horizontal



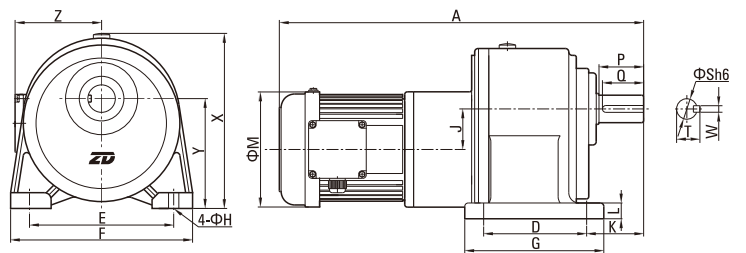
■ 立式 Vertical



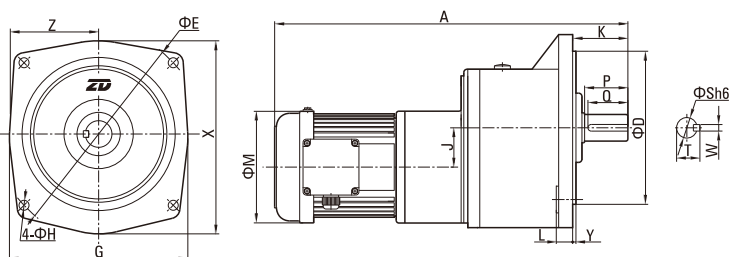
■ 高速比(2#+4#) High Ratio(2#+4#)



■ 卧式 Horizontal



■ 立式 Vertical



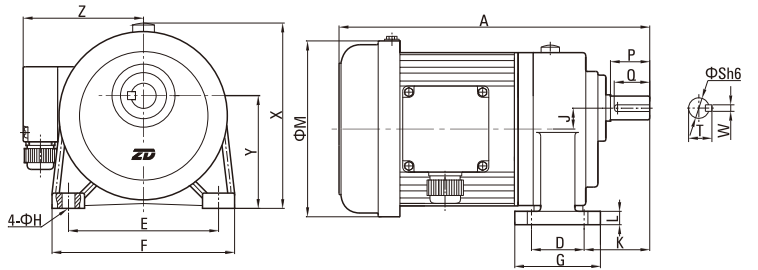


# 5#齿轮箱出轴直径 $\Phi 40\text{mm}$ 配三相电机技术参数 5#GEARBOX WITH SHAFT DIA $\Phi 40\text{mm}$ WITH 3-PHASE MOTOR PARAMETERS

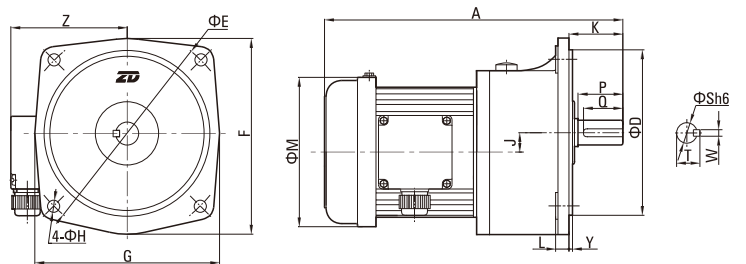
■ 卧式 Horizontal      ■ 立式 Vertical



■ 卧式 Horizontal



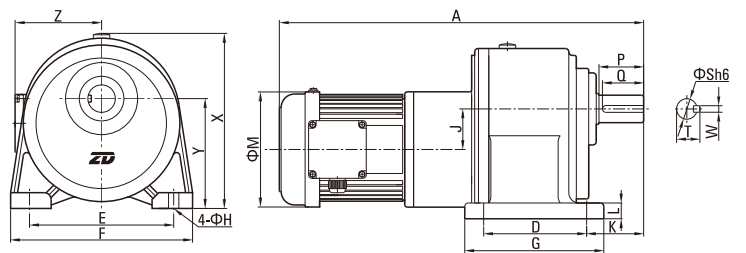
■ 立式 Vertical



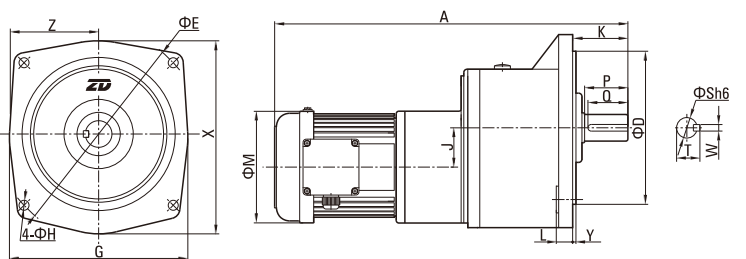
■ 高速比(3#+5#) High Ratio(3#+5#)



■ 卧式 Horizontal



■ 立式 Vertical





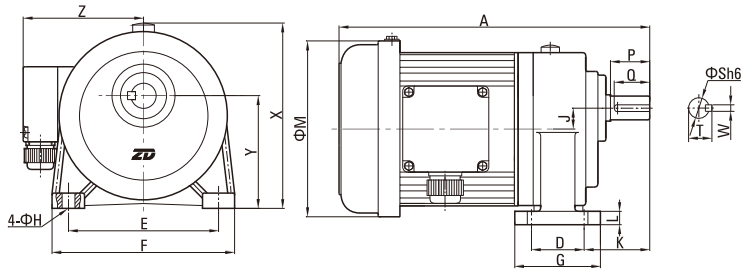


# 6#齿轮箱出轴直径Φ50mm配三相电机技术参数 6#GEARBOX WITH SHAFT DIA Φ50mm WITH 3-PHASE MOTOR PARAMETERS

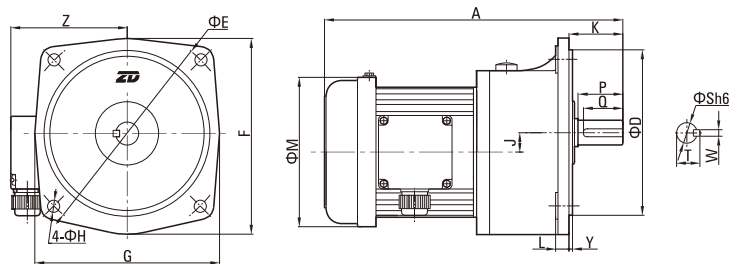
■ 卧式 Horizontal      ■ 立式 Vertical



■ 卧式 Horizontal



■ 立式 Vertical



## 尺寸表 Size Table

单位 Unit:mm

| 功率 Power     | 减速比 Ratio   | A   | D        | E        | F        | G        | H  | J  | K      | L  | M   | X      | Y      | Z   | S  | P  | Q  | W  | T  | 重量 Weight |
|--------------|-------------|-----|----------|----------|----------|----------|----|----|--------|----|-----|--------|--------|-----|----|----|----|----|----|-----------|
| 1500W<br>2HP | 标准型 110-180 | 560 | 170(280) | 265(390) | 335(367) | 238(342) | 18 | 51 | 97(92) | 25 | 192 | 312(/) | 200(5) | 146 | 50 | 80 | 75 | 14 | 54 | 94.0      |
| 2200W<br>3HP | 标准型 45-100  | 563 | 170(280) | 265(390) | 335(367) | 238(342) | 18 | 51 | 97(92) | 25 | 213 | 312(/) | 200(5) | 160 | 50 | 80 | 75 | 14 | 54 | 97.0      |
| 3700W<br>5HP | 标准型 15-60   | 605 | 170(280) | 265(390) | 335(367) | 238(342) | 18 | 51 | 97(92) | 25 | 213 | 312(/) | 200(5) | 160 | 50 | 80 | 75 | 14 | 54 | 98.0      |

※表中“( )”内为立式箱体尺寸。

※Labulation“( )”denote vertical box dimension.

## 输出轴容许扭矩 Output Torque

单位 Unit:kg.m

| 功率 Power     | 类型 Type              | 速频比率 | 3 | 5 | 10 | 15    | 20    | 25    | 30    | 40    | 45    | 50    | 60    | 70    | 80    | 90    | 100   | 120   | 140   | *160  | *180  | *200  |
|--------------|----------------------|------|---|---|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1500W<br>2HP | 标准型<br>Standard type | 50Hz | / | / | /  | /     | /     | /     | /     | /     | /     | /     | /     | /     | /     | /     | /     | 91.30 | 106.6 | 121.8 | 137.0 | /     |
|              |                      | 60Hz | / | / | /  | /     | /     | /     | /     | /     | /     | /     | /     | /     | /     | /     | /     | /     | 75.20 | 87.80 | 100.3 | 112.8 |
| 2200W<br>3HP | 标准型<br>Standard type | 50Hz | / | / | /  | /     | /     | /     | /     | /     | 50.20 | 55.80 | 67.00 | 78.10 | 89.30 | 100.5 | 111.6 | /     | /     | /     | /     | /     |
|              |                      | 60Hz | / | / | /  | /     | /     | /     | /     | /     | 41.40 | 46.00 | 55.20 | 64.40 | 73.50 | 82.70 | 91.90 | /     | /     | /     | /     | /     |
| 3700W<br>5HP | 标准型<br>Standard type | 50Hz | / | / | /  | 31.30 | 41.70 | 52.20 | 56.30 | 75.10 | 84.50 | 93.90 | 112.6 | /     | /     | /     | /     | /     | /     | /     | /     | /     |
|              |                      | 60Hz | / | / | /  | 25.80 | 34.40 | 42.90 | 46.40 | 61.80 | 69.60 | 77.30 | 92.80 | /     | /     | /     | /     | /     | /     | /     | /     | /     |

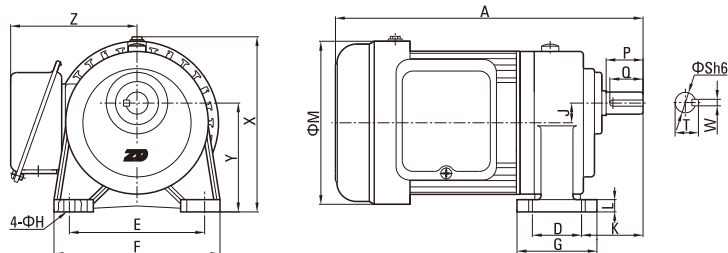
※备注：\*为达到此速此时，必须搭配6P马达使用。

※Note: In order to reach this ratio, must be used 6P motor.

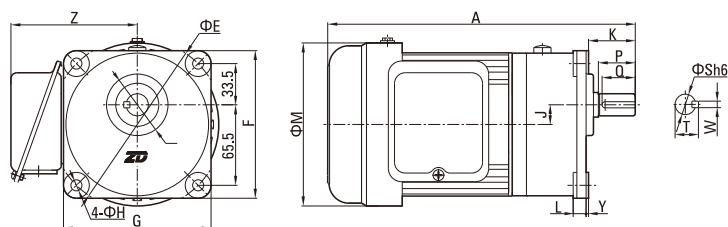
# 1#齿轮箱出轴直径 $\Phi 18\text{mm}$ 配单相电机技术参数

## 1# GEARBOX WITH SHAFT DIA $\Phi 18\text{mm}$ WITH 1-PHASE MOTOR PARAMETERS

### 卧式 Horizontal



### 立式 Vertical



### 尺寸表 Size Table

单位 Unit:mm

| 功率 Power      | 减速比 Ratio  | A   | D      | E        | F        | G       | H | J  | K      | L        | M   | X      | Y       | Z   | S  | P  | Q  | W | T    | 重量 Weight |
|---------------|------------|-----|--------|----------|----------|---------|---|----|--------|----------|-----|--------|---------|-----|----|----|----|---|------|-----------|
| 100W<br>1/8HP | 标准型 3-50   | 250 | 40(50) | 110(140) | 135(120) | 65(120) | 9 | 16 | 50(40) | 10.5(12) | 133 | 138(/) | 88.5(2) | 105 | 18 | 30 | 27 | 5 | 20.2 | 5.7       |
|               | 缩框型 60-200 | 250 | 40(50) | 110(140) | 135(120) | 65(120) | 9 | 16 | 50(40) | 10.5(12) | 133 | 138(/) | 88.5(2) | 105 | 18 | 30 | 27 | 5 | 20.2 | 5.7       |
| 200W<br>1/4HP | 标准型 3-10   | 285 | 40(50) | 110(140) | 135(120) | 65(120) | 9 | 16 | 50(40) | 10.5(12) | 133 | 138(/) | 88.5(2) | 105 | 18 | 30 | 27 | 5 | 20.2 | 7.0       |
|               | 缩框型 15-90  | 285 | 40(50) | 110(140) | 135(120) | 65(120) | 9 | 16 | 50(40) | 10.5(12) | 133 | 138(/) | 88.5(2) | 105 | 18 | 30 | 27 | 5 | 20.2 | 7.0       |

※表中“( )”内为立式箱体尺寸。

※Labulation“( )”denote vertical box dimension.

### 输出轴容许扭矩 Output Torque

单位 Unit:kg.m

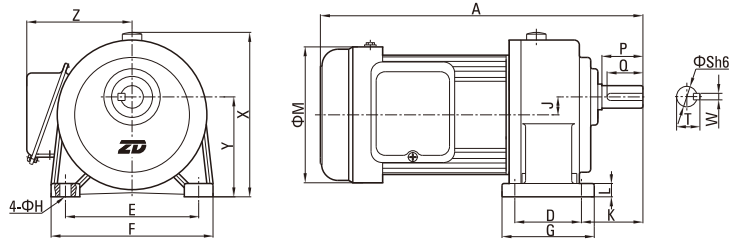
| 功率 Power      | 类型 Type                | 速频率  | 3    | 5    | 10   | 15   | 20   | 25   | 30   | 40   | 45   | 50   | 60   | 70   | 80   | 90   | 100  | 120  | 140  | 160  | 180  | 200  |      |
|---------------|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 100W<br>1/8HP | 标准型<br>Standard type   | 50Hz | 0.20 | 0.30 | 0.60 | 0.80 | 1.10 | 1.40 | 1.70 | 2.30 | 2.50 | 2.80 | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    |
|               |                        | 60Hz | 0.16 | 0.26 | 0.52 | 0.76 | 1.00 | 1.20 | 1.50 | 1.90 | 2.20 | 2.30 | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    |
|               | 缩框型<br>Light duty type | 50Hz | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 |
|               |                        | 60Hz | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 |
| 200W<br>1/4HP | 标准型<br>Standard type   | 50Hz | 0.30 | 0.60 | 1.10 | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    |
|               |                        | 60Hz | 0.30 | 0.50 | 0.90 | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    | /    |
|               | 缩框型<br>Light duty type | 50Hz | /    | /    | /    | 1.70 | 2.30 | 2.80 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | /    | /    | /    | /    | /    | /    | /    |
|               |                        | 60Hz | /    | /    | /    | 1.40 | 1.90 | 2.30 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | /    | /    | /    | /    | /    | /    | /    |

## 2#齿轮箱出轴直径 $\Phi 22\text{mm}$ 配单相电机技术参数 2#GEARBOX WITH SHAFT DIA $\Phi 22\text{mm}$ WITH 1-PHASE MOTOR PARAMETERS

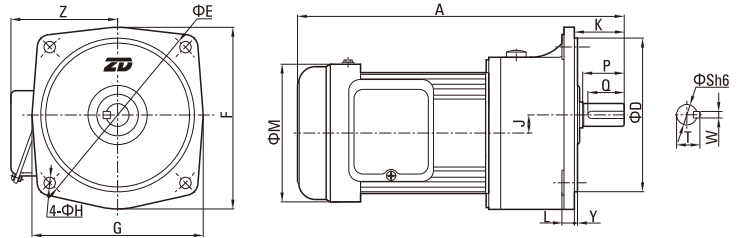
■ 卧式 Horizontal      ■ 立式 Vertical



■ 卧式 Horizontal



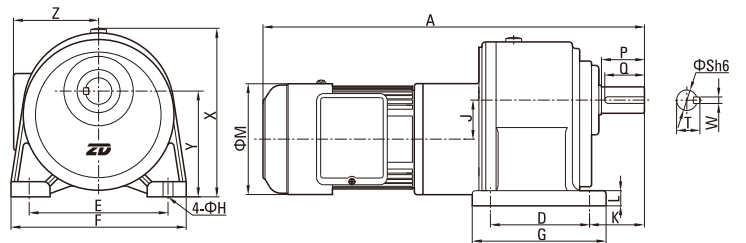
■ 立式 Vertical



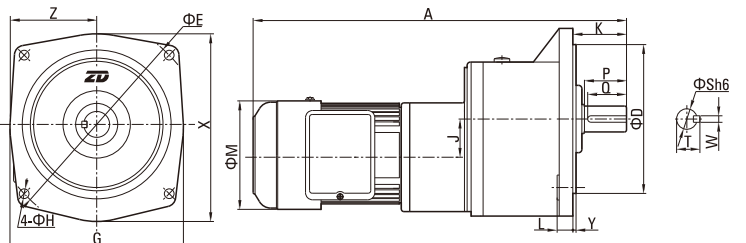
■ 高速比(1#+2#) High Ratio(1#+2#)



■ 卧式 Horizontal



■ 立式 Vertical



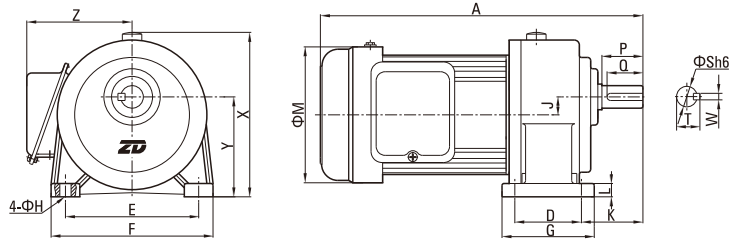


# 3#齿轮箱出轴直径 $\Phi 28\text{mm}$ 配单相电机技术参数 3#GEARBOX WITH SHAFT DIA $\Phi 28\text{mm}$ WITH 1-PHASE MOTOR PARAMETERS

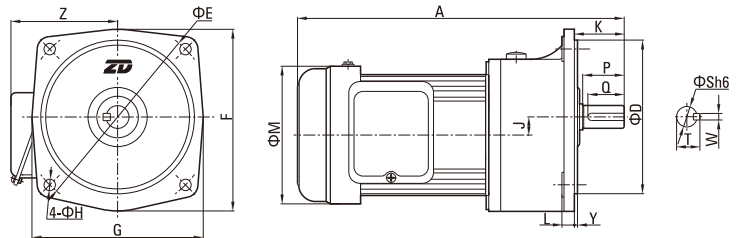
■ 卧式 Horizontal      ■ 立式 Vertical



■ 卧式 Horizontal



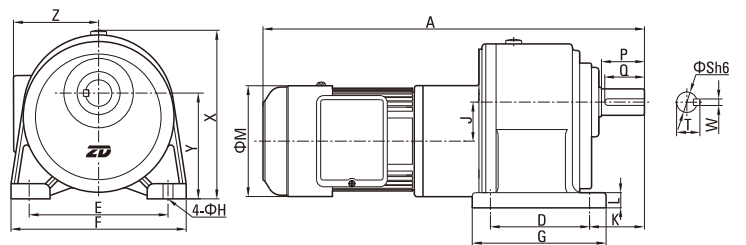
■ 立式 Vertical



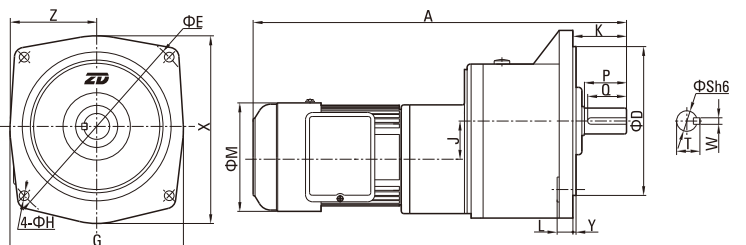
■ 高速比(1#+3#) High Ratio(1#+3#)



■ 卧式 Horizontal



■ 立式 Vertical



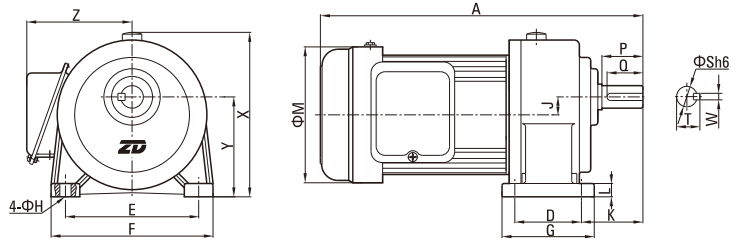


# 4#齿轮箱出轴直径 $\Phi 32\text{mm}$ 配单相电机技术参数 4# GEARBOX WITH SHAFT DIA $\Phi 32\text{mm}$ WITH 1-PHASE MOTOR PARAMETERS

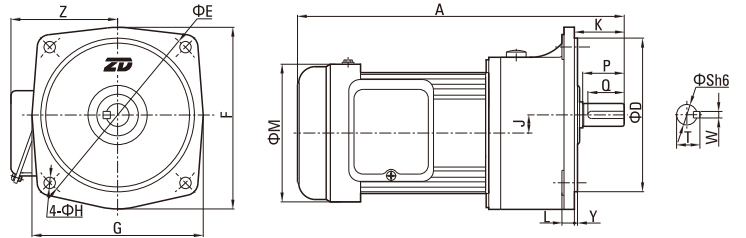
■ 卧式 Horizontal      ■ 立式 Vertical



■ 卧式 Horizontal



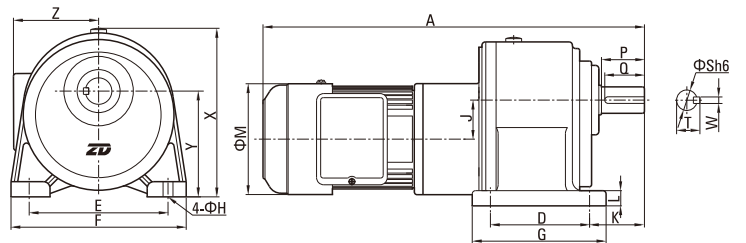
■ 立式 Vertical



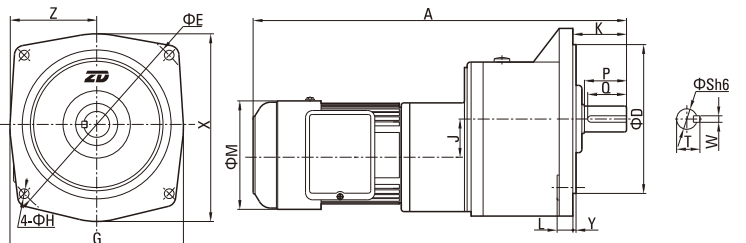
■ 高速比(2#+4#) High Ratio(2#+4#)



■ 卧式 Horizontal



■ 立式 Vertical





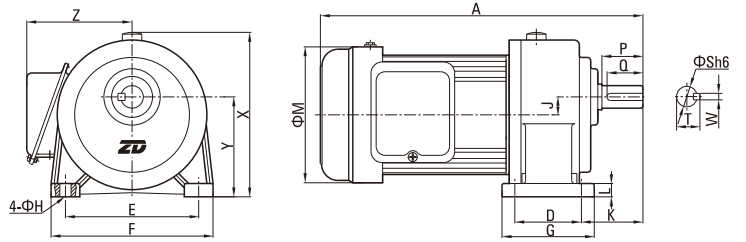


# 5#齿轮箱出轴直径 $\Phi 40\text{mm}$ 配单相电机技术参数 5#GEARBOX WITH SHAFT DIA $\Phi 40\text{mm}$ WITH 1-PHASE MOTOR PARAMETERS

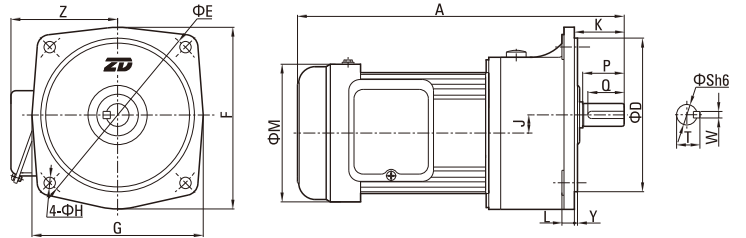
■ 卧式 Horizontal      ■ 立式 Vertical



■ 卧式 Horizontal



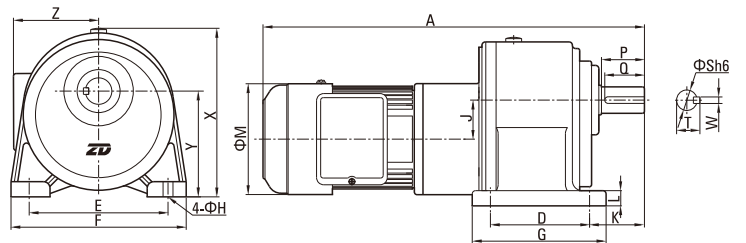
■ 立式 Vertical



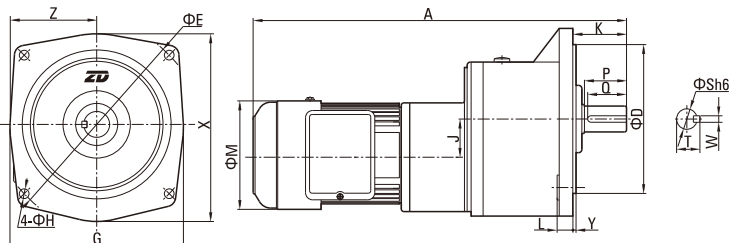
■ 高速比(3#+5#) High Ratio(3#+5#)



■ 卧式 Horizontal



■ 立式 Vertical



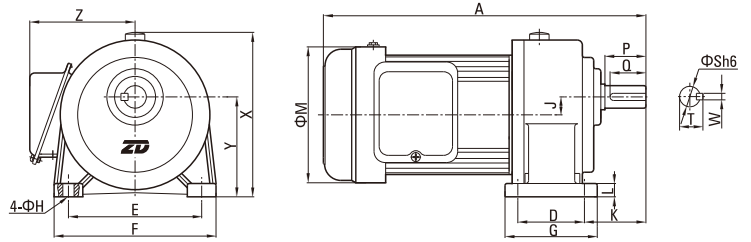


# 6#齿轮箱出轴直径Φ50mm配单相电机技术参数 6#GEARBOX WITH SHAFT DIA Φ50mm WITH 1-PHASE MOTOR PARAMETERS

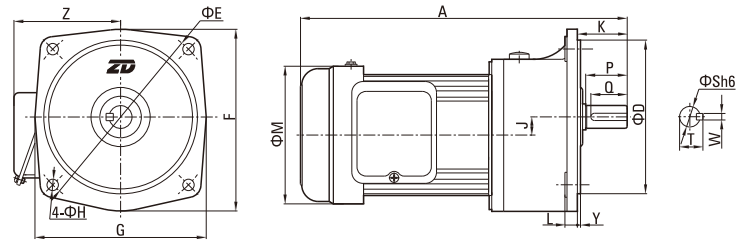
■ 卧式 Horizontal      ■ 立式 Vertical



■ 卧式 Horizontal



■ 立式 Vertical



## 尺寸表 Size Table

单位 Unit:mm

| 功率 Power     | 减速比Ratio   | A   | D        | E        | F        | G        | H  | J  | K      | L  | M   | X      | Y      | Z   | S  | P  | Q  | W  | T  | 重量Weight |
|--------------|------------|-----|----------|----------|----------|----------|----|----|--------|----|-----|--------|--------|-----|----|----|----|----|----|----------|
| 1500W<br>2HP | 标准型110-180 | 560 | 170(280) | 265(390) | 335(367) | 230(342) | 18 | 51 | 97(92) | 25 | 192 | 312(/) | 200(5) | 146 | 50 | 80 | 75 | 14 | 54 | 94.0     |

※表中“( )”内为立式电机尺寸.

※Labulation“( )”denote vertical motor dimension.

## 输出轴容许扭矩 Output Torque

单位 Unit:kg.m

| 功率 Power | 类型 Type | 速 频 比 率 | 3            | 5                    | 10   | 15 | 20 | 25 | 30 | 40 | 45 | 50 | 60 | 70 | 80 | 90 | 100 | 120   | 140   | 160 | 180   | 200   |
|----------|---------|---------|--------------|----------------------|------|----|----|----|----|----|----|----|----|----|----|----|-----|-------|-------|-----|-------|-------|
|          |         |         | 1500W<br>2HP | 标准型<br>Standard type | 50Hz | /  | /  | /  | /  | /  | /  | /  | /  | /  | /  | /  | /   | /     | /     | /   | 91.30 | 106.6 |
|          |         | 60Hz    | /            | /                    | /    | /  | /  | /  | /  | /  | /  | /  | /  | /  | /  | /  | /   | 75.20 | 87.80 | /   | /     | /     |



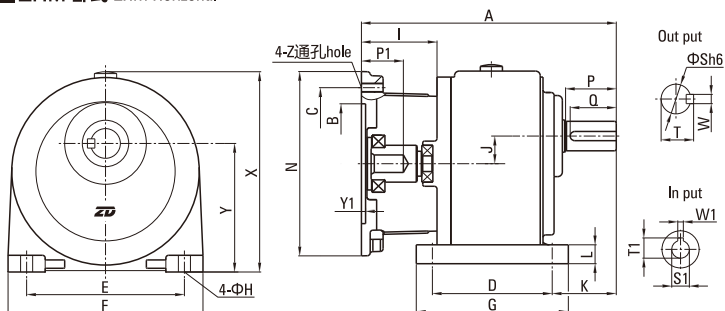
# 输入法兰齿轮减速机技术参数 FLANGE TYPE REDUCER WITHOR MOTOR PARAMETERS

■ 卧式 Horizontal

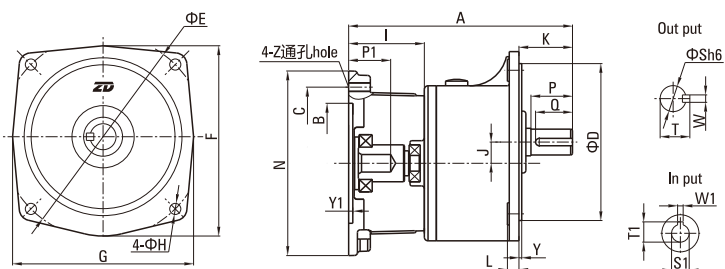
■ 立式 Vertical



■ ZHM 卧式 ZHM Horizontal



■ ZVM 立式 ZVM Vertical



## ■ 输入孔尺寸 Input Bore Size

| 功率 Power | 输入孔 Input Bore |    | 键槽 Keyway |      |
|----------|----------------|----|-----------|------|
|          | S1             | W1 | T1        | P1   |
| 200W     | Φ11            | 4  | 12.8      | 32.5 |
| 400W     | Φ14            | 5  | 16.3      | 32.5 |
| 750W     | Φ19            | 6  | 21.8      | 43.0 |
| 1500W    | Φ24            | 8  | 27.3      | 53.0 |
| 2200W    | Φ28            | 8  | 31.3      | 63.0 |
| 3700W    | Φ28            | 8  | 31.3      | 63.0 |

## ■ 输出轴尺寸 Output Shaft Size

| 型号 Size | 输出轴 Output Shaft |    | 键槽 Keyway |      |    | 键 Key   |
|---------|------------------|----|-----------|------|----|---------|
|         | Sh6              | P  | W         | T    | Q  | SPEC    |
| 1#      | Φ18              | 30 | 5         | 20.2 | 27 | 5*5*27  |
| 2#      | Φ22              | 40 | 7         | 25.0 | 35 | 7*7*35  |
| 3#      | Φ28              | 45 | 7         | 31.3 | 40 | 7*7*40  |
| 4#      | Φ32              | 55 | 10        | 35.5 | 50 | 10*8*50 |
| 5#      | Φ40              | 65 | 10        | 43.5 | 60 | 10*8*60 |
| 6#      | Φ50              | 80 | 14        | 54.0 | 75 | 14*9*75 |

# 输入法兰齿轮减速机技术参数 FLANGE TYPE REDUCER WITHOR MOTOR PARAMETERS

## 卧式输入法兰 Horizontal Type

单位 Unit:mm

| 功率<br>Power   | 减速比Ratio | 型号 | A   | B   | C   | D   | E   | F   | G   | H  | I   | J    | K  | L    | N   | X   | Y     | Y1  | Z   |
|---------------|----------|----|-----|-----|-----|-----|-----|-----|-----|----|-----|------|----|------|-----|-----|-------|-----|-----|
| 200W<br>1/4HP | 3-10     | 1# | 160 | 110 | 130 | 40  | 110 | 135 | 65  | 9  | 55  | 16.0 | 50 | 10.5 | 160 | 138 | 88.50 | 4.5 | M8  |
|               | 15-90    | 2# | 195 | 110 | 130 | 65  | 130 | 158 | 90  | 12 | 55  | 17.5 | 60 | 13   | 160 | 152 | 97.50 | 4.5 | M8  |
|               | 100-200  | 3# | 225 | 110 | 130 | 90  | 140 | 178 | 120 | 12 | 55  | 23.0 | 68 | 17   | 160 | 178 | 116.0 | 4.5 | M8  |
| 400W<br>1/4HP | 3-10     | 2# | 195 | 110 | 130 | 65  | 130 | 158 | 90  | 12 | 55  | 17.5 | 60 | 13   | 160 | 152 | 97.50 | 4.5 | M8  |
|               | 15-90    | 3# | 225 | 110 | 130 | 90  | 140 | 178 | 120 | 12 | 55  | 23.0 | 68 | 17   | 160 | 178 | 116.0 | 4.5 | M8  |
|               | 100-200  | 4# | 255 | 110 | 130 | 130 | 170 | 210 | 165 | 13 | 55  | 30.0 | 70 | 18   | 160 | 216 | 138.5 | 4.5 | M8  |
| 750W<br>1/4HP | 3-25     | 3# | 250 | 130 | 165 | 90  | 140 | 178 | 120 | 12 | 82  | 23.0 | 68 | 17   | 200 | 178 | 116.0 | 4.5 | M10 |
|               | 3-120    | 4# | 285 | 130 | 165 | 130 | 170 | 210 | 165 | 13 | 82  | 30.0 | 70 | 18   | 200 | 216 | 138.5 | 4.5 | M10 |
|               | 125-200  | 5# | 330 | 130 | 165 | 150 | 210 | 265 | 203 | 15 | 82  | 36.0 | 83 | 20   | 200 | 250 | 160.0 | 4.5 | M10 |
| 1500W<br>2HP  | 3-30     | 4# | 285 | 130 | 165 | 130 | 170 | 210 | 165 | 13 | 82  | 30.0 | 70 | 18   | 200 | 216 | 138.5 | 4.5 | M10 |
|               | 40-100   | 5# | 330 | 130 | 165 | 150 | 210 | 265 | 203 | 15 | 82  | 36.0 | 83 | 20   | 200 | 250 | 160.0 | 4.5 | M10 |
| 2200W<br>3HP  | 3-40     | 5# | 355 | 180 | 215 | 150 | 210 | 265 | 203 | 15 | 105 | 36.0 | 83 | 20   | 250 | 250 | 160.0 | 5.0 | M12 |
|               | 45-100   | 6# | 410 | 180 | 215 | 170 | 265 | 335 | 238 | 18 | 105 | 51.0 | 97 | 25   | 250 | 308 | 200.0 | 5.0 | M12 |
| 3700W<br>5HP  | 3-10     | 5# | 355 | 180 | 215 | 150 | 210 | 265 | 203 | 15 | 105 | 36.0 | 83 | 20   | 250 | 250 | 160.0 | 5.0 | M12 |
|               | 15-60    | 6# | 410 | 180 | 215 | 170 | 265 | 335 | 235 | 18 | 105 | 51.0 | 97 | 25   | 250 | 308 | 200.0 | 5.0 | M12 |

## 立式输入法兰 Vertical Type

单位 Unit:mm

| 功率<br>Power   | 减速比Ratio | 型号  | A   | B   | C   | D   | E   | F   | G   | H  | I   | J    | K    | L  | N   | Y | Y1  | Z   |
|---------------|----------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|------|------|----|-----|---|-----|-----|
| 200W<br>1/4HP | 3-10     | *1# | 160 | 110 | 130 | 50  | 140 | 120 | 120 | 9  | 55  | 16.0 | 40.0 | 12 | 160 | 6 | 4.5 | M8  |
|               | 15-90    | 2#  | 195 | 110 | 130 | 148 | 185 | 175 | 165 | 12 | 55  | 17.5 | 48.0 | 12 | 160 | 3 | 4.5 | M8  |
|               | 100-200  | 3#  | 225 | 110 | 130 | 170 | 220 | 205 | 195 | 12 | 55  | 23.0 | 58.0 | 13 | 160 | 3 | 4.5 | M8  |
| 400W<br>1/4HP | 3-10     | 2#  | 195 | 110 | 130 | 148 | 185 | 175 | 165 | 12 | 55  | 17.5 | 48.0 | 12 | 160 | 3 | 4.5 | M8  |
|               | 15-90    | 3#  | 225 | 110 | 130 | 170 | 220 | 205 | 195 | 12 | 55  | 23.0 | 58.0 | 13 | 160 | 3 | 4.5 | M8  |
|               | 100-200  | 4#  | 255 | 110 | 130 | 185 | 255 | 239 | 216 | 13 | 55  | 30.0 | 66.5 | 16 | 160 | 3 | 4.5 | M8  |
| 750W<br>1/4HP | 3-25     | 3#  | 250 | 130 | 165 | 170 | 220 | 205 | 195 | 12 | 82  | 23.0 | 58.0 | 13 | 200 | 3 | 4.5 | M10 |
|               | 3-120    | 4#  | 285 | 130 | 165 | 185 | 255 | 239 | 216 | 13 | 82  | 30.0 | 66.5 | 16 | 200 | 3 | 4.5 | M10 |
|               | 125-200  | 5#  | 330 | 130 | 165 | 230 | 310 | 278 | 255 | 15 | 82  | 36.0 | 83.0 | 18 | 200 | 5 | 4.5 | M10 |
| 1500W<br>2HP  | 3-30     | 4#  | 285 | 130 | 165 | 185 | 255 | 239 | 216 | 13 | 82  | 30.0 | 66.5 | 16 | 200 | 3 | 4.5 | M10 |
|               | 40-100   | 5#  | 330 | 130 | 165 | 230 | 310 | 278 | 255 | 15 | 82  | 36.0 | 83.0 | 18 | 200 | 5 | 4.5 | M10 |
| 2200W<br>3HP  | 3-40     | 5#  | 355 | 180 | 215 | 230 | 310 | 278 | 255 | 15 | 105 | 36.0 | 83.0 | 18 | 250 | 5 | 5.0 | M12 |
|               | 45-100   | 6#  | 410 | 180 | 215 | 280 | 390 | 369 | 342 | 18 | 105 | 51.0 | 92.0 | 25 | 250 | 5 | 5.0 | M12 |
| 3700W<br>5HP  | 3-10     | 5#  | 355 | 180 | 215 | 230 | 310 | 278 | 255 | 15 | 105 | 36.0 | 83.0 | 18 | 250 | 5 | 5.0 | M12 |
|               | 15-60    | 6#  | 410 | 180 | 215 | 280 | 390 | 369 | 342 | 18 | 105 | 51.0 | 92.0 | 25 | 250 | 5 | 5.0 | M12 |

※备注：1.配合IEC电机为主  
2.\*属于B型输出法

※Note: 1.Available for IEC motor.  
2.Belong to type output flange.

## 安全注意事项 SAFETY CAUTIONS

|   |  |
|---|--|
| <p>总体<br/>General</p>                           | <p>请不要在齿轮箱及电机铭牌或产品目录的规格以外使用，以免触电，受伤及损坏装置等。<br/>Please don't use motor out of the range which is clarified in of nameplate of gear box and motor and the specification of product catalogue, avoiding getting an electric shock, hurting or damaging the device.</p> <p>请不要把手指或物品进入齿轮或电机开口部分，以免触电、受伤、发生火灾及损坏装置等。<br/>Please do not put your fingers into the opening part of gear of motor, in order to prevent getting an electric shock, hurting catching a fire or damaging device etc.</p> <p>请不要使用带伤的齿轮箱或电机，以免有可能受伤，发生火灾等。<br/>Please do not use the injured gear head or motor, in order to prevent hurting, catching a fire etc.</p> <p>请不要拆下铭牌。<br/>Please do not put off the nameplate.</p> <p>若客户对产品私自进行改造的，不属于保修范围，本公司不承担任何责任。<br/>If the products are reformed by the customers personally, it no belongs to the guarantee scope, and our company doesn't undertake any responsibility.</p>   |
| <p>搬动/Moving</p>                                | <p>搬动时，若发生脱落或倾倒，是很危险的，请充分注意。<br/>When you move it, if it shed off or tit to one side, it is very dangerous, please pay more attention.</p>   |
| <p>安装<br/>Assembly</p>                          | <p>请绝对不要在齿轮箱和电机周围放置可燃物，以免发生火灾。<br/>Please never put the flammable thing near and motor, for fear of a fire.</p> <p>请不要在电机周围放置物品，影响电机通风、冷却，甚至因异常多热而烫伤或发生火灾。<br/>Please do not put the things around motor, otherwise it can effect ventilation and cooling, even burning or catching a fire because of too hot.</p> <p>裸手请不要触碰齿轮及电机轴端部、齿轮部的键槽，以免受伤。<br/>Please do not touch the gear, the motor shaft and the key slot of the gear with naked hand, or you may be hurt.</p> <p>在食品机械等可能发生漏油的装置中，请在安装部分另加一个能盛油的油杯，防止万一漏油对产品有不良的影响。<br/>The device may creating the smoke, such as food machine, please add an oil cup assembly part, to prevent leaking oil which may have a bad effect on the products.</p>   |
| <p>对主机械的连接<br/>Assemble to the main machine</p> | <p>在旋转部分，请设安全罩等，防止受伤。<br/>Please set a safe cover above the revolving part, to prevent being hurt.</p> <p>在与对方机械连接前，请确认旋转方向。若旋转方向不正确，有可能受伤或破坏装置。<br/>Before linking to the other machine, please confirm the revolving direction is not right, it may hurt the gear motor or destroy the device.</p>   |
| <p>配线/Wiring</p>                                | <p>在测试绝缘电阻时，请不要接触端子，以免触电危险。<br/>Please don't get in touch with terminal, when you measure insure insulated resistance, preventing danger of getting an electric shock.</p>   |
| <p>运转<br/>Operation</p>                         | <p>请按照接线图或使用说明书实施与电源的连接，以免触电或发生火灾。（无端子箱的，请确实加强连接部分的绝缘）<br/>Please link with the electric source according to wire diagram and usage manual, in order to prevent getting an electric shock or catching a fire. (no terminal box, please strengthen the insulation of the connection part surely)</p> <p>对电源电缆和电机引线，请不要过分弯曲、拉伸、夹紧，以免触电危险。<br/>Referring to the electrical source cable and the motor wire, please do not bend, stretch, and clip tightly excessively, in order to prevent getting an electric shock.</p> <p>接地端子应牢固接地，以免触电危险。务必使用符合铭牌要求的电源，以免烧毁电机、发生火灾。<br/>The terminal box connecting to the ground must be firm, in order to prevent getting an electric shock.</p> <p>Please adopt the electrical source according to the nameplate, to avoid burning the motor and catching a fire.</p>   |
| <p>日常检查保养<br/>The daily check and maintain</p>  | <p>在运转中，绝对不要接近或接触旋转物体（轴等）。有卷入受伤时，请马上切断电源开关，及时处理。<br/>When operating, do not get close to or touch the revolving parts (shaft). If something or somebody engulfs or hurts, Please turn off the electrical power switch right and handle at once.</p> <p>停电时，请务必切断电源开关，防止来电后伤人或破坏装置。<br/>Please turn off the electrical source switch when electricity stops, in order to prevent hurting the person and damaging the device.</p> <p>请注意：带有热保护的电机，当电机温度异常时会自动切断电源，当电机温度下降到一定值时，电机会自动恢复工作。<br/>（注：电机在没有烧坏的情况下，会自动复原）<br/>Please note, motor with the thermal protector, when temperature of the motor is unusual, it will turn off the electrical source automatically, when the temperature of the motor fall down to a fixed data, the motor can work automatically.<br/>(Note: when the motor is not burned-not, the motor can work automatically)</p> <p>在平常时，保持电机在正常的工作环境工作运转。（特殊型号除外）<br/>In daily, you should keep the motor operating in the normal work environment. (Except the special model)</p> <p>检查时，请绝对不要接触旋转物体（轴等）。有可能被卷入、受伤。<br/>While checking, please do not get close to or touch the revolving parts (shaft). Something or somebody may engulf of hurt.</p> |
| <p>接受货物时检查<br/>Receiving confirm</p>            | <p>请确认现货是否和订货一样。选择错误的产品，有可能导致电机受损或破坏装置等。<br/>Please confirm if it is the right one with the order when receiving. Choosing wrong probably leads to damage of motor of damage the device and etc.</p>   |



## 故障排除 TROUBLE SHOUTING

### 刹车故障排除 Trouble Remove Of Brake

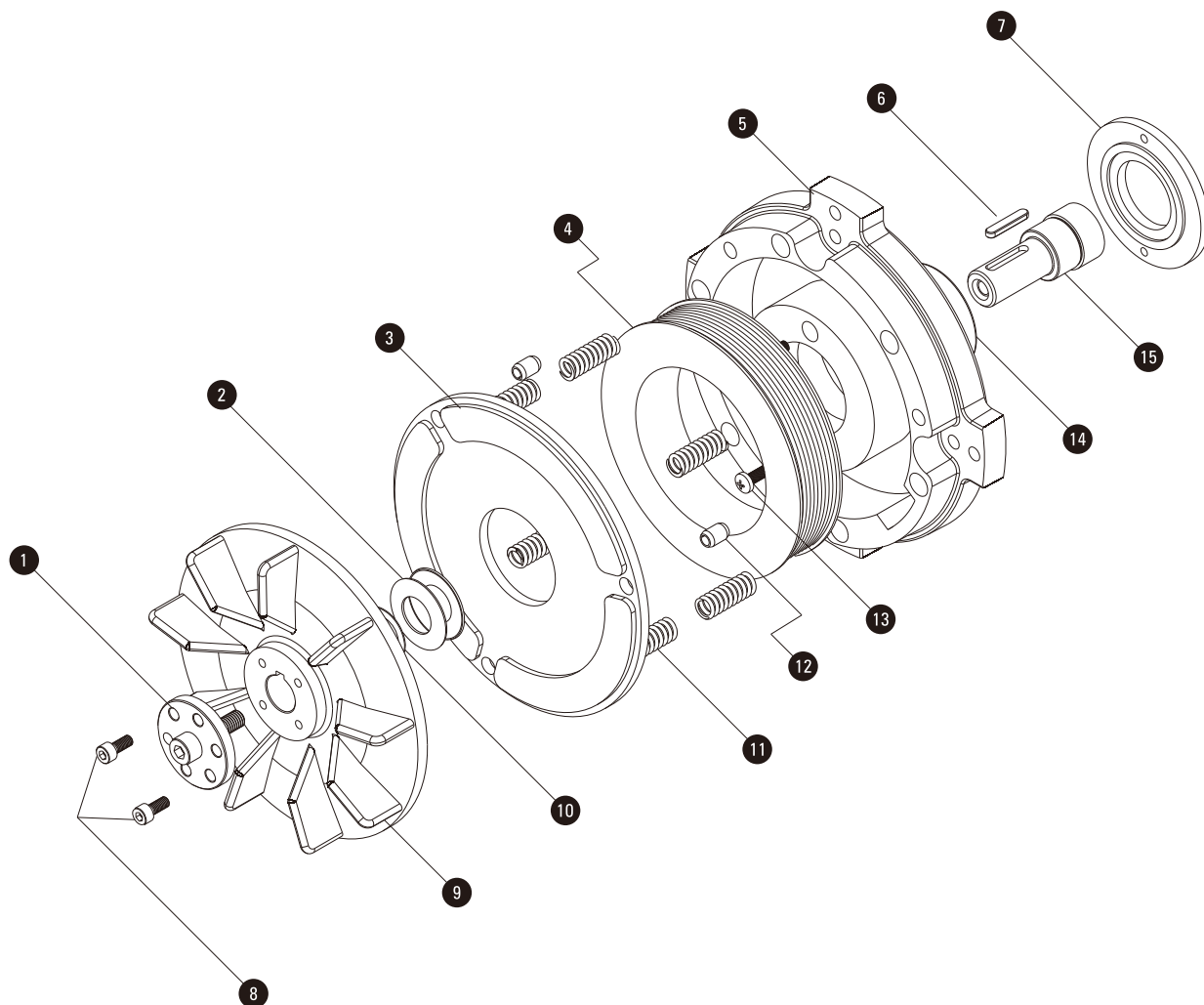
| 不良故障 Trouble              | 原因分析 Possible Analysis      | 解决方式 Solution Method       |
|---------------------------|-----------------------------|----------------------------|
| 刹车器不动作 No action of brake | 未供电电源 No power supply       | 供应电源 Supply power          |
|                           | 来令片磨损 Brake disc worn out   | 换新来令片 Use new brake disc   |
|                           | 间隙过大 Large backlash         | 调整间隙 Adjust backlash       |
|                           | 电源压力不足 Low voltage          | 提供正确电压 Use correct voltage |
|                           | 电源供应器损坏 Power supply damage | 电源供应器换新 Use new power      |
|                           | 异物入侵 Dirty inside           | 清洁零件 Clean parts           |
|                           | 使用电压错误 Wrong voltage        | 使用正确电压 Correct voltage     |
|                           | 接线脱落 Connect wire lost      | 重新接线 Re-connect wire       |
|                           | 来令片卡死 Brake disc locked     | 清洁零件 Clean parts           |
|                           | 刹车圈烧坏 Brake coil burned-out | 刹车线圈换新 Use new brake disc  |
| 刹车移动 Brake moving         | 来令片磨损 Brake disc worn out   | 换新来令片 Supply power         |
|                           | 间隙过大 Large backlash         | 调整间隙 Adjust backlash       |
|                           | 来令片沾染油渍 Surface oil         | 清洁来令片 Clean brake disc     |
|                           | 负载过大 Over loading           | 重新设计 Re-design brake unit  |
|                           | 刹车表面歪斜 Disc surface twist   | 更换零件 Use new parts         |
|                           | 下降衡量过大 Huge momentum        | 机构重新设计 System re-design    |
|                           | 选用机型错误 Select wrong type    | 选用正确机型 Re-select unit      |
| 环境温度过高 No power supply    | 检查环境温度 Adjust temperature   |                            |

### 减速机器故障排除 Trouble Shouting For Gearmotor

|                    | 不良故障 Trouble                         | 原因分析 Possible Analysis      | 解决方式 Solution Method             |
|--------------------|--------------------------------------|-----------------------------|----------------------------------|
| 噪音<br>Noise        | 齿轮敲击声 Knocking                       | 齿轮表面受伤 Hurt gear surface    | 更换受伤齿轮组 Replace gear set         |
|                    | 连续性杂音 Continually                    | 轴承损坏 Bad bearing            | 更换损坏轴承 Replace bearing           |
|                    | 周期性杂音 Periodically                   | 异物附着齿面 Particle inside      | 检测齿轮齿面 Check gear                |
|                    | 嘶嘶声 Neight                           | 油量不足 Lack of lubricant      | 添加润滑油 Fill with lub-oil          |
|                    | 继续性杂音 Intermittently                 | 润滑油不洁 Dirty lubricant       | 更换新润滑油 Replace lubricant         |
| 振动<br>Vibration    | 固定底座振动 Mounting base vibration       | 安装平面歪斜 Bad surface mounting | 重新调整固定底座 Re-adjust mounting base |
|                    | 出力轴振动 Output shaft vibration         | 轴承损坏 Bad bearing            | 更换损坏轴承 Replace bearing           |
|                    | 内部齿轮零件振动 Inside gear parts vibration | 齿轮受损 Gear wounded           | 更换受损齿轮 Replace wounded gear      |
|                    | 箱体振动 Housing vibration               | 齿轮组安装不良 Bad gear assembly   | 重新调整齿轮组 Re-adjust gear set       |
| 漏油<br>Leakage      | 油封漏油 Oil seal leakage                | 油封硬化 Oil seal too harden    | 更换损坏油封 Replace wounded oil seal  |
|                    | 箱体漏油 Housing leakage                 | 箱体有砂孔 Box had sand hole     | 更换砂孔箱体 Replace sand hole box     |
|                    | 结合面漏油 Connect surface leakage        | O-型环损坏 O-ring broken        | 更换损坏O-型环 Replace wounded O-ring  |
| 过热<br>Over heating | 油封 Bad oil seal                      | 油封太紧 Oil seal too tight     | 更换太紧油封 Replace tighten oil seal  |
|                    | 箱体过热 Housing too heat                | 过负载 Over load runing        | 重新计算负载马力 Re-calculate loading    |
|                    | 缺润滑油 Less lubricant                  | 油量不足 Lack of lubricant      | 加入润滑油 Fill with lubricant        |
|                    | 马达过热 Motor too heat                  | 马达过载 Overload motor         | 更换新马达 Replace new motor          |

# 刹车零件分解图

## BRAKE UNIT SECTION DIAGRAM



### ■ 明细表 Parts List

| 序号 Item | 名称 Name                   | 序号 Item | 名称 Name                |
|---------|---------------------------|---------|------------------------|
| 1       | 调整螺栓 Gap adjustment bolt  | 9       | 散热风叶 Fan               |
| 2       | 蝶型弹簧 Disc spring          | 10      | 调整垫圈 Adjustment washer |
| 3       | 摩擦来令片 Friction brake disc | 11      | 压力弹簧 Pressure spring   |
| 4       | 激磁线圈 Brake coil           | 12      | 定位销 Fixed pin          |
| 5       | 刹车座 Brake housing         | 13      | 固定螺丝 M fixed screw     |
| 6       | 平键 Key                    | 14      | 轴承 Bearing             |
| 7       | 轴承固定盖 Fixed bearing cover | 15      | 马达轴 Motor              |
| 8       | 固定螺丝 Fixed screw          |         |                        |

## 连接系数表 CONNECTION FACTOR

### 连接系数表 Connection Factor

| 配件名称 Parts Name | 连接系数 Connection Factor |
|-----------------|------------------------|
| 链轮 Sproket      | 1.00                   |
| 齿轮 Gear         | 1.25                   |
| 三角皮带 Belt       | 1.50                   |
| 平皮带 Flat belt   | 2.50                   |

### 荷重系数表 Service Factor

| 减速负载等级 Load Grade         | 每日运转时间 (HRS) Daily Operating Hours |      |      |       |
|---------------------------|------------------------------------|------|------|-------|
|                           | 1-2                                | 3-8  | 9-15 | 16-24 |
| 均一负载 Uniform load         | 0.80                               | 0.90 | 1.20 | 1.30  |
| 中级冲击负载 Medium impact load | 1.00                               | 1.20 | 1.30 | 1.50  |
| 重级冲击负载 Heavy impact load  | 1.20                               | 1.50 | 1.75 | 2.00  |

### 基本传动公式 Basic Formular

| 名称 Name     | 公式 Basic Formular         |
|-------------|---------------------------|
| 减速比 (i)     | $i = N/1800$              |
| 回转速度 (rpm)  | $N = V/\pi D$             |
| 输出扭矩 (kg.m) | $T = W \times R \times K$ |
| 输入马力 (公制)   | $kW1 = N \times T / 974$  |
| 输入马力 (英制)   | $HP1 = N \times T / 716$  |
| 输入马力 (公制)   | $kW2 = kW1 \times F / E$  |
| 输入马力 (英制)   | $HP2 = HP1 \times F / E$  |

### 符号说明 Code Details

| 符号 Code  | 说明 Details                | 符号 Code | 说明 Details        |
|----------|---------------------------|---------|-------------------|
| V        | 速度 Speed (m/min)          | E       | 效率 Efficiency (%) |
| I        | 减速比 Ratio                 | 1 inch  | = 2.54 cm         |
| T        | 输出比例 (kg.m) Output torque | 1 foot  | = 12 inch         |
| K        | 连接系数 Connecting factor    | 1 kW    | = 1000 W          |
| F        | 荷重系数 Service factor       | 1 kW    | = 1.34 hp         |
| W        | 荷重 (kg) Load              | 1 kg.m  | = 7.233 ft-lb     |
| N        | 出力轴转速 (rpm)               | 1 kg.m  | = 86.8 in-lb      |
| D        | 滚轮直径 (mm) Roller diameter | 1 kg    | = 2.2 lb          |
| R        | 滚轮直径半径 (mm) Roller radius | 1 lb    | = 0.4536 kg       |
| kW1(HP1) | 输入功率 Input power          | 1 cm    | = 10 mm           |
| kW2(HP2) | 输出功率 Output power         | 1 cm    | = 0.3937 inch     |

# 标准实际速比 NORMAL RATIO & ACTUAL RATIO

## 标准型 Normal Duty Type

| 速比 Ratio | 低段实际减速比 Actual Ratio |        |        |        |           |       |       |
|----------|----------------------|--------|--------|--------|-----------|-------|-------|
|          | 100W                 | 200W   | 400W   | 750W   | 1500W     | 2200W | 3700W |
| 3        | 3.0800               | 3.0800 | 2.9600 | 2.9300 | 3.1400    | 2.990 | 2.990 |
| 5        | 4.8800               | 4.8800 | 5.0500 | 5.0300 | 5.2000    | 5.080 | 5.080 |
| 10       | 9.9900               | 9.9900 | 10.290 | 9.9700 | 10.180    | 10.09 | 10.09 |
| 15       | 14.950               | 14.740 | 15.010 | 15.020 | 15.350    | 15.35 | 14.69 |
| 20       | 19.900               | 20.370 | 20.680 | 19.860 | 20.730    | 20.17 | 19.83 |
| 25       | 24.440               | 25.250 | 25.450 | 24.700 | 25.800    | 25.30 | 25.09 |
| 30       | 30.800               | 32.090 | 30.120 | 30.180 | 30.100    | 29.6  | 31.50 |
| 40       | 40.330               | 40.190 | 39.330 | 40.240 | 39.620    | 38.15 | 39.24 |
| 50       | 50.600               | 51.060 | 50.210 | 50.300 | 51.360    | 49.19 | 49.26 |
| 60       | 61.830               | 62.190 | 59.430 | 60.290 | 59.730    | 59.88 | 60.67 |
| 70       | 72.290               | 72.180 | 69.590 | 69.740 | 69.330    | 70.70 |       |
| 80       | 78.560               | 79.840 | 81.220 | 80.340 | 79.180    | 78.33 |       |
| 90       | 92.670               | 91.040 | 92.500 | 90.170 | 88.530    | 87.35 |       |
| 100      | 102.97               | 98.060 | 99.380 | 98.150 | 99.760    | 98.18 |       |
| 110      | 112.87               | 109.43 | 111.95 | 110.00 |           |       |       |
| 120      | 120.93               | 119.00 | 119.10 | 117.78 | 122.56    |       |       |
| 130      | 132.79               | 132.21 | 129.63 | 132.81 |           |       |       |
| 140      | 143.86               | 142.92 | 138.89 | 139.67 | 137.87    |       |       |
| 150      | 149.39               | 146.63 | 149.51 | 151.93 |           |       |       |
| 160      | 161.84               | 161.15 | 161.97 | 158.93 | ***165.02 |       |       |
| 170      | 165.57               | 173.37 | 168.52 | 170.76 |           |       |       |
| 180      | 182.75               | 176.03 | 183.63 | 179.82 | ***183.82 |       |       |
| 200      | 201.02               | 193.37 | 201.99 | 198.89 | ***206.90 |       |       |

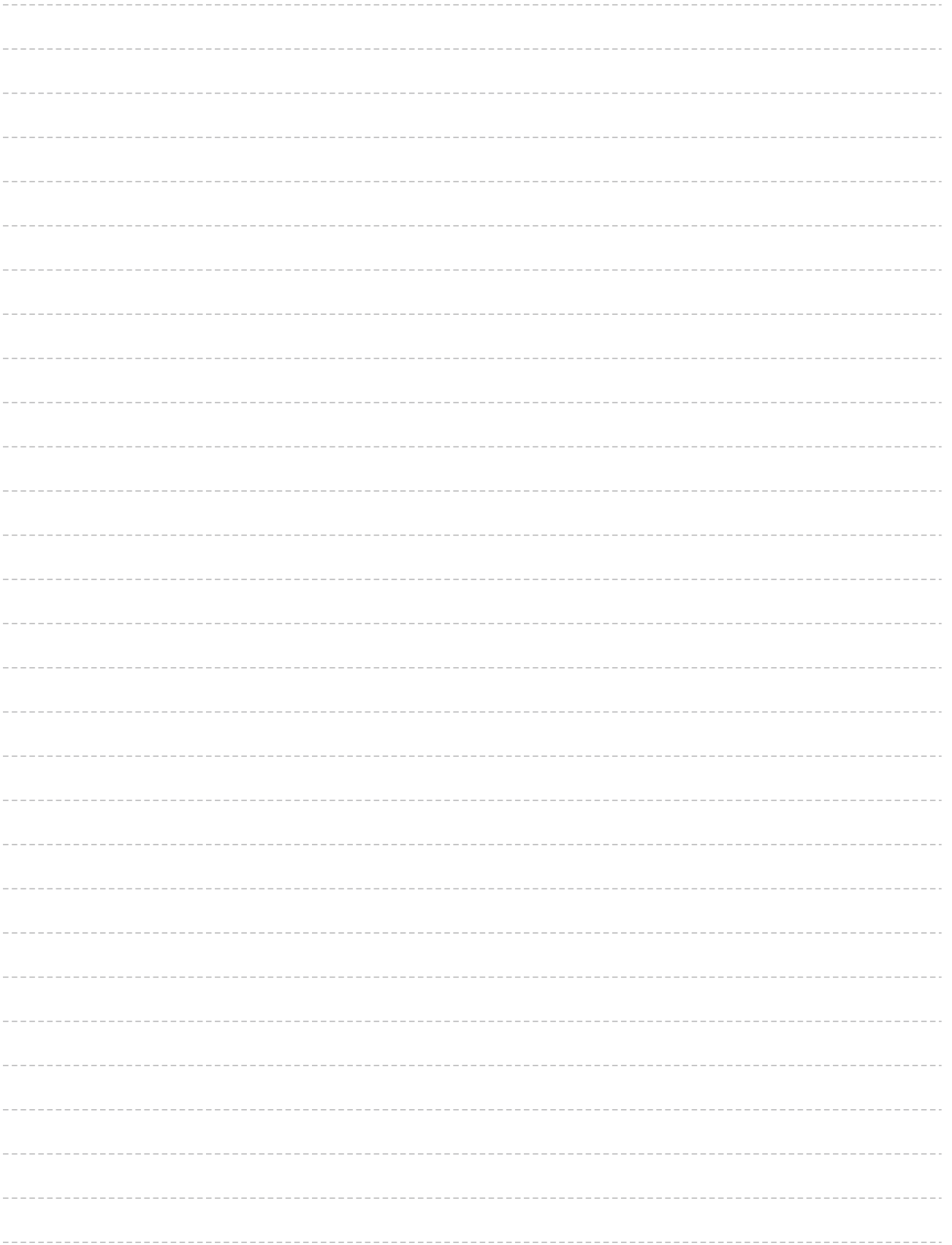
※\*\*\*为达到此速比时，必须搭配6P马达使用

※\*\*\*It need use 6 pole motor to reach certain ratio

| 速比 Ratio | 高段实际减速比 Actual Ratio |         |         |      |       |       |       |
|----------|----------------------|---------|---------|------|-------|-------|-------|
|          | 100W                 | 200W    | 400W    | 750W | 1500W | 2200W | 3700W |
| 300      | 300.010              | 317.750 | 311.610 |      |       |       |       |
| 400      | 413.340              | 429.110 | 409.450 |      |       |       |       |
| 450      | 453.720              |         |         |      |       |       |       |
| 500      | 508.680              | 534.060 | 513.590 |      |       |       |       |
| 600      | 602.020              | 624.730 | 600.880 |      |       |       |       |
| 700      | 704.760              |         | 679.850 |      |       |       |       |
| 800      | 786.110              | 832.970 | 774.450 |      |       |       |       |
| 900      | 920.420              | 927.570 | 938.270 |      |       |       |       |
| 1000     | 1003.57              | 1041.21 | 1042.61 |      |       |       |       |
| 1100     | 1105.31              |         |         |      |       |       |       |
| 1200     | 1187.86              | 1248.00 | 1212.52 |      |       |       |       |
| 1300     | 1284.40              |         |         |      |       |       |       |
| 1400     | 1390.93              | 1443.62 | 1407.40 |      |       |       |       |
| 1500     | 1516.05              |         |         |      |       |       |       |
| 1600     | 1623.38              | 1663.04 | 1607.35 |      |       |       |       |
| 1700     | 1703.73              |         |         |      |       |       |       |
| 1800     | 1848.84              | 1866.52 | 1797.16 |      |       |       |       |

# 各国电压表 COUNTRIES VOLTAGE

| 国名<br>Country        | 频率<br>Frequency | 单相<br>1-Phase | 三相<br>3-Phase | 国名<br>Country          | 频率<br>Frequency | 单相<br>1-Phase | 三相<br>3-Phase      |
|----------------------|-----------------|---------------|---------------|------------------------|-----------------|---------------|--------------------|
| 中国<br>China          | 50              | 220           | 220/380       | 日本<br>Japan            | 50/60           | 100/200       | 200                |
| 澳洲<br>Australia      | 50              | 240           | 240/415       | 科威特<br>Kuwait          | 50              | 100/200       | 200                |
| 奥地利<br>Austria       | 50              | 220           | 220/380       | 黎巴嫩<br>Lebanon         | 50              | 110/220       | 220/380            |
| 孟加拉<br>Bangladesh    | 50              | 230           | 230/400       | 马来西亚<br>Malaysia       | 50              | 115/240       | 240/415<br>400/440 |
| 比利时<br>Belgium       | 50              | 127/220       | 220/380       | 荷兰<br>Netherlands      | 50              | 110/220       | 220/230            |
| 巴西<br>Brazil         | 50              | 110/220       | 220/380       | 新西兰<br>New Zealand     | 50              | 230           | 230/400            |
|                      | 60              | 127           |               |                        |                 |               |                    |
| 缅甸<br>Burma          | 50              | 230           | 230/440       | 巴勒斯坦<br>Pakistan       | 50              | 230           | 220/380<br>230/400 |
| 高棉<br>Cambodia       | 50              | 120           | 220/380       | 沙乌地阿拉伯<br>Saudi-arabia | 50              | 127/220       | 110/220            |
|                      |                 |               |               |                        | 60              |               | 127                |
| 智利<br>Chile          | 50              | 220           | 220/380       | 叙利亚<br>Syris           | 50              | 115/200       | 220/380            |
| 阿根廷<br>Argentina     | 50              | 220           | 220/380       | 新加坡<br>Singapore       | 50              | 115/230       | 230/240            |
| 捷克<br>Czechoslovakia | 50              | 120/220       | 220/380       | 南非<br>South-africa     | 50              | 220/230       | 110/220            |
|                      |                 |               |               |                        |                 |               | 127                |
| 丹麦<br>Denmark        | 50              | 220           | 220/380       | 西班牙<br>Spain           | 50              | 127/220       | 220/380            |
| 埃及<br>Egypt          | 50              | 220           | 220/380       | 瑞士<br>Switzerland      | 50              | 220           | 220/380            |
| 芬兰<br>Finland        | 50              | 220           | 220/380       | 泰国<br>Thailand         | 50              | 110/220       | 220/380            |
| 法国<br>France         | 50              | 115/127/220   | 220/380       | 土耳其<br>Turkey          | 50              | 127/220/230   | 220/380            |
| 德国<br>Germany        | 50              | 110/220       | 220/380       | 英国<br>U.K.             | 50              | 240           | 240/415            |
| 希腊<br>Greece         | 50              | 220           | 220/380       | 越南<br>Viet-num         | 50              | 127/220       | 220/380            |
| 香港<br>Hongkong       | 50              | 110/200/230   | 220/380       | 加拿大<br>Canada          | 60              | 110/120       | 220/240/480        |
| 匈牙利<br>Hungary       | 50              | 220           | 220/380       | 哥伦比亚<br>Colombia       | 60              | 110/220       | 220/380            |
| 冰岛<br>Iceland        | 50              | 220           | 220/380       | 古巴<br>Cuba             | 60              | 115/120       | 240                |
| 印度<br>India          | 50              | 230           | 220/380       | 厄瓜多尔<br>Ecuador        | 60              | 120/127       | 208/220            |
|                      |                 |               | 230/400       |                        |                 |               |                    |
| 印尼<br>Indonesia      | 50              | 127/220       | 220/380       | 韩国<br>Korea            | 60              | 100/200       | 200                |
| 伊拉克<br>Iraq          | 50              | 220           | 220/380       | 秘鲁<br>Peru             | 60              | 110/220       | 200                |
| 以色列<br>Israel        | 50              | 230           | 230/400       | 菲律宾<br>Philippines     | 60              | 110/220       | 220/440            |
| 意大利<br>Italy         | 50              | 127/220       | 220/380       | 美国<br>U.S.A.           | 60              | 120/240       | 240/480            |



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