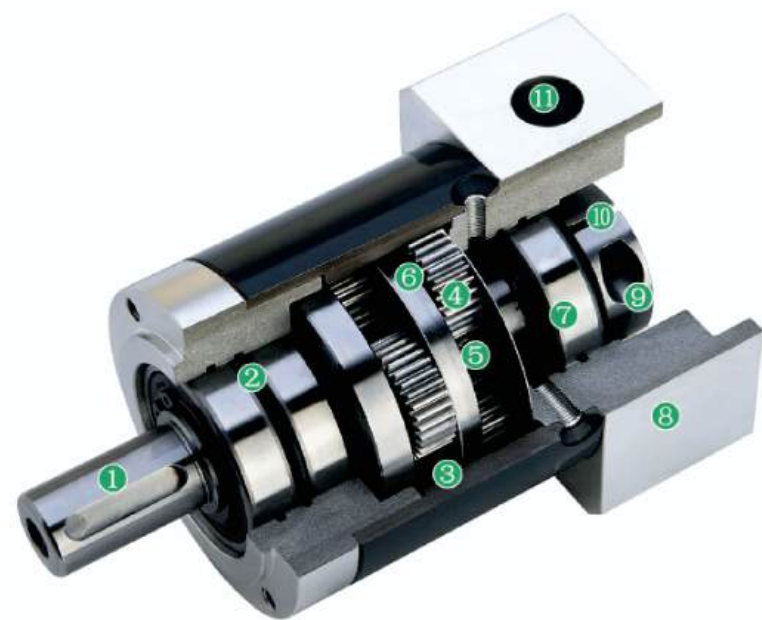


精密型行星齿轮箱型号的阅读方法  
PRODUCT NUMBER CODE - PRECISION PLANETARY GEARBOX PL SERIES

剖视图 SECTIONAL DRAWING



- ①输出轴 Output shaft  
②输出轴轴承 Bearing for the output shaft  
③内齿轮 Internal gear  
④行星轮 Planetary gear  
⑤太阳轮 Sunwheel  
⑥满针滚针轴承 Full complement needle bearing  
⑦太阳轮轴承 Bearing for the sunwheel  
⑧适配电机法兰 Appropriate motor flange  
⑨精密装夹系统 Precision clamping system  
⑩夹紧环 Clamping ring  
⑪装配孔 mounting hole

行星齿轮箱 Planetary Gearbox

80 ① PLE ② 40 ③

|   |                                                                                                                                                                                                                                                                                                                                                                             |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ① | 齿轮箱外形尺寸 Gearbox outline dimension<br>精密型系列transmission series 40:外径External diameter φ40mm 60:外径External diameter φ60mm 80:外径External diameter φ80mm<br>120:外径External diameter φ120mm 160:外径External diameter φ160mm                                                                                                                                                       |
| ② | 行星齿轮箱Planetary gearbox<br>PLE:精密行星---圆形法兰输出 Precision planetary-round flange output<br>PLF:精密行星---方形法兰输出 Precision planetary-square flange output<br>WPLE:精密行星---直角圆形法兰输出 Precise planetary-right angle round flange output<br>WPLF:精密行星---直角方形法兰输出 Precise planetary-right angle square flange output<br>PLS:精密行星---高刚性，低回差 Precise planetary-high rigidity, low back lash |
| ③ | 减速比 Reduction ratio<br>40:减速比 Reduction ratio 1:40                                                                                                                                                                                                                                                                                                                          |



PL系列精密行星减速机  
PL SERIES PRECISION PLANETARY GEAR MOTOR



技术资料 TECHNICAL DATA

| 产品型号Product type              |        | PL40                                       | PL60 | PL80 | PL120 | PL160 | 减速比Reduction ratio | 级数Number of stage |
|-------------------------------|--------|--------------------------------------------|------|------|-------|-------|--------------------|-------------------|
| 额定输出扭矩<br>Rated output torque | N.M    | 4.5                                        | 12   | 40   | 80    | 400   | 3                  | 1                 |
|                               |        | 6                                          | 16   | 50   | 100   | 450   | 4                  |                   |
|                               |        | 6                                          | 16   | 50   | 110   | 450   | 5                  |                   |
|                               |        | 5                                          | 15   | 45   | 120   | 450   | 8                  |                   |
|                               |        | 5                                          | 15   | 45   | 120   | 305   | 10                 |                   |
|                               |        | 16.5                                       | 44   | 110  | 210   | —     | 9                  | 2                 |
|                               |        | 18                                         | 44   | 120  | 260   | 800   | 12                 |                   |
|                               |        | 18                                         | 40   | 110  | 230   | 700   | 15                 |                   |
|                               |        | 20                                         | 44   | 120  | 260   | 800   | 16                 |                   |
|                               |        | 20                                         | 44   | 120  | 260   | 800   | 20                 |                   |
|                               |        | 18                                         | 40   | 110  | 230   | 700   | 25                 |                   |
|                               |        | 20                                         | 44   | 120  | 260   | 800   | 32                 |                   |
|                               |        | 18                                         | 40   | 110  | 230   | 700   | 40                 |                   |
|                               |        | 7.5                                        | 18   | 50   | 120   | 450   | 64                 |                   |
|                               |        | 20                                         | 44   | 120  | 260   | /     | 60                 |                   |
|                               |        | 20                                         | 44   | 120  | 260   | /     | 80                 |                   |
|                               |        | 20                                         | 44   | 120  | 260   | /     | 100                |                   |
|                               |        | 18                                         | 40   | 110  | 230   | /     | 120                | 3                 |
|                               |        | 20                                         | 44   | 120  | 260   | /     | 160                |                   |
|                               |        | 18                                         | 40   | 110  | 230   | /     | 200                |                   |
|                               |        | 20                                         | 44   | 120  | 260   | /     | 256                |                   |
|                               |        | 18                                         | 40   | 110  | 230   | /     | 320                |                   |
|                               |        | 7.5                                        | 18   | 50   | 120   | /     | 512                |                   |
| 寿命Life                        | 小时Hour | 30,000                                     |      |      |       |       |                    |                   |
| 瞬间急停扭矩 Instant stop torque    | N.M    | 2倍于额定输出扭矩 Two times of rated output torque |      |      |       |       |                    |                   |

| 产品型号 Product type          | PL40                      | PL60 | PL80 | PL120 | PL160 | 单位 | 级数number of stage |
|----------------------------|---------------------------|------|------|-------|-------|----|-------------------|
| 最大径向力 Max radial torque    | 160                       | 340  | 650  | 1500  | 4200  | N  |                   |
| 最大轴向力 Max axial torque     | 160                       | 450  | 900  | 2100  | 6000  | N  |                   |
| 满载效率 Full load efficiency  | 96                        |      |      |       |       | %  | 1                 |
|                            | 94                        |      |      |       |       |    | 2                 |
|                            | 90                        |      |      |       |       |    | 3                 |
| 重量 Weight                  | 0.4                       | 0.9  | 2.1  | 6     | 18    | Kg | 1                 |
|                            | 0.5                       | 1.1  | 2.6  | 8     | 22    |    | 2                 |
|                            | 0.6                       | 1.3  | 3.1  | 9.5   | /     |    | 3                 |
| 工作温度 Operating temperature | -25℃~+90℃                 |      |      |       |       | ℃  |                   |
| 保护等级 IP                    | IP54                      |      |      |       |       |    |                   |
| 润滑方式 Lubrication type      | 终身润滑 Lifetime lubrication |      |      |       |       |    |                   |
| 安装方式 Mounting type         | 任意 Any                    |      |      |       |       |    |                   |

最大径向力与最大轴向力,输出100RPM时,作用于输出轴中心位置(L/2)处。  
The max radial and axial torque work in the location of the center of output shaft when the out speed is 100RPM.

PL系列精密行星减速机  
PL SERIES PRECISION PLANETARY GEAR MOTOR



技术资料 TECHNICAL DATA

| 产品型号Product type          |       | PL40  | PL60  | PL80 | PL120 | PL160 | 减速比Reduction ratio |
|---------------------------|-------|-------|-------|------|-------|-------|--------------------|
| 转动惯量<br>Moment of inertia | Kgcm² | 0.031 | 0.135 | 0.77 | 2.63  | 12.14 | 3                  |
|                           |       | 0.022 | 0.093 | 0.52 | 1.79  | 7.78  | 4                  |
|                           |       | 0.019 | 0.078 | 0.45 | 1.53  | 6.07  | 5                  |
|                           |       | 0.017 | 0.065 | 0.39 | 1.32  | 4.63  | 8                  |
|                           |       | 0.015 | 0.054 | 0.34 | 1.14  | 3.52  | 10                 |
|                           |       | 0.030 | 0.131 | 0.74 | 2.56  | /     | 9                  |
|                           |       | 0.029 | 0.127 | 0.72 | 2.53  | 12.37 | 12                 |
|                           |       | 0.023 | 0.077 | 0.71 | 1.75  | 12.35 | 15                 |
|                           |       | 0.022 | 0.088 | 0.50 | 1.50  | 7.47  | 16                 |
|                           |       | 0.019 | 0.075 | 0.44 | 1.49  | 6.65  | 20                 |
|                           |       | 0.019 | 0.075 | 0.44 | 1.30  | 5.81  | 25                 |
|                           |       | 0.017 | 0.064 | 0.39 | 1.30  | 4.5   | 32                 |
|                           |       | 0.016 | 0.064 | 0.39 | 1.30  | 4.5   | 40                 |
|                           |       | 0.016 | 0.064 | 0.39 | 1.30  | 4.5   | 64                 |
|                           |       | 0.029 | 0.130 | 0.70 | 2.57  | /     | 60                 |
|                           |       | 0.019 | 0.075 | 0.50 | 1.50  | /     | 80                 |
|                           |       | 0.019 | 0.075 | 0.44 | 1.49  | /     | 100                |
|                           |       | 0.029 | 0.130 | 0.70 | 2.50  | /     | 120                |
|                           |       | 0.016 | 0.064 | 0.39 | 1.30  | /     | 160                |
|                           |       | 0.016 | 0.064 | 0.39 | 1.30  | /     | 200                |
|                           |       | 0.016 | 0.064 | 0.39 | 1.30  | /     | 256                |
|                           |       | 0.016 | 0.064 | 0.39 | 1.30  | /     | 320                |
|                           |       | 0.016 | 0.064 | 0.39 | 1.30  | /     | 512                |

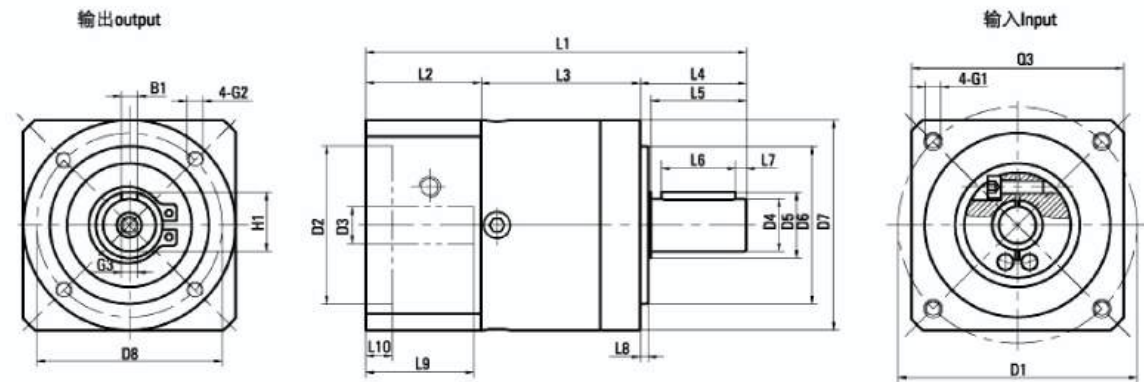
| 产品型号Product type |              | PL40        | PL60 | PL80 | PL120 | PL160 | 级数Number of stage |
|------------------|--------------|-------------|------|------|-------|-------|-------------------|
| 回程间隙<br>Backlash | arcmin<br>弧分 | 精密Precision | < 5  | < 3  | < 3   | < 3   | 1                 |
|                  |              | 标准Standard  | < 10 | < 8  | < 8   | < 8   |                   |
|                  |              | 精密Precision | < 8  | < 5  | < 5   | < 5   | 2                 |
|                  |              | 标准Standard  | < 12 | < 10 | < 10  | < 10  |                   |
|                  |              | 精密Precision | < 10 | < 8  | < 8   | < 8   | 3                 |
|                  |              | 标准Standard  | < 15 | < 12 | < 12  | < 12  |                   |

| 产品型号Product type             |            | PL40  | PL60 | PL80 | PL120 | PL160 |
|------------------------------|------------|-------|------|------|-------|-------|
| 抗扭刚性 Torsional stiffness     | N.M/arcmin | 0.7   | 1.8  | 4.5  | 12    | 38    |
| 噪声 Noise                     | dB(A)      | 55    | 58   | 60   | 65    | 70    |
| 最高输出转速 Max output speed      | min⁻¹      | 10000 | 8000 | 6000 | 6000  | 6000  |
| 推荐输入转速 Recommend input speed | min⁻¹      | 4500  | 4000 | 4000 | 4000  | 3000  |

1. 转动惯量与输入轴有关。 2. 噪声检测标准，距离1m，在输入转速3000转/分空载时测得。  
1. The moment of inertia is related with input shaft. 2. Noise test standard pressure level, distance 1m, measured on idle running with an input speed of 3000rpm.

PLE精密行星减速机  
PLE SERIES PRECISION PLANETARY GEAR MOTOR

机械参数 DIMENSIONS



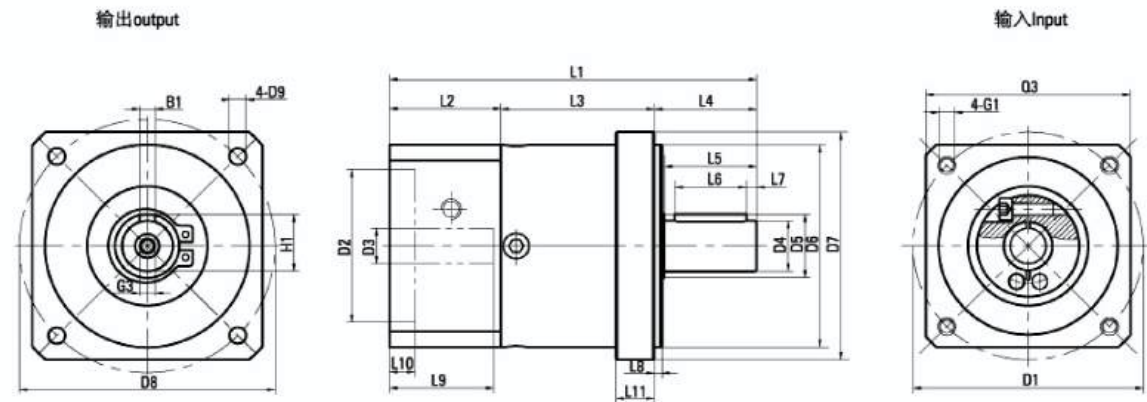
单位Unit: mm

| 产品型号Product type                                | PLE40          | PLE60         | PLE80           | PLE120          | PLE160    |
|-------------------------------------------------|----------------|---------------|-----------------|-----------------|-----------|
| 级数 Number of stage                              | 1 2 3          | 1 2 3         | 1 2 3           | 1 2 3           | 1 2       |
| L1箱体总长 L1 overall length                        | 93.5 106.5 119 | 113 126 138.5 | 143.5 161.5 179 | 191.7 221.5 249 | 285.5 335 |
| L3箱体长度 L3 body length                           | 39 52 64       | 46.5 59.5 72  | 60 78 95.5      | 73.7 101.5 129  | 104 153.5 |
| 输出端 Output                                      |                |               |                 |                 |           |
| L4出轴长度 L4 output shaft length                   | 26             | 35            | 40              | 55              | 87        |
| L5出轴长至轴肩 L5 output length to the shaft shoulder | 24             | 30.5          | 36              | 50              | 82        |
| L6键长度 L6 key length                             | 16             | 25            | 28              | 40              | 70        |
| L7键至轴末端长 L7 key length to the shaft end         | 2.5            | 2.5           | 4               | 5               | 5         |
| L8定位凸台长度 L8 spigot length                       | 2              | 3             | 3               | 4               | 5         |
| D4出轴直径 D4 output shaft diameter                 | ø10 h7         | ø14h7         | ø20h7           | ø25h7           | ø40 h7    |
| D5轴肩直径 D5 shaft shoulder diameter               | ø12            | ø17           | ø25             | ø35             | ø55       |
| D6定位凸台直径 D6 spigot diameter                     | ø26            | ø40           | ø60             | ø80             | ø130      |
| D7箱体直径 D7 body diameter                         | ø40            | ø60           | ø80             | ø115            | ø160      |
| D8安装孔分布圆 D8 hole circle                         | ø34            | ø52           | ø70             | ø100            | ø145      |
| B1键宽 B1 key width                               | 3              | 5             | 6               | 8               | 12        |
| H1键高 H1 key height                              | 11.2           | 16            | 22.5            | 28              | 43        |
| G2安装螺纹孔 G2 mounting screw hole                  | M4x6           | M5x8          | M6x10           | M10x16          | M12x20    |
| G3中心螺纹孔 G3 center screw hole                    | M3x9           | M5x12         | M6x16           | M10x22          | M12x25    |
| 输入端 Input                                       |                |               |                 |                 |           |
| L2输入法兰长度 L2 input flange length                 | 24.3           | 31.5          | 43.5            | 63              | 25        |
| L9电机轴长度 L9 motor shaft length                   | 25             | 30            | 40              | 55              | 79        |
| L10定位凸台深度 L10 spigot depth                      | 6              | 10            | 10              | 12              | 12        |
| D1安装孔分布圆 D1 mounting hole distribution circle   | 46             | ø70           | ø90             | ø145            | ø200      |
| D2定位凸台直径 D2 spigot diameter                     | ø30 H7         | ø50H7         | ø70H7           | ø110H7          | ø114.3    |
| D3输入轴轴径 D3 input shaft diameter                 | ø8             | ø14           | ø19             | ø24             | ø35       |
| G1安装螺纹孔 G1 mounting screw hole                  | M4x10          | M5x15         | M6x15           | M8x22           | M12x25    |
| Q3输入法兰 Q3 input flange                          | □40            | □60           | □80             | □130            | □175      |

※输入端尺寸可根据电机尺寸制作。  
※Input size made according to motor size.

PLF精密行星减速机  
PLF SERIES PRECISION PLANETARY GEAR MOTOR

机械参数 DIMENSIONS

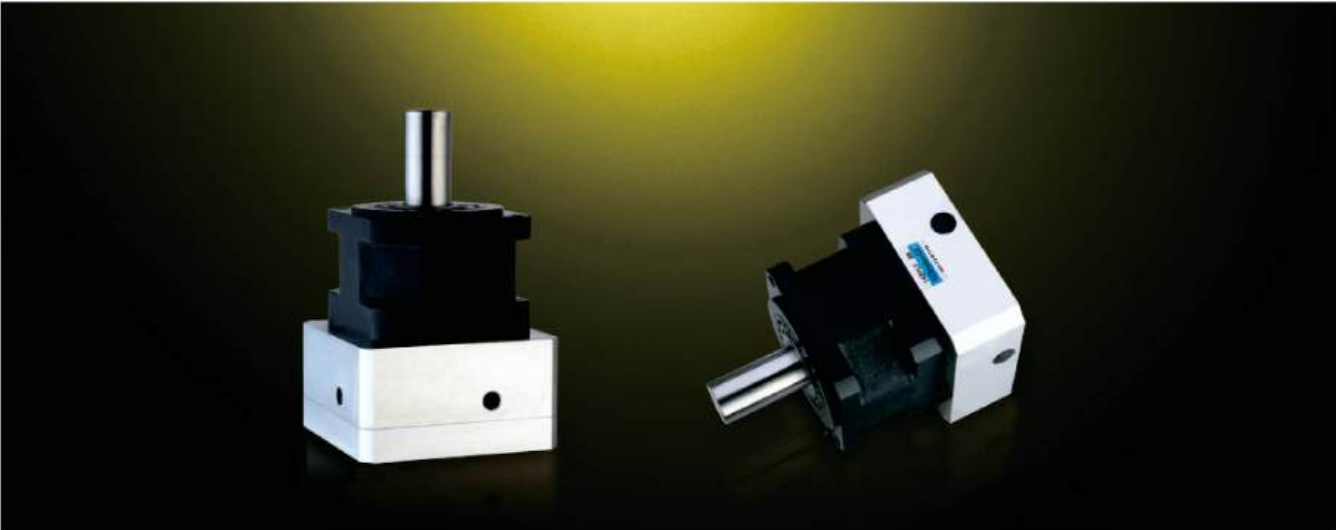


■单位Unit: mm

| 产品型号Product type                                | PLF40  |       |       | PLF60 |      |       | PLF80 |       |      | PLF120 |       |     | PLF160 |       |
|-------------------------------------------------|--------|-------|-------|-------|------|-------|-------|-------|------|--------|-------|-----|--------|-------|
| 级数 Number of stage                              | 1      | 2     | 3     | 1     | 2    | 3     | 1     | 2     | 3    | 1      | 2     | 3   | 1      | 2     |
| L1箱体总长 L1 overall length                        | 138.5  | 138.5 | 138.5 | 113   | 126  | 138.5 | 143.5 | 161.5 | 179  | 191.7  | 221.5 | 249 | 138.5  | 138.5 |
| L3箱体长度 L3 body length                           |        |       |       | 46.5  | 59.5 | 72    | 60    | 78    | 95.5 | 73.7   | 101.5 | 129 |        |       |
| 输出端 Output                                      |        |       |       |       |      |       |       |       |      |        |       |     |        |       |
| L4出轴长度 L4 output shaft length                   | 26     |       |       | 35    |      |       | 40    |       |      | 55     |       |     | 87     |       |
| L5出轴长至轴肩 L5 output length to the shaft shoulder | 24     |       |       | 30.5  |      |       | 36    |       |      | 50     |       |     | 82     |       |
| L6键长度 L6 key length                             | 16     |       |       | 25    |      |       | 28    |       |      | 40     |       |     | 70     |       |
| L7键至轴末端长 L7 key length to the shaft end         | 2.5    |       |       | 2.5   |      |       | 4     |       |      | 5      |       |     | 5      |       |
| L8定位凸台长度 L8 spigot length                       | 2      |       |       | 3     |      |       | 3     |       |      | 4      |       |     | 5      |       |
| L11输出法兰厚度 L11 output flange thickness           | 6      |       |       | 8     |      |       | 10    |       |      | 15     |       |     | 15     |       |
| D4出轴直径 D4 output shaft diameter                 | φ10 h7 |       |       | φ14h7 |      |       | φ20h7 |       |      | φ25h7  |       |     | φ40 h7 |       |
| D5轴肩直径 D5 shaft shoulder diameter               | φ12    |       |       | φ17   |      |       | φ25   |       |      | φ35    |       |     | φ55    |       |
| D6定位凸台直径 D6 spigot diameter                     | φ26    |       |       | φ50   |      |       | φ80   |       |      | φ110   |       |     | φ130   |       |
| D7输出法兰 D7 output flange                         | □45    |       |       | □60   |      |       | □90   |       |      | □120   |       |     | □175   |       |
| D8安装孔分布圆 D8 mounting hole distribution circle   | φ50    |       |       | φ70   |      |       | φ100  |       |      | φ130   |       |     | φ185   |       |
| D9法兰安装孔 D9 mounting hole                        | φ3.5   |       |       | φ5.5  |      |       | φ6.5  |       |      | φ8.5   |       |     | φ11    |       |
| B1键宽 B1 key width                               | 3      |       |       | 5     |      |       | 6     |       |      | 8      |       |     | 12     |       |
| H1键高 H1 key height                              | 11.2   |       |       | 16    |      |       | 22.5  |       |      | 28     |       |     | 43     |       |
| G3中心螺纹孔 G3 center screw hole                    | M3x9   |       |       | M5x12 |      |       | M6x16 |       |      | M10x22 |       |     | M12x25 |       |
| 输入端 Input                                       |        |       |       |       |      |       |       |       |      |        |       |     |        |       |
| L2输入法兰长度 L2 input flange length                 | 24.3   |       |       | 31.5  |      |       | 43.5  |       |      | 63     |       |     | 25     |       |
| L9电机轴长度 L9 motor shaft length                   | 25     |       |       | 30    |      |       | 40    |       |      | 55     |       |     | 79     |       |
| L10定位凸台深度 L10 spigot depth                      | 6      |       |       | 10    |      |       | 10    |       |      | 12     |       |     | 12     |       |
| D1安装孔分布圆 D1 hole circle                         | 46     |       |       | φ70   |      |       | φ90   |       |      | φ145   |       |     | φ200   |       |
| D2定位凸台直径 D2 spigot diameter                     | φ30 H7 |       |       | φ50H7 |      |       | φ70H7 |       |      | φ110H7 |       |     | φ114.3 |       |
| D3输入轴轴径 D3 input shaft diameter                 | φ8     |       |       | φ14   |      |       | φ19   |       |      | φ24    |       |     | φ35    |       |
| G1安装螺纹孔 G1 mounting screw hole                  | M4x10  |       |       | M5x15 |      |       | M6x15 |       |      | M8x22  |       |     | M12x25 |       |
| Q3输入法兰 Q3 input flange                          | □40    |       |       | □60   |      |       | □80   |       |      | □130   |       |     | □175   |       |

※输入端尺寸可根据电机尺寸制作。  
※Input size made according to motor size.

PLS系列精密行星减速机  
PLS SERIES PRECISION PLANETARY GEAR MOTOR



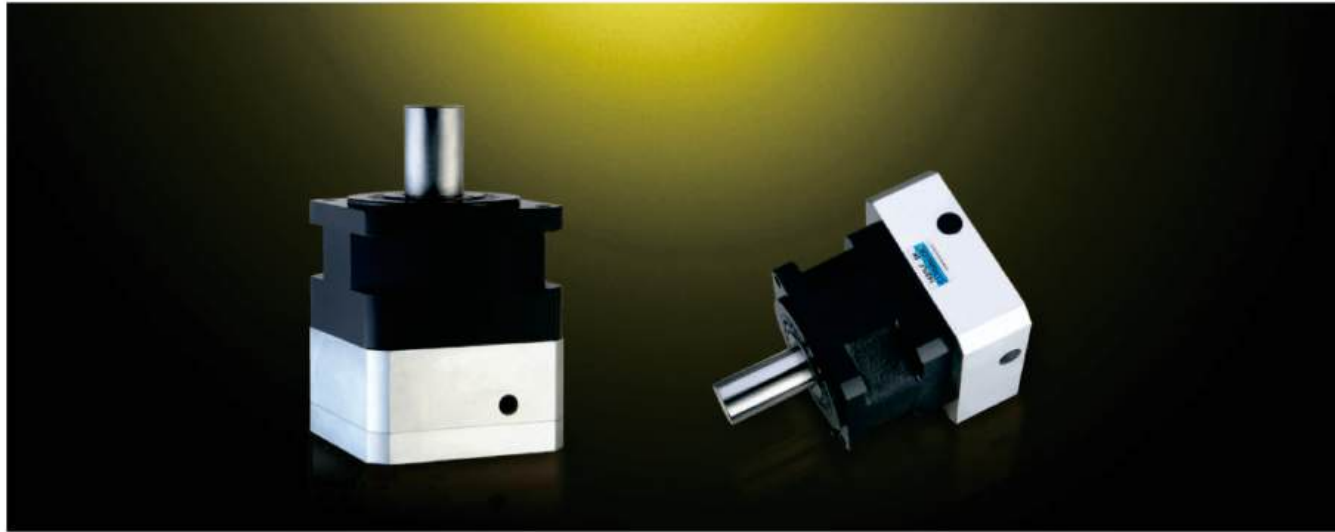
■技术资料 TECHNICAL DATA

| 产品型号Product type              |        | PLS70                                      | PLS90 | PLS115 | PLS142 | PLS190 | 减速比Reduction ratio | 级数Number of stage |
|-------------------------------|--------|--------------------------------------------|-------|--------|--------|--------|--------------------|-------------------|
| 额定输出扭矩<br>Rated output torque | N.M    | 30                                         | 75    | 150    | 400    | 1000   | 3                  | 1                 |
|                               |        | 40                                         | 100   | 200    | 560    | 1200   | 4                  |                   |
|                               |        | 50                                         | 110   | 210    | 700    | 1600   | 5                  |                   |
|                               |        | 37                                         | 62    | 148    | 450    | 1000   | 8                  |                   |
|                               |        | 27                                         | 45    | 125    | 305    | 630    | 10                 |                   |
|                               |        | 77                                         | 120   | 260    | 910    | 1800   | 12                 | 2                 |
|                               |        | 68                                         | 110   | 210    | 780    | 1800   | 15                 |                   |
|                               |        | 77                                         | 120   | 260    | 910    | 1800   | 16                 |                   |
|                               |        | 77                                         | 110   | 260    | 910    | 1800   | 20                 |                   |
|                               |        | 68                                         | 110   | 210    | 780    | 1800   | 25                 |                   |
|                               |        | 77                                         | 120   | 260    | 910    | 1800   | 32                 |                   |
|                               |        | 68                                         | 110   | 210    | 780    | 1800   | 40                 |                   |
|                               |        | 37                                         | 62    | 148    | 450    | 1000   | 64                 |                   |
|                               |        | 27                                         | 45    | 125    | 305    | 630    | 100                |                   |
| 寿命Life                        | 小时Hour | 30,000                                     |       |        |        |        |                    |                   |
| 瞬间急停扭矩 Instant stop torque    | N.M    | 2倍于额定输出扭矩 Two times of rated output torque |       |        |        |        |                    |                   |

| 产品型号 Product type          | PLS70                     | PLS90 | PLS115 | PLS142 | PLS190 | 单位 | 级数number of stage |
|----------------------------|---------------------------|-------|--------|--------|--------|----|-------------------|
| 最大径向力 Max radial torque    | 3000                      | 3900  | 4300   | 8200   | 12000  | N  |                   |
| 最大轴向力 Max axial torque     | 6000                      | 9000  | 12000  | 19000  | 28000  | N  |                   |
| 满载效率 Full load efficiency  | 98                        |       |        |        |        | %  | 1                 |
|                            | 95                        |       |        |        |        |    | 2                 |
| 重量 Weight                  | 3.0                       | 4.3   | 9.0    | 15.4   | 33.5   | Kg | 1                 |
|                            | 3.8                       | 5.7   | 11.6   | 18.5   | 45     |    | 2                 |
| 工作温度 Operating temperature | -25℃~+90℃                 |       |        |        |        | ℃  |                   |
| 保护等级 IP                    | IP54                      |       |        |        |        |    |                   |
| 润滑方式 Lubrication type      | 终身润滑 Lifetime lubrication |       |        |        |        |    |                   |
| 安装方式 Mounting type         | 任意 Any                    |       |        |        |        |    |                   |

最大径向力与最大轴向力,输出100RPM时,作用于输出轴中心位置(L/2)处。  
The max radial and axial torque work in the location of the center of output shaft when the out speed is 100RPM.

## PLS系列精密行星减速机 PLS SERIES PRECISION PLANETARY GEAR MOTOR



### ■技术资料 TECHNICAL DATA

| 产品型号Product type          |                   | PLS70 | PLS90 | PLS115 | PLS142 | PLS190 | 减速比Reduction ratio |
|---------------------------|-------------------|-------|-------|--------|--------|--------|--------------------|
| 转动惯量<br>Moment of inertia | Kgcm <sup>2</sup> | 0.32  | 0.81  | 2.10   | 12.14  | 47.52  | 3                  |
|                           |                   | 0.20  | 0.60  | 1.51   | 7.78   | 29.69  | 4                  |
|                           |                   | 0.16  | 0.52  | 1.22   | 6.07   | 23.18  | 5                  |
|                           |                   | 0.12  | 0.46  | 1.05   | 4.63   | 16.83  | 8                  |
|                           |                   | 0.10  | 0.44  | 1.00   | 4.25   | 15.32  | 10                 |
|                           |                   | 0.22  | 0.75  | 2.00   | 12.37  | 30.25  | 12                 |
|                           |                   | 0.21  | 0.74  | 2.00   | 12.35  | 23.53  | 15                 |
|                           |                   | 0.20  | 0.56  | 1.48   | 7.47   | 28.95  | 16                 |
|                           |                   | 0.17  | 0.50  | 1.41   | 6.65   | 22.71  | 20                 |
|                           |                   | 0.16  | 0.48  | 1.21   | 5.81   | 22.46  | 25                 |
|                           |                   | 0.13  | 0.45  | 1.46   | 6.36   | 16.65  | 32                 |
|                           |                   | 0.13  | 0.45  | 1.05   | 5.28   | 16.54  | 40                 |
|                           |                   | 0.13  | 0.45  | 1.05   | 4.50   | 16.45  | 64                 |
|                           |                   | 0.12  | 0.44  | 1.00   | 4.17   | 15.07  | 100                |

| 产品型号Product type |              |             | PLS70 | PLS90 | PLS115 | PLS142 | PLS190 | 级数Number of stage |
|------------------|--------------|-------------|-------|-------|--------|--------|--------|-------------------|
| 回程间隙<br>Backlash | Arcmin<br>弧分 | 精密Precision | < 3   | < 3   | < 3    | < 3    | < 3    | 1                 |
|                  |              | 标准Standard  | < 8   | < 8   | < 8    | < 8    | < 8    |                   |
|                  |              | 精密Precision | < 5   | < 5   | < 5    | < 5    | < 5    | 2                 |
|                  |              | 标准Standard  | < 10  | < 10  | < 10   | < 10   | < 10   |                   |

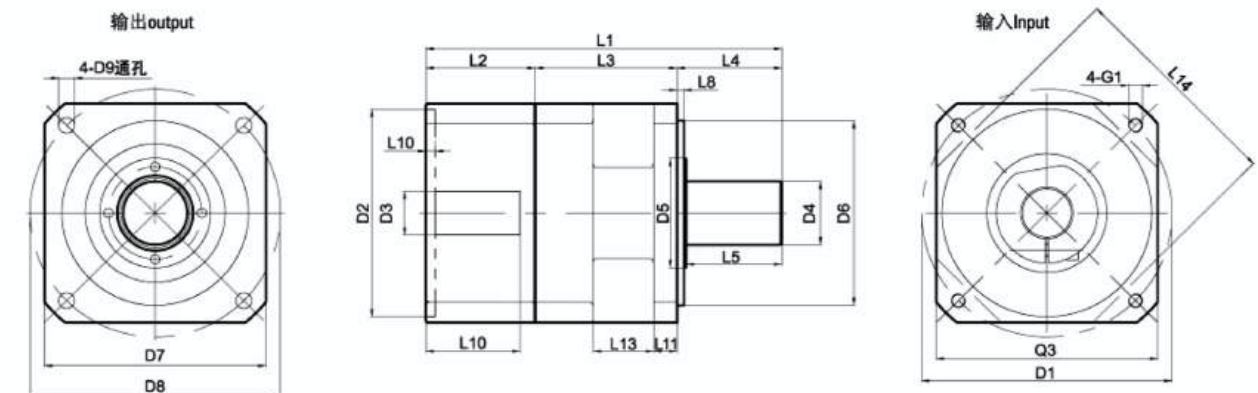
| 产品型号Product type             |                   | PLS70 | PLS90 | PLS115 | PLS142 | PLS190 | 级数Number of stage |
|------------------------------|-------------------|-------|-------|--------|--------|--------|-------------------|
| 抗扭刚性 Torsional stiffness     | N.M/arcmin        | 6     | 9     | 20     | 44     | 130    | 1                 |
|                              |                   | 7     | 10    | 22     | 46     | 140    | 2                 |
| 噪声 Noise                     | dB(A)             | 58    | 60    | 65     | 68     | 70     |                   |
| 最高输出转速 Max output speed      | min <sup>-1</sup> | 14000 | 10000 | 8500   | 6500   | 6000   |                   |
| 推荐输入转速 Recommend input speed | min <sup>-1</sup> | 5000  | 4500  | 4000   | 3000   | 2500   |                   |

1. 转动惯量与输入轴有关。 2. 噪声检测标准, 距离1m, 在输入转速3000转/分空载时测得。

1. The moment of inertia is related with input shaft. 2. Noise test standard pressure level, distance 1m, measured on idle running with an input speed of 3000rpm.

## PLS精密行星减速机 PLS SERIES PRECISION PLANETARY GEAR MOTOR

### 机械参数 DIMENSIONS



### ■单位Unit: mm

| 产品型号Product type                                | PLS70  |       | PLS90  |      | PLS115  |       | PLS142  |       | PLS190  |     |
|-------------------------------------------------|--------|-------|--------|------|---------|-------|---------|-------|---------|-----|
| 级数 Number of stage                              | 1      | 2     | 1      | 2    | 1       | 2     | 1       | 2     | 1       | 2   |
| L1箱体总长 L1 overall length                        | 124    | 147.5 | 155.5  | 184  | 193     | 226.5 | 269     | 318.5 | 305.5   | 353 |
| L3箱体长度 L3 body length                           | 62.5   | 86    | 69     | 97.5 | 77.5    | 111   | 102     | 151.5 | 121.5   | 169 |
| 输出端 Output                                      |        |       |        |      |         |       |         |       |         |     |
| L4出轴长度 L4 output shaft length                   | 32     |       | 41.5   |      | 64.5    |       | 87      |       | 90      |     |
| L5出轴长至轴肩 L5 output length to the shaft shoulder | 28     |       | 36     |      | 58      |       | 80      |       | 82      |     |
| L8定位凸台长度 L8 spigot length                       | 3      |       | 3      |      | 4       |       | 5       |       | 6       |     |
| D4出轴直径 D4 output shaft diameter                 | φ19 h7 |       | φ22 h7 |      | φ32 h7  |       | φ40 h7  |       | φ55 h7  |     |
| D5轴肩直径 D5 shaft shoulder diameter               | φ35    |       | φ40    |      | φ45     |       | φ65     |       | φ95     |     |
| D6定位凸台直径 D6 spigot diameter                     | φ60 h7 |       | φ80 h7 |      | φ110 h7 |       | φ130 h7 |       | φ160 h7 |     |
| D7输出法兰 D7 output flange                         | □70    |       | □90    |      | □115    |       | □142    |       | □190    |     |
| D8安装孔分布圆 D8 mounting hole distribution circle   | φ75    |       | φ100   |      | φ130    |       | Φ165    |       | φ215    |     |
| D9法兰安装孔 D9 mounting hole                        | φ5.5   |       | φ6.5   |      | φ8.5    |       | Φ11     |       | φ13.5   |     |
| L13工艺槽宽度 L13 groove width                       | 23     |       | 30     |      | 34      |       | 52      |       | 52      |     |
| L14工艺槽 L14 groove                               | □64    |       | □87    |      | □115    |       | □140    |       | □190    |     |
| 输入端 Input                                       |        |       |        |      |         |       |         |       |         |     |
| L2输入法兰长度 L2 input flange length                 | 29.5   |       | 45     |      | 51      |       | 80      |       | 94      |     |
| L9电机轴长度 L9 motor shaft length                   | 23     |       | 35     |      | 45      |       | 67      |       | 81      |     |
| L10定位凸台深 L10 motor spigot depth                 | 3      |       | 3.5    |      | 3.5     |       | 6       |       | 6       |     |
| D1安装孔分布圆 D1 hole circle                         | φ75    |       | φ100   |      | φ115    |       | φ165    |       | φ215    |     |
| D2定位凸台直径 D2 spigot diameter                     | φ50 H7 |       | φ80 H7 |      | φ95 H7  |       | φ130 H7 |       | φ180 H7 |     |
| D3输入轴轴径 D3 input shaft diameter                 | φ11 H7 |       | φ16 H7 |      | φ19 H7  |       | φ35 H7  |       | φ38 H7  |     |
| G1安装螺纹孔x深度 G1 mounting screw hole x depth       | M5x12  |       | M6x15  |      | M8x22   |       | M10x25  |       | M12x25  |     |
| Q3输入法兰 Q3 input flange                          | □70    |       | □90    |      | □115    |       | □142    |       | □190    |     |

※输入端尺寸可根据电机尺寸制作。

※Input size made according to motor size.

WPL系列精密行星减速机  
WPL SERIES PRECISION PLANETARY GEAR MOTOR



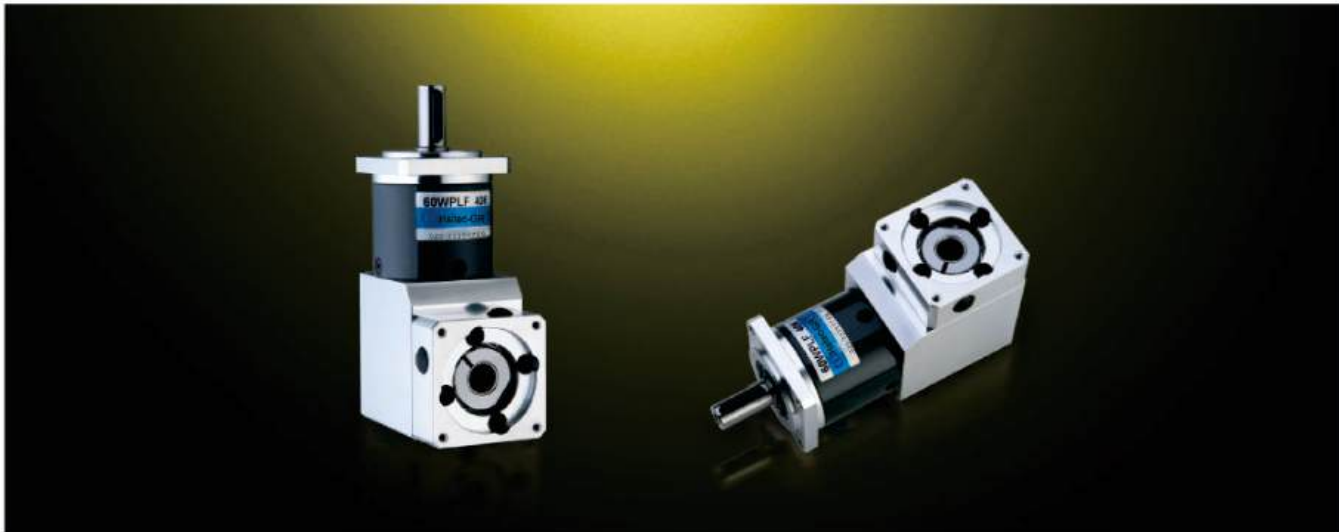
■技术资料 TECHNICAL DATA

| 产品型号Product type              |        | WPL40                                      | WPL60 | WPL80 | WPL120 | 减速比Reduction ratio | 级数Number of stage |
|-------------------------------|--------|--------------------------------------------|-------|-------|--------|--------------------|-------------------|
| 额定输出扭矩<br>Rated output torque | N.M    | 4.5                                        | 12    | 40    | 80     | 3                  | 1                 |
|                               |        | 6                                          | 16    | 50    | 100    | 4                  |                   |
|                               |        | 6                                          | 16    | 50    | 110    | 5                  |                   |
|                               |        | 5                                          | 15    | 45    | 120    | 8                  |                   |
|                               |        | 5                                          | 15    | 45    | 120    | 10                 |                   |
|                               |        | 16.5                                       | 44    | 110   | 210    | 9                  | 2                 |
|                               |        | 18                                         | 44    | 120   | 260    | 12                 |                   |
|                               |        | 18                                         | 40    | 110   | 230    | 15                 |                   |
|                               |        | 20                                         | 44    | 120   | 260    | 16                 |                   |
|                               |        | 20                                         | 44    | 120   | 260    | 20                 |                   |
|                               |        | 18                                         | 40    | 110   | 230    | 25                 |                   |
|                               |        | 20                                         | 44    | 120   | 260    | 32                 |                   |
|                               |        | 18                                         | 40    | 110   | 230    | 40                 |                   |
|                               |        | 7.5                                        | 18    | 50    | 120    | 64                 |                   |
|                               |        | 20                                         | 44    | 120   | 260    | 60                 |                   |
|                               |        | 20                                         | 44    | 120   | 260    | 80                 |                   |
|                               |        | 20                                         | 44    | 120   | 260    | 100                |                   |
|                               |        | 18                                         | 40    | 110   | 230    | 120                | 3                 |
|                               |        | 20                                         | 44    | 120   | 260    | 160                |                   |
|                               |        | 18                                         | 40    | 110   | 230    | 200                |                   |
|                               |        | 20                                         | 44    | 120   | 260    | 256                |                   |
|                               |        | 18                                         | 40    | 110   | 230    | 320                |                   |
|                               |        | 7.5                                        | 18    | 50    | 120    | 512                |                   |
| 寿命Life                        | 小时Hour | 30,000                                     |       |       |        |                    |                   |
| 瞬间急停扭矩 Instant stop torque    | N.M    | 2倍于额定输出扭矩 Two times of rated output torque |       |       |        |                    |                   |

| 产品型号 Product type          | WPL40                     | WPL60 | WPL80 | WPL120 | 单位 | 级数number of stage |
|----------------------------|---------------------------|-------|-------|--------|----|-------------------|
| 最大径向力 Max radial torque    | 160                       | 340   | 650   | 1500   | N  |                   |
| 最大轴向力 Max axial torque     | 160                       | 450   | 900   | 2100   | N  |                   |
| 满载效率 Full load efficiency  | 94                        |       |       |        | %  | 1                 |
|                            | 92                        |       |       |        |    | 2                 |
|                            | 88                        |       |       |        |    | 3                 |
| 重量 Weight                  | 0.51                      | 1.7   | 4.4   | 12.0   | Kg | 1                 |
|                            | 0.61                      | 1.9   | 5.0   | 14.0   |    | 2                 |
|                            | 0.71                      | 2.1   | 5.5   | 16.0   |    | 3                 |
| 工作温度 Operating temperature | -25℃～+90℃                 |       |       |        | ℃  |                   |
| 保护等级 IP                    | IP54                      |       |       |        |    |                   |
| 润滑方式 Lubrication type      | 终身润滑 Lifetime lubrication |       |       |        |    |                   |
| 安装方式 Mounting type         | 任意 Any                    |       |       |        |    |                   |

最大径向力与最大轴向力,输出100RPM时,作用于输出轴中心位置(L/2)处。  
The max radial and axial torque work in the location of the center of output shaft when the out speed is 100RPM.

WPL系列精密行星减速机  
WPL SERIES PRECISION PLANETARY GEAR MOTOR



■技术资料 TECHNICAL DATA

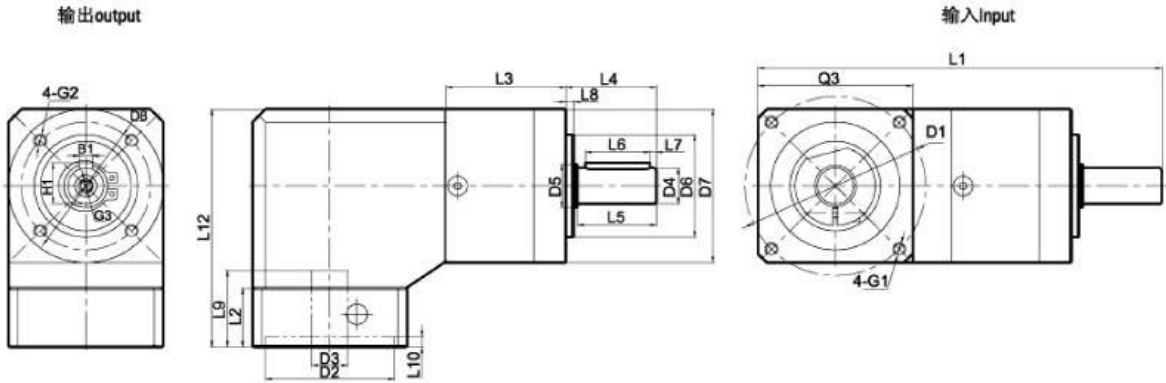
| 产品型号Product type          |                   | WPL40 | WPL60 | WPL80 | WPL120 | 减速比Reduction ratio |
|---------------------------|-------------------|-------|-------|-------|--------|--------------------|
| 转动惯量<br>Moment of inertia | Kgcm <sup>2</sup> | 0.044 | 0.246 | 1.189 | 5.75   | 3                  |
|                           |                   | 0.035 | 0.204 | 0.939 | 3.91   | 4                  |
|                           |                   | 0.032 | 0.189 | 0.869 | 3.35   | 5                  |
|                           |                   | 0.030 | 0.176 | 0.809 | 2.89   | 8                  |
|                           |                   | 0.026 | 0.152 | 0.730 | 2.54   | 10                 |
|                           |                   | 0.043 | 0.242 | 1.159 | 5.73   | 9                  |
|                           |                   | 0.042 | 0.238 | 1.139 | 5.60   | 12                 |
|                           |                   | 0.036 | 0.188 | 1.129 | 5.53   | 15                 |
|                           |                   | 0.035 | 0.199 | 0.919 | 3.83   | 16                 |
|                           |                   | 0.032 | 0.186 | 0.859 | 3.28   | 20                 |
|                           |                   | 0.032 | 0.186 | 0.859 | 3.26   | 25                 |
|                           |                   | 0.030 | 0.175 | 0.809 | 2.84   | 32                 |
|                           |                   | 0.029 | 0.175 | 0.809 | 2.84   | 40                 |
|                           |                   | 0.029 | 0.175 | 0.809 | 2.84   | 64                 |
|                           |                   | 0.042 | 0.187 | 0.929 | 5.62   | 60                 |
|                           |                   | 0.032 | 0.186 | 0.919 | 3.28   | 80                 |
|                           |                   | 0.032 | 0.186 | 0.859 | 3.26   | 100                |
|                           |                   | 0.042 | 0.175 | 1.119 | 5.47   | 120                |
|                           |                   | 0.029 | 0.175 | 0.809 | 2.84   | 160                |
|                           |                   | 0.029 | 0.175 | 0.809 | 2.84   | 200                |
|                           |                   | 0.029 | 0.175 | 0.809 | 2.84   | 256                |
|                           |                   | 0.029 | 0.175 | 0.809 | 2.84   | 320                |
|                           |                   | 0.029 | 0.175 | 0.809 | 2.84   | 512                |

| 产品型号Product type             | 单位Dimensions      | WPL40 | WPL60 | WPL80 | WPL120 | 级数Number of stage |
|------------------------------|-------------------|-------|-------|-------|--------|-------------------|
| 回程间隙Backlash                 | 弧分arcmin          | < 40  | < 30  | < 25  | < 15   | 1                 |
|                              |                   | < 45  | < 35  | < 30  | < 20   | 2                 |
|                              |                   | < 50  | < 40  | < 35  | < 25   | 3                 |
| 抗扭刚性 Torsional stiffness     | N.M/arcmin        | 0.7   | 1.5   | 4.5   | 10     | 1                 |
|                              |                   | 1.1   | 2.5   | 6.5   | 13     | 2                 |
|                              |                   | 1.0   | 2.5   | 6.3   | 12     | 3                 |
| 噪声 Noise                     | dB(A)             | 65    | 65    | 68    | 70     |                   |
| 最高输出转速 Max output speed      | min <sup>-1</sup> | 18000 | 13000 | 7000  | 6500   |                   |
| 推荐输入转速 Recommend input speed | min <sup>-1</sup> | 4500  | 3000  | 3000  | 3000   |                   |

1. 转动惯量与输入轴有关。 2. 噪声检测标准, 距离1m, 在输入转速3000转/分空载时测得。  
1. The moment of inertia is related with input shaft. 2. Noise test standard pressure level, distance 1m, measured on idle running with an input speed of 3000rpm.

WPLE精密行星减速机  
WPLE SERIES PRECISION PLANETARY GEAR MOTOR

机械参数 DIMENSIONS



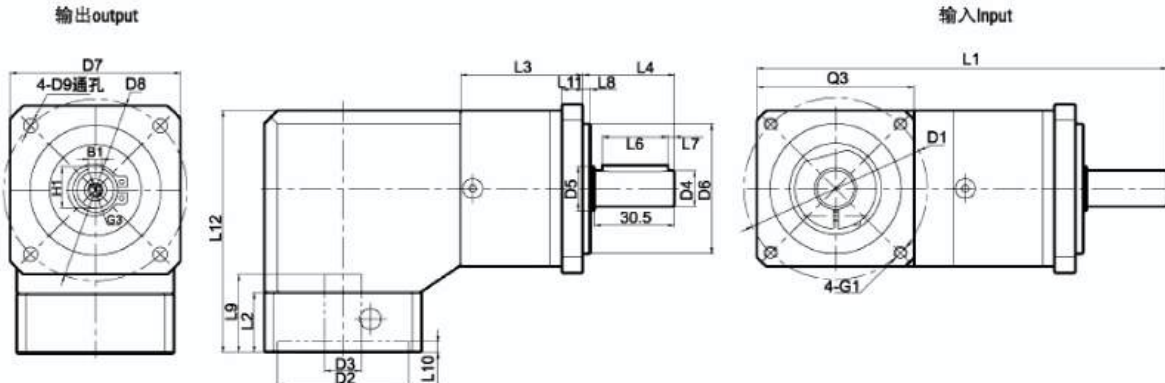
■单位Unit: mm

| 产品型号Product type                                | WPLE40 |       |       | WPLE60 |       |     | WPLE80 |     |       | WPLE120 |       |     |
|-------------------------------------------------|--------|-------|-------|--------|-------|-----|--------|-----|-------|---------|-------|-----|
| 级数 Number of stage                              | 1      | 2     | 3     | 1      | 2     | 3   | 1      | 2   | 3     | 1       | 2     | 3   |
| L1箱体总长 L1 overall length                        | 119.5  | 132.5 | 144.5 | 156.5  | 169.5 | 182 | 194    | 212 | 229.5 | 258.7   | 286.5 | 314 |
| L3箱体长度 L3 body length                           | 38.5   | 51.5  | 63.5  | 46.5   | 59.5  | 72  | 60     | 78  | 95.5  | 73.7    | 101.5 | 129 |
| L12总高 L12 overall height                        | 68     |       |       | 93     |       |     | 109.5  |     |       | 145.5   |       |     |
| 输出端 Output                                      |        |       |       |        |       |     |        |     |       |         |       |     |
| L4出轴长度 L4 output shaft length                   | 26     |       |       | 35     |       |     | 40     |     |       | 55      |       |     |
| L5出轴长至轴肩 L5 output length to the shaft shoulder | 24     |       |       | 30.5   |       |     | 36     |     |       | 50      |       |     |
| L6键长度 L6 key length                             | 16     |       |       | 25     |       |     | 28     |     |       | 40      |       |     |
| L7键至轴末端长 L7 key length to the shaft end         | 2.5    |       |       | 2.5    |       |     | 4      |     |       | 5       |       |     |
| L8定位凸台长度 L8 spigot length                       | 2      |       |       | 3      |       |     | 3      |     |       | 4       |       |     |
| D4出轴直径 D4 output shaft diameter                 | ø10 h7 |       |       | ø14h7  |       |     | ø20h7  |     |       | ø25h7   |       |     |
| D5轴肩直径 D5 shaft shoulder diameter               | ø12    |       |       | ø17    |       |     | ø25    |     |       | ø35     |       |     |
| D6定位凸台直径 D6 spigot diameter                     | ø26    |       |       | ø40    |       |     | ø60    |     |       | ø80     |       |     |
| D7齿轮箱端面 gear box section                        | ø40    |       |       | ø60    |       |     | ø80    |     |       | ø115    |       |     |
| D8安装孔分布圆 D8 mounting hole distribution circle   | ø34    |       |       | ø52    |       |     | ø70    |     |       | ø100    |       |     |
| B1键宽 B1 key width                               | 3      |       |       | 5      |       |     | 6      |     |       | 8       |       |     |
| H1键高 H1 key height                              | 11.2   |       |       | 16     |       |     | 22.5   |     |       | 28      |       |     |
| G2安装螺纹孔x深度 G2 mounting screw hole x depth       | M4x6   |       |       | M5x8   |       |     | M6x10  |     |       | M10x16  |       |     |
| G3中心螺纹孔 G3 center screw hole                    | M3x9   |       |       | M5x12  |       |     | M6x16  |     |       | M10x22  |       |     |
| 输入端 Input                                       |        |       |       |        |       |     |        |     |       |         |       |     |
| L2输入法兰长度 L2 input flange length                 | 19     |       |       | 23     |       |     | 26.5   |     |       | 27      |       |     |
| L9电机轴长度 L9 motor shaft length                   | 25     |       |       | 30     |       |     | 35     |     |       | 45      |       |     |
| L10定位凸台深度 L10 spigot depth                      | 3      |       |       | 2.5    |       |     | 3.5    |     |       | 3.5     |       |     |
| D1安装孔分布圆 D1 hole circle                         | ø46    |       |       | ø70    |       |     | ø100   |     |       | ø115    |       |     |
| D2定位凸台直径 D2 spigot diameter                     | ø30 H7 |       |       | ø50H7  |       |     | ø80 H7 |     |       | ø95 H7  |       |     |
| D3输入轴轴径 D3 input shaft diameter                 | ø8 H7  |       |       | ø14 H7 |       |     | ø16 H7 |     |       | ø19 H7  |       |     |
| G1安装螺纹孔 G1 mounting screw hole                  | M4x10  |       |       | M5x12  |       |     | M6x15  |     |       | M8x20   |       |     |
| Q3输入法兰 Q3 input flange                          | □40    |       |       | □60    |       |     | □90    |     |       | □115    |       |     |

※输入端尺寸可根据电机尺寸制作。  
※Input size made according to motor size.

WPLF精密行星减速机  
WPLF SERIES PRECISION PLANETARY GEAR MOTOR

机械参数 DIMENSIONS



■单位Unit: mm

| 产品型号Product type                                | WPLF40 |       |       | WPLF60 |       |     | WPLF80 |     |       | WPLF120 |       |     |
|-------------------------------------------------|--------|-------|-------|--------|-------|-----|--------|-----|-------|---------|-------|-----|
| 级数 Number of stage                              | 1      | 2     | 3     | 1      | 2     | 3   | 1      | 2   | 3     | 1       | 2     | 3   |
| L1箱体总长 L1 overall length                        | 119.5  | 132.5 | 144.5 | 156.5  | 169.5 | 182 | 194    | 212 | 229.5 | 258.7   | 286.5 | 314 |
| L3箱体长度 L3 body length                           | 38.5   | 51.5  | 63.5  | 46.5   | 59.5  | 72  | 60     | 78  | 95.5  | 73.7    | 101.5 | 129 |
| L12总高 L12 overall height                        | 68     |       |       | 93     |       |     | 109.5  |     |       | 145.5   |       |     |
| 输出端 Output                                      |        |       |       |        |       |     |        |     |       |         |       |     |
| L4出轴长度 L4 output shaft length                   | 26     |       |       | 35     |       |     | 40     |     |       | 55      |       |     |
| L5出轴长至轴肩 L5 output length to the shaft shoulder | 24     |       |       | 30.5   |       |     | 36     |     |       | 50      |       |     |
| L6键长度 L6 key length                             | 16     |       |       | 25     |       |     | 28     |     |       | 40      |       |     |
| L7键至轴末端长 L7 key length to the shaft end         | 2.5    |       |       | 2.5    |       |     | 4      |     |       | 5       |       |     |
| L8定位凸台长度 L8 spigot length                       | 2      |       |       | 3      |       |     | 3      |     |       | 4       |       |     |
| L11法兰厚度 L11 flange thickness                    | 6      |       |       | 8      |       |     | 10     |     |       | 15      |       |     |
| D4出轴直径 D4 output shaft diameter                 | ø10 h7 |       |       | ø14h7  |       |     | ø20h7  |     |       | ø25h7   |       |     |
| D5轴肩直径 D5 shaft shoulder diameter               | ø12    |       |       | ø17    |       |     | ø25    |     |       | ø35     |       |     |
| D6定位凸台直径 D6 spigot diameter                     | ø26    |       |       | ø50    |       |     | ø80    |     |       | ø110    |       |     |
| D7齿轮箱端面 gear box section                        | □45    |       |       | □60    |       |     | □90    |     |       | ø120    |       |     |
| D8安装孔分布圆 D8 mounting hole distribution circle   | ø50    |       |       | ø70    |       |     | ø100   |     |       | ø130    |       |     |
| D9法兰安装孔 D9 flange mounting hole                 | ø3.5   |       |       | ø5.5   |       |     | ø6.5   |     |       | ø8.5    |       |     |
| B1键宽 B1 key width                               | 3      |       |       | 5      |       |     | 6      |     |       | 8       |       |     |
| H1键高 H1 key height                              | 11.2   |       |       | 16     |       |     | 22.5   |     |       | 28      |       |     |
| G3中心螺纹孔 G3 center screw hole                    | M3x9   |       |       | M5x12  |       |     | M6x16  |     |       | M10x22  |       |     |
| 输入端 Input                                       |        |       |       |        |       |     |        |     |       |         |       |     |
| L2输入法兰长度 L2 input flange length                 | 19     |       |       | 23     |       |     | 26.5   |     |       | 27      |       |     |
| L9电机轴长度 L9 motor shaft length                   | 25     |       |       | 30     |       |     | 35     |     |       | 45      |       |     |
| L10定位凸台深度 L10 spigot depth                      | 3      |       |       | 2.5    |       |     | 3.5    |     |       | 3.5     |       |     |
| D1安装孔分布圆 D1 hole circle                         | ø46    |       |       | ø70    |       |     | ø100   |     |       | ø115    |       |     |
| D2定位凸台直径 D2 spigot diameter                     | ø30 H7 |       |       | ø50 H7 |       |     | ø80 H7 |     |       | ø95 H7  |       |     |
| D3输入轴轴径 D3 input shaft diameter                 | ø8 H7  |       |       | ø14 H7 |       |     | ø16 H7 |     |       | ø19 H7  |       |     |
| G1安装螺纹孔x深度 G1 mounting screw hole x depth       | M4x10  |       |       | M5x12  |       |     | M6x15  |     |       | M8x20   |       |     |
| Q3输入法兰 Q3 input flange                          | □40    |       |       | □60    |       |     | □90    |     |       | □115    |       |     |

※输入端尺寸可根据电机尺寸制作。  
※Input size made according to motor size.

## VR系列减速机机种、机型标识说明 TYPE AND MODEL NUMBER

### 剖视图 SECTIONAL DRAWING



- ① 输出轴 Output shaft  
② 油封 Seal for the output shaft  
③ 输出轴前轴承 Bearing for the output shaft  
④ 行星轮 Planetary gear  
⑤ 太阳轮 Sunwheel  
⑥ 前盖 Front cover  
⑦ 输出轴后轴承 Bearing for the output shaft  
⑧ 油封 Seal for the input shaft  
⑨ 输入轴轴承 Bearing for the input shaft  
⑩ 精密装夹系统 Precision clamping system  
⑪ 后盖 rear cover

### 机种、机型标识说明 Type and model number

| VR减速机 VR Reducers |   |   |   |             |      | 伺服电机 Servo Motor |       |   |             |   |             |
|-------------------|---|---|---|-------------|------|------------------|-------|---|-------------|---|-------------|
| VR                | S | F | - | <div></div> | - 20 | D                | - 750 | - | <div></div> | - | <div></div> |
| ①                 | ② | ③ |   | ④           | ⑤    | ⑥                | ⑦     |   | ⑧           |   | ⑨           |

① VR系列减速机的称呼 VR Reducer Model

② 输入部型式:

S: 夹具紧固方式(不论马达轴有键槽还是无键槽(请参照P.46)均可使用<D形轴不适用>)※<sup>1</sup>

也可采用以下安装方式:

K: 偶合(直轴、带键槽)※<sup>2</sup>。

A: 适配器方式(欲知详情请与本公司联系)。

※<sup>1</sup> 只有K型可与D形轴连接。

※<sup>2</sup> 采用特别订购方式。欲知详情请与本公司联系。

Input part type:

S: clamp fastening mode (Use ful whatever motor shaft with keyway or without keyway (See 46 page.) / (<D cut unavailable>))※<sup>1</sup>

Can adopt following assembly way:

K: Coupling(straight shaft, key slot)※<sup>2</sup>

A: Adaptor model(For details, contact us.)

※<sup>1</sup> D cut is only compatible with K type.

※<sup>2</sup> Response only to a special order. For more details, contact us.

③ 安装方式和输出轴方向 F: 法兰型(安装方向自由) D: 带D法兰型(安装方向自由)

Assembly mode and output shaft direction / F: flange type, free assembly direction D: D flange type, free assembly direction

④ 减速机规格: 无标记: 标准 PB: 高精度型 LB: 精密型

Reducer spec. / no symbol: Standard PB: High precision type LB: Low-backlash type

#### 精度 Amount of backlash

| 减速机段位号<br>Reducer type no. | VR-□(标准型)<br>Standard type | VR-LB(精密型)<br>Low-backlash type | VR-PB(高精度型)<br>High precision type |
|----------------------------|----------------------------|---------------------------------|------------------------------------|
| B段Type                     | 0.25°(15分arc-min)          | 0.166°(10分arc-min)              | 0.05°(3分arc-min)                   |
| C段Type                     | 0.25°(15分arc-min)          | 0.08°(5分arc-min)                | 0.05°(3分arc-min)                   |
| D段Type                     | 0.25°(15分arc-min)          | 0.08°(5分arc-min)                | 0.05°(3分arc-min)                   |
| E段Type                     | 0.25°(15分arc-min)          | 0.08°(5分arc-min)                | 0.05°(3分arc-min)                   |

※输出轴负荷量为容许输出扭矩的±5%时的值。

⑤ 减速比: 单级型: 3, 4, 5, 6, 7, 8, 9, 10 两级型: 15, 20, 25, 35, 45, 81

Reduction ratio / 1 stage types 3, 4, 5, 6, 7, 8, 9, 10 2 stage types 15, 20, 25, 35, 45, 81

⑥ 减速机段位号 Reducer type no.

⑦ 适用伺服马达功率(W) Applicable servo motor power(W)

⑧ 生产厂家名称 Manufacturer name

⑨ 型号(请务必告知我们马达的生产厂家和产品型号)

Type (Inform us manufacturer name and motor type.)

## 减速比、段位号

## REDUCTION RATIO & TYPE NUMBER

■ 输入转速为3000rpm时 When input speed is 3000rpm

| 容量Motor power(W) | 减速比Reduction ratio | B段type                |     |     | C段type                |      |      | D段type |      |      | E段type |  |  |
|------------------|--------------------|-----------------------|-----|-----|-----------------------|------|------|--------|------|------|--------|--|--|
|                  |                    | 单级减速 1 step reduction |     |     | 两级减速 2 step reduction |      |      |        |      |      |        |  |  |
|                  |                    | 1/3                   | 1/5 | 1/9 | 1/15                  | 1/20 | 1/25 | 1/35   | 1/45 | 1/81 |        |  |  |
| 50W              |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 100W             |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 200W             |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 400W             |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 750W             |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 1000W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 1500W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 2000W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 2500W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 3000W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 3500W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 4000W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 4500W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 5000W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |

注1) 全部为斜齿轮适用范围 Note 1) All corresponding to helical gear

■ 输入转速为2000rpm时 When input speed is 2000rpm

| 容量Motor power(W) | 减速比Reduction ratio | B段type                |     |     | C段type                |      |      | D段type |      |      | E段type |  |  |
|------------------|--------------------|-----------------------|-----|-----|-----------------------|------|------|--------|------|------|--------|--|--|
|                  |                    | 单级减速 1 step reduction |     |     | 两级减速 2 step reduction |      |      |        |      |      |        |  |  |
|                  |                    | 1/3                   | 1/5 | 1/9 | 1/15                  | 1/20 | 1/25 | 1/35   | 1/45 | 1/81 |        |  |  |
| 50W              |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 100W             |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 200W             |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 400W             |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 750W             |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 1000W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 1500W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 2000W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 2500W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 3000W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |
| 3500W            |                    |                       |     |     |                       |      |      |        |      |      |        |  |  |

注1) 全部为斜齿轮适用范围

Note 1) All corresponding to helical gear

※以下有限扭矩机种

B段: 1/5减速(100W)

C段: 1/81减速(50W)

D段: 1/3减速(1500W)、1/45减速(200W)、

1/81减速(100W)

E段: 1/3减速(3500W)、1/25减速(750W)

※Torque is limited to the following types:

B type: 1/5 reduction (100W)

C type: 1/81 reduction (50W)

D type: 1/3 reduction (1500W), 1/45 reduction (200W),

1/81 reduction (100W)

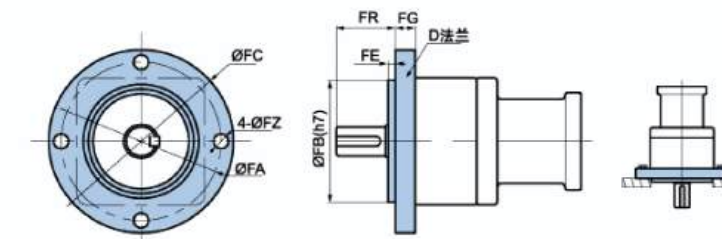
E type: 1/3 reduction (3500W), 1/25 reduction (250W)

### 关于润滑油About lubricant

● 润滑: 润滑油 ● 更换: 不可

● Lubrication: grease ● Replacement: Not available

### 带D法兰型的尺寸图 Dimensional drawing of D flange type



| 段号Type no. | FG | FR   | FE | FB | FC  | FA  | FZ  |
|------------|----|------|----|----|-----|-----|-----|
| B          | 8  | 24   | 3  | 50 | 75  | 65  | 6   |
| C          | 12 | 33.5 | 3  | 72 | 110 | 95  | 7   |
| D          | 13 | 48   | 5  | 90 | 134 | 115 | 8.8 |

单位Unit: mm

※向上图那样的安装, 请指定带D法兰(另卖)。另外, D法兰也可另外安装。

※In case of assembly as mentioned in the above figure, designate D flange(separate selling). Also, the D flange may be assembly separately.

### 输出轴端面丝锥孔加工(可选)Processing of output shaft tab (option)

B段: M5X10 C段: M6X12 (或M8X16) D段: M8X16 (或M6X12) E段: M10X20

B type: M5X10 C type: M6X12(or M8X16) D type: M8X16(or M6X12) E type: M10X20

性能表 (输入转速为3,000rpm时)  
PERFORMANCE TABLE (WHEN INPUT SPEED IS 3000RPM)



■性能表 Performance Table

| 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed | 额定输出<br>扭矩<br>Standard<br>output torque | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque | 容许径向<br>负荷<br>Permissible<br>radial load | 容许轴向<br>负荷<br>Permissible<br>axial load | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia of<br>input shaft conversion | 容许输出<br>扭矩<br>Permissible<br>output torque | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque |
|---------------------------|-------------|---------------------------|-----------------|---------------|------------------------------------|-----------------------------------------|-----------------------------------------------------|------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------|
|                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 段位号<br>Type no. | 马达功率<br>Motor |                                    |                                         |                                                     |                                          |                                         |                                                                            |                                            |                                                                   |
| 1/3                       | VR□F        | -3                        | B               | -50           | 1000                               | 0.255                                   | 0.784                                               | 392                                      | 196                                     | 0.0575                                                                     | 3.43                                       | 10.3                                                              |
|                           | VR□F        | -3                        | B               | -100          | 1000                               | 0.715                                   | 2.06                                                | 392                                      | 196                                     | 0.0575                                                                     | 3.43                                       | 10.3                                                              |
|                           | VR□F        | -3                        | B               | -200          | 1000                               | 1.47                                    | 4.51                                                | 392                                      | 196                                     | 0.135                                                                      | 3.43                                       | 10.3                                                              |
|                           | VR□F        | -3                        | B               | -400          | 1000                               | 3.43                                    | 10.3                                                | 392                                      | 196                                     | 0.145                                                                      | 3.43                                       | 10.3                                                              |
|                           | VR□F        | -3                        | C               | -750          | 1000                               | 6.37                                    | 19.3                                                | 784                                      | 392                                     | 0.913                                                                      | 6.86                                       | 20.6                                                              |
|                           | VR□F        | -3                        | D               | -1000         | 1000                               | 7.55                                    | 22.8                                                | 882                                      | 441                                     | 2.43                                                                       | 18.3                                       | 54.9                                                              |
|                           | VR□F        | -3                        | D               | -1500         | 1000                               | 12.3                                    | 37.1                                                | 882                                      | 441                                     | 2.43                                                                       | 18.3                                       | 54.9                                                              |
|                           | VR□F        | -3                        | D               | -2000         | 1000                               | 17.2                                    | 51.5                                                | 882                                      | 441                                     | 2.43                                                                       | 18.3                                       | 54.9                                                              |
|                           | VR□F        | -3                        | E               | -2500         | 1000                               | 19.0                                    | 57.2                                                | 1370                                     | 686                                     | 5.55                                                                       | 44.1                                       | 132                                                               |
|                           | VR□F        | -3                        | E               | -3000         | 1000                               | 23.7                                    | 71.2                                                | 1370                                     | 686                                     | 5.50                                                                       | 44.1                                       | 132                                                               |
|                           | VR□F        | -3                        | E               | -3500         | 1000                               | 28.3                                    | 85.2                                                | 1370                                     | 686                                     | 5.50                                                                       | 44.1                                       | 132                                                               |
|                           | VR□F        | -3                        | E               | -4000         | 1000                               | 33.1                                    | 99.0                                                | 1370                                     | 686                                     | 5.78                                                                       | 44.1                                       | 132                                                               |
|                           | VR□F        | -3                        | E               | -4500         | 1000                               | 37.7                                    | 113                                                 | 1370                                     | 686                                     | 5.78                                                                       | 44.1                                       | 132                                                               |
|                           | VR□F        | -3                        | E               | -5000         | 1000                               | 42.9                                    | 128                                                 | 1370                                     | 686                                     | 5.78                                                                       | 44.1                                       | 132                                                               |
|                           | VR□F        | -3                        | E               | -5000         | 1000                               | 42.9                                    | 128                                                 | 1370                                     | 686                                     | 5.78                                                                       | 44.1                                       | 132                                                               |
| 1/5                       | VR□F        | -5                        | B               | -50           | 600                                | 0.510                                   | 1.47                                                | 490                                      | 245                                     | 0.0400                                                                     | 1.57                                       | 4.70                                                              |
|                           | VR□F        | -5                        | B               | -100          | 600                                | 1.18                                    | 3.72                                                | 490                                      | 245                                     | 0.0400                                                                     | 1.57                                       | 4.70                                                              |
|                           | VR□F        | -5                        | B               | -200          | 600                                | 2.65                                    | 8.04                                                | 490                                      | 245                                     | 0.118                                                                      | 2.84                                       | 8.53                                                              |
|                           | VR□F        | -5                        | C               | -400          | 600                                | 5.39                                    | 16.2                                                | 980                                      | 490                                     | 0.363                                                                      | 6.57                                       | 19.7                                                              |
|                           | VR□F        | -5                        | C               | -750          | 600                                | 10.7                                    | 32.1                                                | 980                                      | 490                                     | 0.713                                                                      | 11.5                                       | 34.3                                                              |
|                           | VR□F        | -5                        | D               | -1000         | 600                                | 13.4                                    | 40.5                                                | 1080                                     | 539                                     | 1.85                                                                       | 23.5                                       | 70.6                                                              |
|                           | VR□F        | -5                        | D               | -1500         | 600                                | 21.5                                    | 64.4                                                | 1080                                     | 539                                     | 1.85                                                                       | 23.5                                       | 70.6                                                              |
|                           | VR□F        | -5                        | E               | -2000         | 600                                | 23.8                                    | 71.5                                                | 1670                                     | 833                                     | 3.50                                                                       | 56.8                                       | 171                                                               |
|                           | VR□F        | -5                        | E               | -2500         | 600                                | 31.8                                    | 95.5                                                | 1670                                     | 833                                     | 3.50                                                                       | 56.8                                       | 171                                                               |
|                           | VR□F        | -5                        | E               | -3000         | 600                                | 39.6                                    | 119                                                 | 1670                                     | 833                                     | 3.48                                                                       | 56.8                                       | 171                                                               |
|                           | VR□F        | -5                        | E               | -3500         | 600                                | 47.2                                    | 141                                                 | 1670                                     | 833                                     | 3.48                                                                       | 56.8                                       | 171                                                               |
|                           | VR□F        | -5                        | E               | -4000         | 600                                | 55.3                                    | 166                                                 | 1670                                     | 833                                     | 3.75                                                                       | 56.8                                       | 171                                                               |
|                           | VR□F        | -9                        | B               | -50           | 333                                | 0.921                                   | 2.74                                                | 588                                      | 294                                     | 0.0350                                                                     | 2.35                                       | 7.25                                                              |
|                           | VR□F        | -9                        | B               | -100          | 333                                | 2.25                                    | 6.86                                                | 588                                      | 294                                     | 0.0350                                                                     | 2.35                                       | 7.25                                                              |
|                           | VR□F        | -9                        | C               | -200          | 333                                | 3.72                                    | 11.3                                                | 1180                                     | 588                                     | 0.275                                                                      | 9.70                                       | 29.2                                                              |
|                           | VR□F        | -9                        | C               | -400          | 333                                | 9.51                                    | 28.5                                                | 1180                                     | 588                                     | 0.275                                                                      | 9.70                                       | 29.2                                                              |
| 1/9                       | VR□F        | -9                        | D               | -750          | 333                                | 18.2                                    | 54.7                                                | 1470                                     | 735                                     | 0.650                                                                      | 18.2                                       | 54.7                                                              |
|                           | VR□F        | -9                        | E               | -1000         | 333                                | 20.0                                    | 60.1                                                | 1960                                     | 980                                     | 2.81                                                                       | 73.5                                       | 221                                                               |
|                           | VR□F        | -9                        | E               | -1500         | 333                                | 34.3                                    | 103                                                 | 1960                                     | 980                                     | 2.81                                                                       | 73.5                                       | 221                                                               |
|                           | VR□F        | -9                        | E               | -2000         | 333                                | 48.6                                    | 146                                                 | 1960                                     | 980                                     | 2.81                                                                       | 73.5                                       | 221                                                               |
|                           | VR□F        | -9                        | E               | -2500         | 333                                | 60.8                                    | 182                                                 | 1960                                     | 980                                     | 2.81                                                                       | 73.5                                       | 221                                                               |
|                           | VR□F        | -9                        | E               | -3000         | 333                                | 73.0                                    | 219                                                 | 1960                                     | 980                                     | 2.77                                                                       | 73.5                                       | 221                                                               |
|                           | VR□F        | -9                        | E               | -3000         | 333                                | 73.0                                    | 219                                                 | 1960                                     | 980                                     | 2.77                                                                       | 73.5                                       | 221                                                               |
|                           | VR□F        | -9                        | E               | -3000         | 333                                | 73.0                                    | 219                                                 | 1960                                     | 980                                     | 2.77                                                                       | 73.5                                       | 221                                                               |

注1) 输入轴换算惯性力矩仅为减速机数值, 不包括马达的惯性力矩。  
注2) 最高输入转速为5000rpm. 正常情况下请将转速控制在3000rpm以下。  
注3) 容许径向负荷为输出轴中央部的数值。  
注4) 全部为斜齿轮适用范围。

Note 1) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.  
Note 2) The max. input speed is 5000rpm. Usually set to 3000rpm or less.  
Note 3) The permissible radial load is indicated on the center of the output shaft.  
Note 4) All values are within the range corresponding to helical gear.

性能表 (输入转速为3,000rpm时)  
PERFORMANCE TABLE (WHEN INPUT SPEED IS 3000RPM)



■性能表 Performance Table

| 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed | 额定输出<br>扭矩<br>Standard<br>output torque | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque | 容许径向<br>负荷<br>Permissible<br>radial load | 容许轴向<br>负荷<br>Permissible<br>axial load | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia of<br>input shaft conversion | 容许输出<br>扭矩<br>Permissible<br>output torque | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque |
|---------------------------|-------------|---------------------------|-----------------|---------------|------------------------------------|-----------------------------------------|-----------------------------------------------------|------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------|
|                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 段位号<br>Type no. | 马达功率<br>Motor |                                    |                                         |                                                     |                                          |                                         |                                                                            |                                            |                                                                   |
| 1/15                      | VR□F        | -15                       | B               | -50           | 200                                | 1.67                                    | 5.00                                                | 784                                      | 392                                     | 0.0350                                                                     | 4.02                                       | 12.2                                                              |
|                           | VR□F        | -15                       | B               | -100          | 200                                | 3.72                                    | 11.4                                                | 784                                      | 392                                     | 0.0350                                                                     | 4.02                                       | 12.2                                                              |
|                           | VR□F        | -15                       | C               | -200          | 200                                | 6.27                                    | 18.8                                                | 1470                                     | 735                                     | 0.300                                                                      | 16.2                                       | 48.6                                                              |
|                           | VR□F        | -15                       | C               | -400          | 200                                | 15.8                                    | 47.5                                                | 1470                                     | 735                                     | 0.300                                                                      | 16.2                                       | 48.6                                                              |
|                           | VR□F        | -15                       | D               | -750          | 200                                | 30.4                                    | 91.2                                                | 1760                                     | 882                                     | 0.700                                                                      | 30.4                                       | 91.2                                                              |
|                           | VR□F        | -15                       | E               | -1000         | 200                                | 33.3                                    | 100                                                 | 2350                                     | 1180                                    | 1.95                                                                       | 91.4                                       | 274                                                               |
|                           | VR□F        | -15                       | E               | -1500         | 200                                | 57.2                                    | 172                                                 | 2350                                     | 1180                                    | 2.80                                                                       | 91.4                                       | 274                                                               |
|                           | VR□F        | -15                       | E               | -2000         | 200                                | 81.0                                    | 243                                                 | 2350                                     | 1180                                    | 2.80                                                                       | 91.4                                       | 274                                                               |
| 1/20                      | VR□F        | -20                       | B               | -50           | 150                                | 2.21                                    | 6.63                                                | 804                                      | 402                                     | 0.0340                                                                     | 5.00                                       | 15.0                                                              |
|                           | VR□F        | -20                       | B               | -100          | 150                                | 5.00                                    | 15.0                                                | 804                                      | 402                                     | 0.0340                                                                     | 5.00                                       | 15.0                                                              |
|                           | VR□F        | -20                       | C               | -200          | 150                                | 8.69                                    | 26.1                                                | 1570                                     | 785                                     | 0.294                                                                      | 21.1                                       | 63.3                                                              |
|                           | VR□F        | -20                       | C               | -400          | 150                                | 21.1                                    | 63.3                                                | 1570                                     | 785                                     | 0.294                                                                      | 21.1                                       | 63.3                                                              |
|                           | VR□F        | -20                       | D               | -750          | 150                                | 40.6                                    | 122                                                 | 1910                                     | 955                                     | 0.690                                                                      | 40.6                                       | 122                                                               |
| 1/25                      | VR□F        | -25                       | B               | -50           | 120                                | 2.74                                    | 8.33                                                | 882                                      | 441                                     | 0.0325                                                                     | 4.02                                       | 12.2                                                              |
|                           | VR□F        | -25                       | B               | -100          | 120                                | 6.27                                    | 19.0                                                | 882                                      | 441                                     | 0.0325                                                                     | 6.27                                       | 19.0                                                              |
|                           | VR□F        | -25                       | C               | -200          | 120                                | 11.1                                    | 33.3                                                | 1670                                     | 833                                     | 0.288                                                                      | 21.7                                       | 64.9                                                              |
|                           | VR□F        | -25                       | C               | -400          | 120                                | 26.4                                    | 79.2                                                | 1670                                     | 833                                     | 0.288                                                                      | 26.4                                       | 79.2                                                              |
|                           | VR□F        | -25                       | D               | -750          | 120                                | 50.7                                    | 152                                                 | 2060                                     | 1030                                    | 0.680                                                                      | 50.7                                       | 152                                                               |
|                           | VR□F        | -25                       | E               | -1000         | 120                                | 55.7                                    | 167                                                 | 2650                                     | 1320                                    | 1.88                                                                       | 65.4                                       | 196                                                               |
| 1/35                      | VR□F        | -35                       | B               | -50           | 85                                 | 3.84                                    | 11.5                                                | 882                                      | 441                                     | 0.0300                                                                     | 3.84                                       | 11.5                                                              |
|                           | VR□F        | -35                       | C               | -100          | 85                                 | 7.24                                    | 21.7                                                | 1670                                     | 833                                     | 0.0650                                                                     | 13.9                                       | 41.7                                                              |
|                           | VR□F        | -35                       | C               | -200          | 85                                 | 15.5                                    | 46.6                                                | 1670                                     | 833                                     | 0.262                                                                      | 15.5                                       | 46.6                                                              |
|                           | VR□F        | -35                       | D               | -400          | 85                                 | 37.0                                    | 111                                                 | 2060                                     | 1030                                    | 0.269                                                                      | 37.0                                       | 111                                                               |
|                           | VR□F        | -35                       | E               | -750          | 85                                 | 71.0                                    | 213                                                 | 3430                                     | 1715                                    | 0.473                                                                      | 71.0                                       | 213                                                               |
| 1/45                      | VR□F        | -45                       | C               | -50           | 66                                 | 3.86                                    | 11.6                                                | 1670                                     | 833                                     | 0.0285                                                                     | 9.50                                       | 28.6                                                              |
|                           | VR□F        | -45                       | C               | -100          | 66                                 | 9.31                                    | 28.0                                                | 1670                                     | 833                                     | 0.0285                                                                     | 9.50                                       | 28.6                                                              |
|                           | VR□F        | -45                       | D               | -200          | 66                                 | 21.1                                    | 63.5                                                | 2060                                     | 1030                                    | 0.0256                                                                     | 28.3                                       | 85.2                                                              |
|                           | VR□F        | -45                       | E               | -400          | 66                                 | 47.5                                    | 142.5                                               | 3520                                     | 1760                                    | 0.245                                                                      | 57.0                                       | 171                                                               |
| 1/81                      | VR□F        | -45                       | E               | -750          | 66                                 | 91.3                                    | 274                                                 | 3520                                     | 1760                                    | 1.77                                                                       | 91.3                                       | 274                                                               |
|                           | VR□F        | -81                       | C               | -50           | 37                                 | 7.02                                    | 20.8                                                | 1670                                     | 833                                     | 0.0270                                                                     | 9.70                                       | 29.2                                                              |
|                           | VR□F        | -81                       | D               | -100          | 37                                 | 14.0                                    | 42.0                                                | 2060                                     | 1030                                    | 0.0300                                                                     | 17.8                                       | 53.5                                                              |
|                           | VR□F        | -81                       | E               | -200          | 37                                 | 36.1                                    | 108.3                                               | 3530                                     | 1765                                    | 0.240                                                                      | 43.3                                       | 129.9                                                             |

注1) 输入轴换算惯性力矩仅为减速机的数值, 不包括马达的惯性力矩。  
注2) 最高输入转速为5000rpm. 正常情况下请将转速控制在3000rpm以下。  
注3) 容许径向负荷为输出轴中央部的数值。  
注4) 全部为斜齿轮适用范围。

Note 1) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.  
Note 2) The max. input speed is 5000rpm. Usually set to 3000rpm or less.  
Note 3) The permissible radial load is indicated on the center of the output shaft.  
Note 4) All values are within the range corresponding to helical gear.



### 50W DIMENSIONAL DRAWING & PERFORMANCE TABLE

■ 性能表 Performance Table (输入转速为3,000rpm时 When input speed is 3000rpm)

| 额定输入<br>马达功率<br>Rated input<br>motor | 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed | 额定输出<br>扭矩<br>Standard<br>output torque | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque | 容许径向<br>负荷<br>Permissible<br>radial load | 容许轴向<br>负荷<br>Permissible<br>axial load | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia<br>of input shaft conversion | 容许输出<br>扭矩<br>Permissible<br>output torque | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque |
|--------------------------------------|---------------------------|-------------|---------------------------|-----------------|---------------|------------------------------------|-----------------------------------------|-----------------------------------------------------|------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------|
|                                      |                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 段位号<br>Type no. | 马达功率<br>Motor | (rpm)                              | (N·m)                                   | (N·m)                                               | (N)                                      | (N)                                     | (10 <sup>-4</sup> ×kg·m <sup>2</sup> )                                     | (N·m)                                      | (N·m)                                                             |
| 50W                                  | 1/3                       | VRSF        | 3                         | B               | 50            | 1000                               | 0.255                                   | 0.784                                               | 392                                      | 196                                     | 0.0575                                                                     | 3.43                                       | 10.3                                                              |
|                                      | 1/5                       | VRSF        | 5                         | B               | 50            | 600                                | 0.510                                   | 1.47                                                | 490                                      | 245                                     | 0.0400                                                                     | 1.57                                       | 4.70                                                              |
|                                      | 1/9                       | VRSF        | 9                         | B               | 50            | 333                                | 0.921                                   | 2.74                                                | 588                                      | 294                                     | 0.0350                                                                     | 2.35                                       | 7.25                                                              |
|                                      | 1/15                      | VRSF        | 15                        | B               | 50            | 200                                | 1.67                                    | 5.00                                                | 784                                      | 392                                     | 0.0350                                                                     | 4.02                                       | 12.2                                                              |
|                                      | 1/20                      | VRSF        | 20                        | B               | 50            | 150                                | 2.21                                    | 6.63                                                | 804                                      | 402                                     | 0.0340                                                                     | 5.00                                       | 15.0                                                              |
|                                      | 1/25                      | VRSF        | 25                        | B               | 50            | 120                                | 2.74                                    | 8.33                                                | 882                                      | 441                                     | 0.0325                                                                     | 4.02                                       | 12.2                                                              |
|                                      | 1/35                      | VRSF        | 35                        | B               | 50            | 85                                 | 3.84                                    | 11.5                                                | 882                                      | 441                                     | 0.0300                                                                     | 3.84                                       | 11.5                                                              |
|                                      | 1/45                      | VRSF        | 45                        | C               | 50            | 66                                 | 3.86                                    | 11.6                                                | 1670                                     | 833                                     | 0.0285                                                                     | 9.50                                       | 28.6                                                              |
|                                      | 1/81                      | VRSF        | 81                        | C               | 50            | 37                                 | 7.02                                    | 20.8                                                | 1670                                     | 833                                     | 0.0270                                                                     | 9.70                                       | 29.2                                                              |

注1) 安装基准机种 (马达适用表记载系列) 以外的马达时, 每次都要与我们联系。(法兰尺寸可能不同)

注2) 输入轴换算惯性力矩仅为减速机数值, 不包括马达的惯性力矩。

注3) 最高输入转速为5000rpm。正常情况下请转速控制在3000rpm以下。

注4) 容许径向负荷表示输出轴中央部位的值。

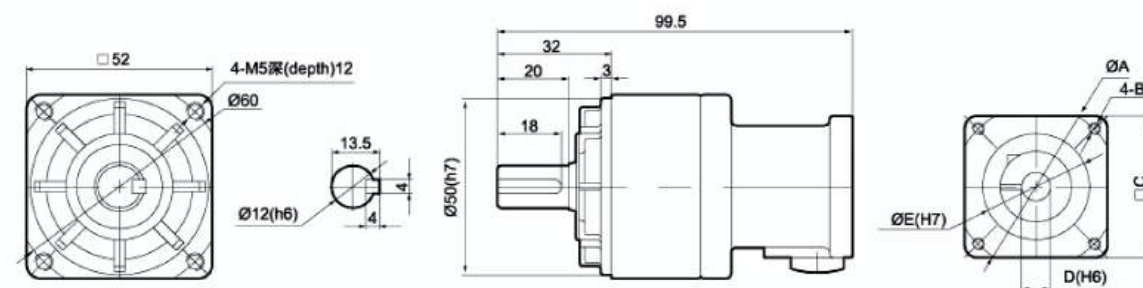
注5) 全部为斜齿轮适用范围。

注6) 马达的安装顺序请参照P.46

注7) 输出轴旋转方向与马达输入旋转方向相同。

Note 1) In case of attachment to a motor beyond the standard models (motor matching series), contact us. (How to measure dimensions of the flange may be changed in some cases.)  
 Note 2) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.  
 Note 3) The max. input speed is 5000rpm, and usually set to 3000rpm or less.  
 Note 4) The permissible radial load is indicated on the center of the output shaft.  
 Note 5) All values are within the range corresponding to helical gear.  
 Note 6) For motor assembly procedure, see 46 page.  
 Note 7) Rotation of the output shaft is in the same direction as motor.

### ■ 尺寸圖 Dimensional Drawing

**VRSF-3B-5B-9B-50**

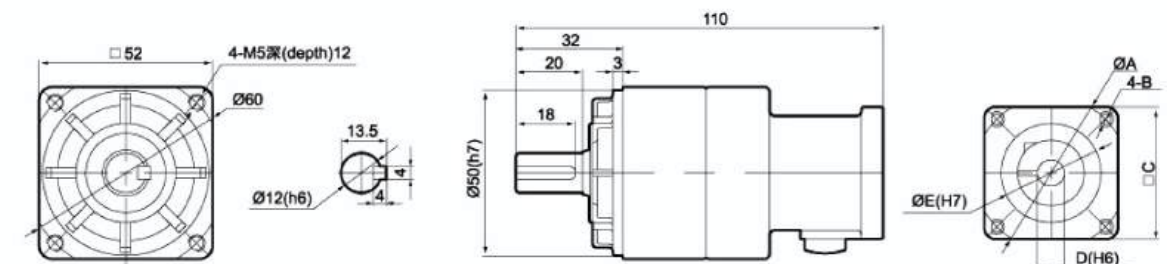
■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位 Unit: mm)

| 马达种类Motor type | A  | B  | C  | D | E  |
|----------------|----|----|----|---|----|
| TYPE 1         | 45 | M3 | 38 | 8 | 30 |
| TYPE 2         | 46 | M4 | 40 | 6 | 30 |
| TYPE 3         | 46 | M4 | 40 | 8 | 30 |

- 概略重量0.55kg
- Rough weight 0.55kg
- TYPE1~3的详细情况请参照P.44
- For details of TYPE1~3, see 44 page.

## 50W DIMENSIONAL DRAWING & PERFORMANCE TABLE

## ■ 尺寸圖 Dimensional Drawing

**VRSF-15B-20B-25B-35B-50**

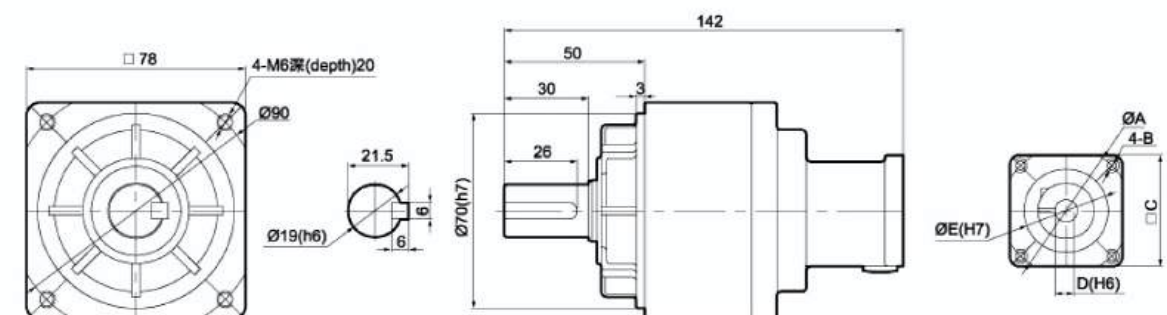
■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位 Unit: mm)

| 马达种类Motor type | A  | B  | C  | D | E  |
|----------------|----|----|----|---|----|
| TYPE 1         | 45 | M3 | 38 | 8 | 30 |
| TYPE 2         | 46 | M4 | 40 | 6 | 30 |
| TYPE 3         | 46 | M4 | 40 | 8 | 30 |

- 概略重量0.7kg
- Rough weight 0.7kg
- TYPE1~3の詳細情况请参照P.44
- For details of TYPE1~3, see 44 page.

### ■ 尺寸圖 Dimensional Drawing

VRSF-45C-81C-50



■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位 Unit: mm)

| 马达种类Motor type | A  | B  | C  | D | E  |
|----------------|----|----|----|---|----|
| TYPE 1         | 45 | M3 | 38 | 8 | 30 |
| TYPE 2         | 46 | M4 | 40 | 6 | 30 |
| TYPE 3         | 46 | M4 | 40 | 8 | 30 |

- 概略重量1.7kg
- Rough weight 1.7kg
- TYPE1~3の詳細情况请参照P.44
- For details of TYPE1~3, see 44 page.

## 100W 尺寸图与性能表

## 100W DIMENSIONAL DRAWING &amp; PERFORMANCE TABLE

■ 性能表 Performance Table (输入转速为3,000rpm时 When input speed is 3000rpm)

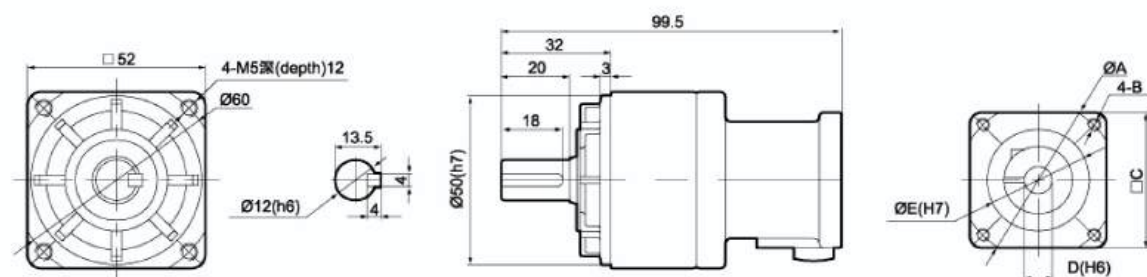
| 额定输入<br>马达功率<br>Rated input<br>motor | 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed | 额定输出<br>扭矩<br>Standard<br>output torque | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque | 容许径向<br>负荷<br>Permissible<br>radial load | 容许轴向<br>负荷<br>Permissible<br>axial load | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia<br>of input shaft conversion | 容许输出<br>扭矩<br>Permissible<br>output torque | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque |
|--------------------------------------|---------------------------|-------------|---------------------------|-----------------|---------------|------------------------------------|-----------------------------------------|-----------------------------------------------------|------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------|
|                                      |                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 段位号<br>Type no. | 马达功率<br>Motor | (rpm)                              | (N·m)                                   | (N·m)                                               | (N)                                      | (N)                                     | (10 <sup>-4</sup> ×kg·m <sup>2</sup> )                                     | (N·m)                                      | (N·m)                                                             |
| 100W                                 | 1/3                       | VRSF        | 3                         | B               | 100           | 1000                               | 0.715                                   | 2.06                                                | 392                                      | 196                                     | 0.0575                                                                     | 3.43                                       | 10.3                                                              |
|                                      | 1/5                       | VRSF        | 5                         | B               | 100           | 600                                | 1.18                                    | 3.72                                                | 490                                      | 245                                     | 0.0400                                                                     | 1.57                                       | 4.70                                                              |
|                                      | 1/9                       | VRSF        | 9                         | B               | 100           | 333                                | 2.25                                    | 6.86                                                | 588                                      | 294                                     | 0.0350                                                                     | 2.35                                       | 7.25                                                              |
|                                      | 1/15                      | VRSF        | 15                        | B               | 100           | 200                                | 3.72                                    | 11.4                                                | 784                                      | 392                                     | 0.0350                                                                     | 4.02                                       | 12.2                                                              |
|                                      | 1/20                      | VRSF        | 20                        | B               | 100           | 150                                | 5.00                                    | 15.0                                                | 804                                      | 402                                     | 0.0340                                                                     | 5.00                                       | 15.0                                                              |
|                                      | 1/25                      | VRSF        | 25                        | B               | 100           | 120                                | 6.27                                    | 19.0                                                | 882                                      | 441                                     | 0.0325                                                                     | 6.27                                       | 19.0                                                              |
|                                      | 1/35                      | VRSF        | 35                        | C               | 100           | 85                                 | 7.24                                    | 21.7                                                | 1670                                     | 833                                     | 0.0650                                                                     | 13.9                                       | 41.7                                                              |
|                                      | 1/45                      | VRSF        | 45                        | C               | 100           | 66                                 | 9.31                                    | 28.0                                                | 1670                                     | 833                                     | 0.0285                                                                     | 9.50                                       | 28.6                                                              |
|                                      | 1/81                      | VRSF        | 81                        | D               | 100           | 37                                 | 14.0                                    | 42.0                                                | 2060                                     | 1030                                    | 0.0300                                                                     | 17.8                                       | 53.5                                                              |

注1) 安装基准机种(马达适用表记载系列)以外的马达时, 每次都要与我们联系。(法兰尺寸可能不同)  
 注2) 输入轴换算惯性力矩仅为减速机的数值, 不包括马达的惯性力矩。  
 注3) 最高输入转速为5000rpm。正常情况下请转速控制在3000rpm以下。  
 注4) 容许径向负荷表示输出轴中央部位的值。  
 注5) 全部为斜齿轮适用范围。  
 注6) 马达的安装顺序请参照P.46  
 注7) 输出轴旋转方向与马达输入旋转方向相同。

Note 1) In case of attachment to a motor beyond the standard models(motor matching series), contact us.(How to measure dimensions of the flange may be changed in some cases.)  
 Note 2) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.  
 Note 3) The max. input speed is 5000rpm, and usually set to 3000rpm or less.  
 Note 4) The permissible radial load is indicated on the center of the output shaft.  
 Note 5) All values are within the range corresponding to helical gear.  
 Note 6) For motor assembly procedure, see 46 page.  
 Note 7) Rotation of the output shaft is in the same direction as motor.

## ■ 尺寸图 Dimensional Drawing

VRSF-3B-5B-9B-100

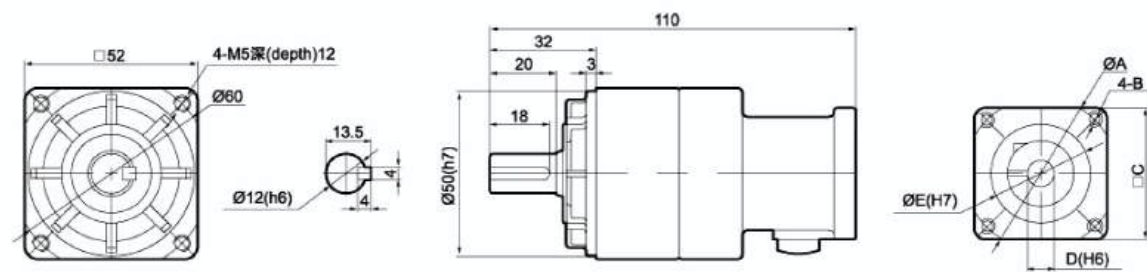


- 概略重量0.55kg
- Rough weight 0.55kg
- TYPE1~3的详细情况请参照P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位Unit: mm)

| 马达种类 Motor type | A  | B  | C  | D | E  |
|-----------------|----|----|----|---|----|
| TYPE 1          | 45 | M3 | 38 | 8 | 30 |
| TYPE 2          | 46 | M4 | 40 | 8 | 30 |
| TYPE 3          | 46 | M4 | 40 | 8 | 30 |

VRSF-15B-20B-25B-100



- 概略重量0.7kg
- Rough weight 0.7kg
- TYPE1~3的详细情况请参照P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位Unit: mm)

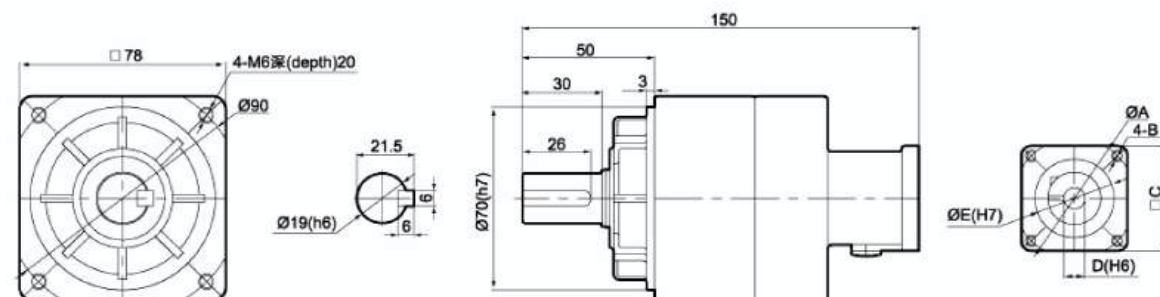
| 马达种类 Motor type | A  | B  | C  | D | E  |
|-----------------|----|----|----|---|----|
| TYPE 1          | 45 | M3 | 38 | 8 | 30 |
| TYPE 2          | 46 | M4 | 40 | 8 | 30 |
| TYPE 3          | 46 | M4 | 40 | 8 | 30 |

## 100W 尺寸图与性能表

## 100W DIMENSIONAL DRAWING &amp; PERFORMANCE TABLE

## ■ 尺寸图 Dimensional Drawing

VRSF-35C-100

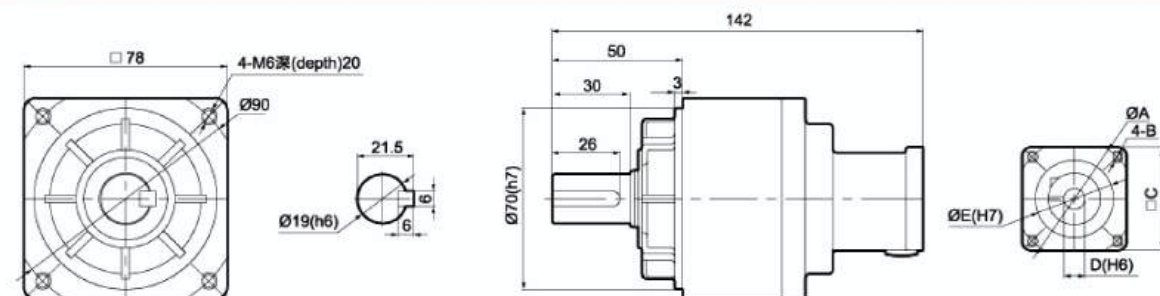


- 概略重量2.0kg
- Rough weight 2.0kg
- TYPE1~3的详细情况请参照P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位Unit: mm)

| 马达种类 Motor type | A  | B  | C  | D | E  |
|-----------------|----|----|----|---|----|
| TYPE 1          | 45 | M3 | 38 | 8 | 30 |
| TYPE 2          | 46 | M4 | 40 | 8 | 30 |
| TYPE 3          | 46 | M4 | 40 | 8 | 30 |

VRSF-45C-100

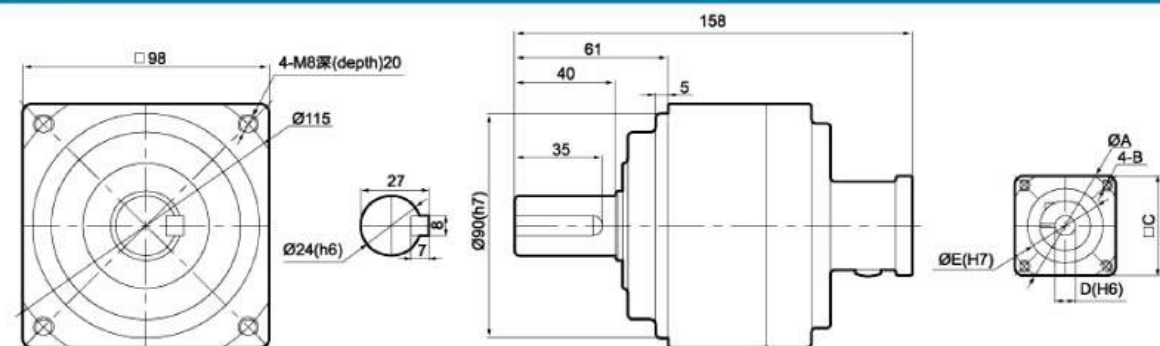


- 概略重量1.7kg
- Rough weight 1.7kg
- TYPE1~3的详细情况请参照P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位Unit: mm)

| 马达种类 Motor type | A  | B  | C  | D | E  |
|-----------------|----|----|----|---|----|
| TYPE 1          | 45 | M3 | 38 | 8 | 30 |
| TYPE 2          | 46 | M4 | 40 | 8 | 30 |
| TYPE 3          | 46 | M4 | 40 | 8 | 30 |

VRSF-81D-100



- 概略重量3.0kg
- Rough weight 3.0kg
- TYPE1~3的详细情况请参照P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位Unit: mm)

| 马达种类 Motor type | A  | B  | C  | D | E  |
|-----------------|----|----|----|---|----|
| TYPE 1          | 45 | M3 | 38 | 8 | 30 |
| TYPE 2          | 46 | M4 | 40 | 8 | 30 |
| TYPE 3          | 46 | M4 | 40 | 8 | 30 |



## 400W 尺寸图与性能表

## 400W DIMENSIONAL DRAWING &amp; PERFORMANCE TABLE

■ 性能表 Performance Table (输入转速为3,000rpm时 When input speed is 3000rpm)

| 额定输入<br>马达功率<br>Rated input<br>motor | 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed | 额定输出<br>扭矩<br>Standard<br>output torque | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque | 容许径向<br>负荷<br>Permissible<br>radial load | 容许轴向<br>负荷<br>Permissible<br>axial load | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia<br>of input shaft conversion | 容许输出<br>扭矩<br>Permissible<br>output torque | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque |
|--------------------------------------|---------------------------|-------------|---------------------------|-----------------|---------------|------------------------------------|-----------------------------------------|-----------------------------------------------------|------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------|
|                                      |                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 段位号<br>Type no. | 马达功率<br>Motor | (rpm)                              | (N·m)                                   | (N·m)                                               | (N)                                      | (N)                                     | (10 <sup>-4</sup> ×kg·m <sup>2</sup> )                                     | (N·m)                                      | (N·m)                                                             |
| 400W                                 | 1/3                       | VRSF        | 3                         | B               | 400           | 1000                               | 3.43                                    | 10.3                                                | 392                                      | 196                                     | 0.145                                                                      | 3.43                                       | 10.3                                                              |
|                                      | 1/5                       | VRSF        | 5                         | C               | 400           | 600                                | 5.39                                    | 16.2                                                | 980                                      | 490                                     | 0.363                                                                      | 6.57                                       | 19.7                                                              |
|                                      | 1/9                       | VRSF        | 9                         | C               | 400           | 333                                | 9.51                                    | 28.5                                                | 1180                                     | 588                                     | 0.275                                                                      | 9.70                                       | 29.2                                                              |
|                                      | 1/15                      | VRSF        | 15                        | C               | 400           | 200                                | 15.8                                    | 47.5                                                | 1470                                     | 735                                     | 0.300                                                                      | 16.2                                       | 48.6                                                              |
|                                      | 1/20                      | VRSF        | 20                        | C               | 400           | 150                                | 21.1                                    | 63.3                                                | 1570                                     | 785                                     | 0.294                                                                      | 21.1                                       | 63.3                                                              |
|                                      | 1/25                      | VRSF        | 25                        | C               | 400           | 120                                | 26.4                                    | 79.2                                                | 1670                                     | 833                                     | 0.288                                                                      | 26.4                                       | 79.2                                                              |
|                                      | 1/35                      | VRSF        | 35                        | D               | 400           | 85                                 | 37.0                                    | 111                                                 | 2060                                     | 1030                                    | 0.269                                                                      | 37.0                                       | 111                                                               |
|                                      | 1/45                      | VRSF        | 45                        | E               | 400           | 66                                 | 47.5                                    | 142.5                                               | 3520                                     | 1760                                    | 0.245                                                                      | 57                                         | 171                                                               |

注1) 安装基准机种(马达适用表记载系列)以外的马达时, 每次都要与我们联系。(法兰尺寸可能不同)

注2) 输入轴换算惯性力矩仅为减速机数值, 不包括马达的惯性力矩。

注3) 最高输入转速为5000rpm。正常情况下请转速控制在3000rpm以下。

注4) 容许径向负荷表示输出轴中央部位的值。

注5) 全部为斜齿轮适用范围。

注6) 马达的安装顺序请参考P.46

注7) 输出轴旋转方向与马达输入旋转方向相同。

Note 1) In case of attachment to a motor beyond the standard models(motor matching series), contact us.(How to measure dimensions of the flange may be changed in some cases.)

Note 2) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.

Note 3) The max. input speed is 5000rpm, and usually set to 3000rpm or less.

Note 4) The permissible radial load is indicated on the center of the output shaft.

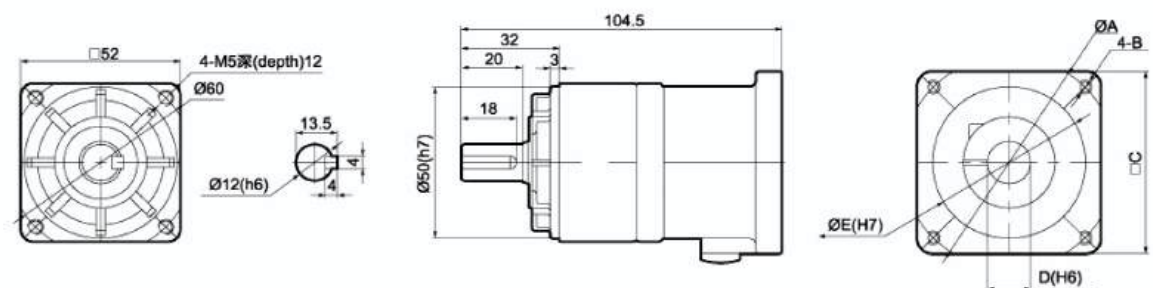
Note 5) All values are within the range corresponding to helical gear.

Note 6) For motor assembly procedure, see 46 page.

Note 7) Rotation of the output shaft is in the same direction as motor.

## ■ 尺寸图 Dimensional Drawing

VRSF-3B-400

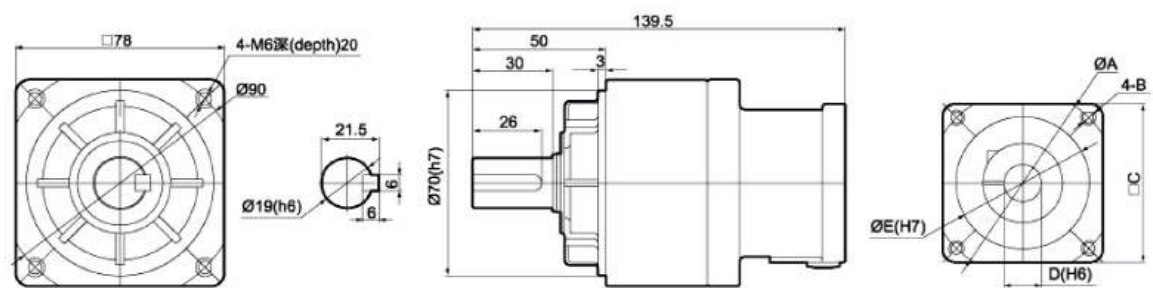


- 概略重量0.71kg
- Rough weight 0.71kg
- TYPE1~3的详细情况请参考P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位Unit: mm)

| 马达种类 Motor type | A  | B  | C  | D  | E  |
|-----------------|----|----|----|----|----|
| TYPE 1          | 70 | M4 | 60 | 14 | 50 |
| TYPE 2          | 70 | M5 | 60 | 14 | 50 |
| TYPE 3          | 70 | M5 | 60 | 14 | 50 |

VRSF-5C-9C-400



- 概略重量1.7kg
- Rough weight 1.7kg
- TYPE1~3的详细情况请参考P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位Unit: mm)

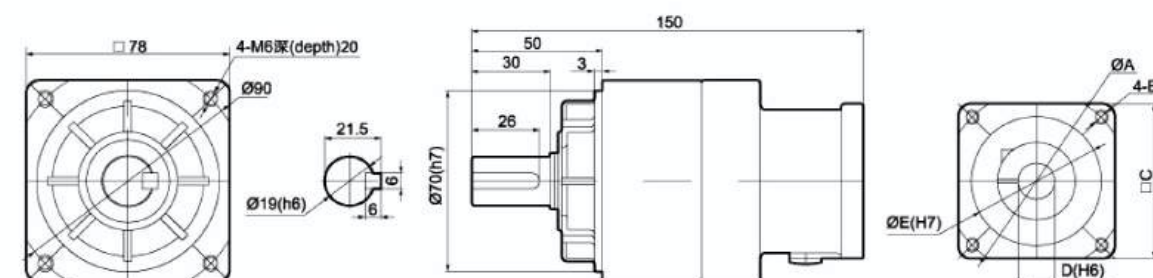
| 马达种类 Motor type | A  | B  | C  | D  | E  |
|-----------------|----|----|----|----|----|
| TYPE 1          | 70 | M4 | 60 | 14 | 50 |
| TYPE 2          | 70 | M5 | 60 | 14 | 50 |
| TYPE 3          | 70 | M5 | 60 | 14 | 50 |

## 400W 尺寸图与性能表

## 400W DIMENSIONAL DRAWING &amp; PERFORMANCE TABLE

## ■ 尺寸图 Dimensional Drawing

VRSF-15C-20C-25C-400

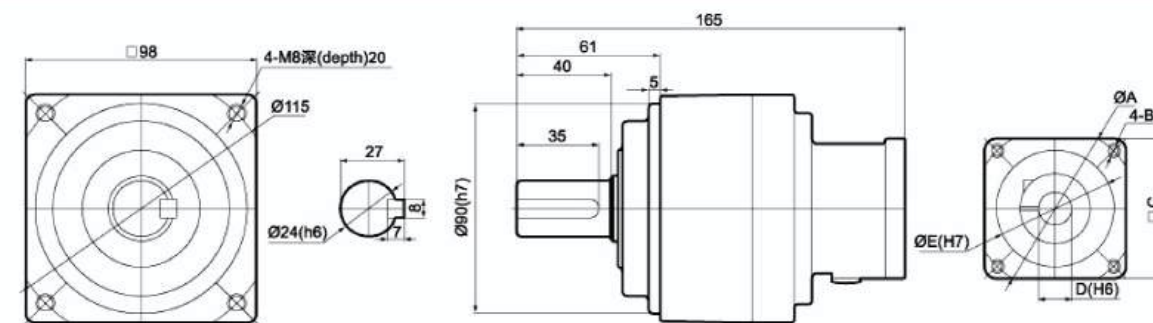


- 概略重量2.1kg
- Rough weight 2.1kg
- TYPE1~3的详细情况请参考P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位Unit: mm)

| 马达种类 Motor type | A  | B  | C  | D  | E  |
|-----------------|----|----|----|----|----|
| TYPE 1          | 70 | M4 | 60 | 14 | 50 |
| TYPE 2          | 70 | M5 | 60 | 14 | 50 |
| TYPE 3          | 70 | M5 | 60 | 14 | 50 |

VRSF-35D-400

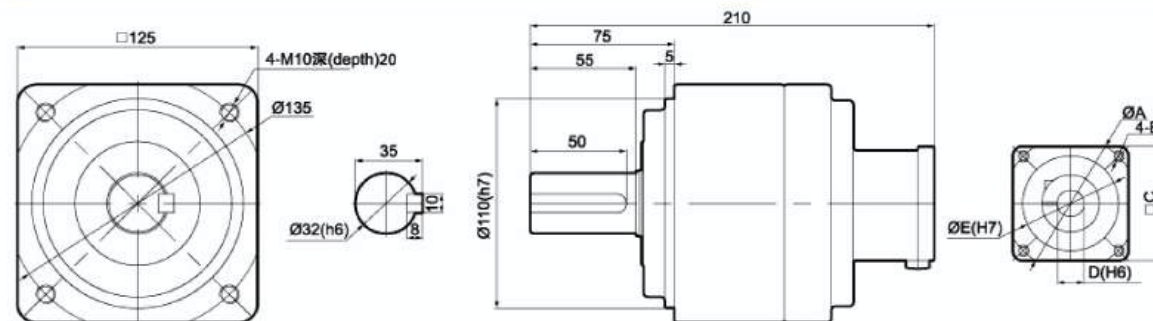


- 概略重量3.2kg
- Rough weight 3.2kg
- TYPE1~3的详细情况请参考P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位Unit: mm)

| 马达种类 Motor type | A  | B  | C  | D  | E  |
|-----------------|----|----|----|----|----|
| TYPE 1          | 70 | M4 | 60 | 14 | 50 |
| TYPE 2          | 70 | M5 | 60 | 14 | 50 |
| TYPE 3          | 70 | M5 | 60 | 14 | 50 |

VRSF-45E-400



- 概略重量7.2kg
- Rough weight 7.2kg
- TYPE1~3的详细情况请参考P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位Unit: mm)

| 马达种类 Motor type | A  | B  | C  | D  | E  |
|-----------------|----|----|----|----|----|
| TYPE 1          | 70 | M4 | 60 | 14 | 50 |
| TYPE 2          | 70 | M5 | 60 | 14 | 50 |
| TYPE 3          | 70 | M5 | 60 | 14 | 50 |

## 750W 尺寸图与性能表

## 750W DIMENSIONAL DRAWING &amp; PERFORMANCE TABLE

■ 性能表 Performance Table (输入转速为3,000rpm时 When input speed is 3000rpm)

| 额定输入<br>马达功率<br>Rated input<br>motor | 减速比<br>Reduction<br>ratio | 机种<br>Model | 减速比<br>Reduction<br>ratio | 型号<br>Type | 马达功率<br>Motor | 输出轴<br>转速<br>Output<br>shaft speed<br>(rpm) | 额定输出<br>扭矩<br>Standard<br>output torque<br>(N·m) | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque<br>(N·m) | 容许径向<br>负荷<br>Permissible<br>radial load<br>(N) | 容许轴向<br>负荷<br>Permissible<br>axial load<br>(N) | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia<br>of input shaft conversion<br>(10 <sup>-4</sup> ×kg·m <sup>2</sup> ) | 容许输出<br>扭矩<br>Permissible<br>output torque<br>(N·m) | 瞬间最大<br>容许输出扭矩<br>Instantaneous max.<br>permissible output torque<br>(N·m) |
|--------------------------------------|---------------------------|-------------|---------------------------|------------|---------------|---------------------------------------------|--------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------|
| 750W                                 | 1/3                       | VRSF        | 3                         | C          | 750           | 1000                                        | 6.37                                             | 19.3                                                         | 784                                             | 392                                            | 0.913                                                                                                                | 6.86                                                | 20.6                                                                       |
|                                      | 1/5                       | VRSF        | 5                         | C          | 750           | 600                                         | 10.7                                             | 32.1                                                         | 980                                             | 490                                            | 0.713                                                                                                                | 11.5                                                | 34.3                                                                       |
|                                      | 1/9                       | VRSF        | 9                         | D          | 750           | 333                                         | 18.2                                             | 54.7                                                         | 1470                                            | 735                                            | 0.650                                                                                                                | 18.2                                                | 54.7                                                                       |
|                                      | 1/15                      | VRSF        | 15                        | D          | 750           | 200                                         | 30.4                                             | 91.2                                                         | 1760                                            | 882                                            | 0.700                                                                                                                | 30.4                                                | 91.2                                                                       |
|                                      | 1/20                      | VRSF        | 20                        | D          | 750           | 150                                         | 40.6                                             | 122                                                          | 1910                                            | 955                                            | 0.690                                                                                                                | 40.6                                                | 122                                                                        |
|                                      | 1/25                      | VRSF        | 25                        | D          | 750           | 120                                         | 50.7                                             | 152                                                          | 2060                                            | 1030                                           | 0.680                                                                                                                | 50.7                                                | 152                                                                        |
|                                      | 1/35                      | VRSF        | 35                        | E          | 750           | 85                                          | 71.0                                             | 213                                                          | 3430                                            | 1715                                           | 0.473                                                                                                                | 71.0                                                | 213                                                                        |
|                                      | 1/45                      | VRSF        | 45                        | E          | 750           | 66                                          | 91.3                                             | 274                                                          | 3520                                            | 1760                                           | 1.77                                                                                                                 | 91.3                                                | 274                                                                        |

注1) 安装基准机种(马达适用表记载系列)以外的马达时, 每次都要与我们联系。(法兰尺寸可能不同)

注2) 输入轴换算惯性力矩仅为减速机的数值, 不包括马达的惯性力矩。

注3) 最高输入转速为5000rpm。正常情况下请转速控制在3000rpm以下。

注4) 容许径向负荷表示输出轴中央部位的。

注5) 全部为斜齿轮适用范围。

注6) 马达的安装顺序请参考P.46

注7) 输出轴旋转方向与马达输入旋转方向相同。

Note 1) In case of attachment to a motor beyond the standard models(motor matching series), contact us.(How to measure dimensions of the flange may be changed in some cases.)

Note 2) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.

Note 3) The max. input speed is 5000rpm, and usually set to 3000rpm or less.

Note 4) The permissible radial load is indicated on the center of the output shaft.

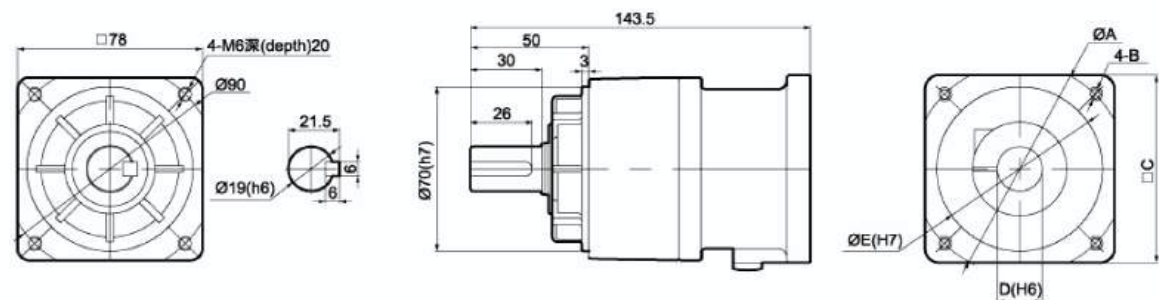
Note 5) All values are within the range corresponding to helical gear.

Note 6) For motor assembly procedure, see 46 page.

Note 7) Rotation of the output shaft is in the same direction as motor.

## ■ 尺寸图 Dimensional Drawing

VRSF-3C-5C-750

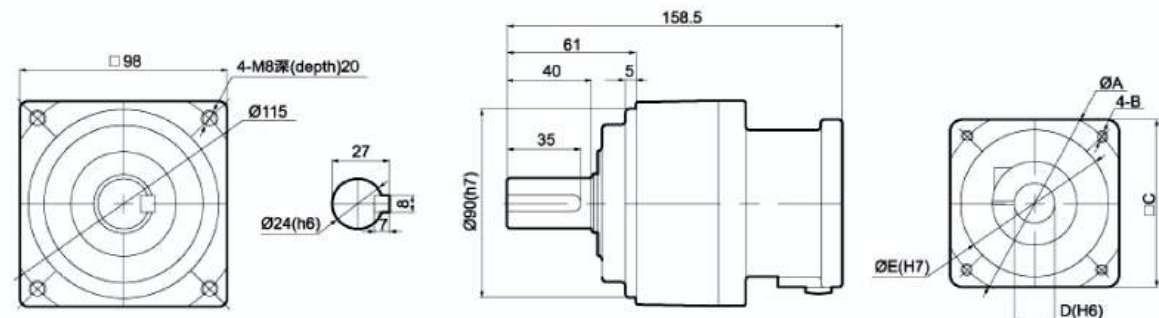


- 概略重量2.1kg
- Rough weight 2.1kg
- TYPE1~3的详细情况请参考P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm)

| 马达种类Motor type | A  | B  | C  | D  | E  |
|----------------|----|----|----|----|----|
| TYPE 1         | 90 | M5 | 80 | 19 | 70 |
| TYPE 2         | 90 | M6 | 80 | 16 | 70 |
| TYPE 3         | 90 | M6 | 80 | 19 | 70 |

VRSF-9D-750



- 概略重量3.4kg
- Rough weight 3.4kg
- TYPE1~3的详细情况请参考P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm)

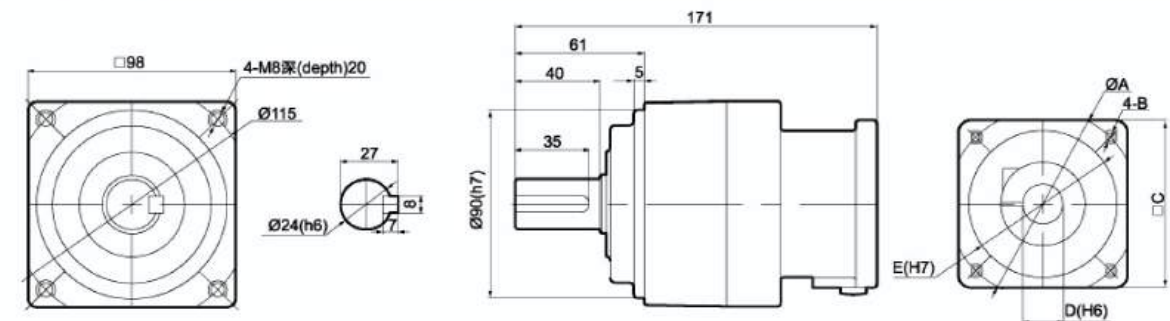
| 马达种类Motor type | A  | B  | C  | D  | E  |
|----------------|----|----|----|----|----|
| TYPE 1         | 90 | M5 | 80 | 19 | 70 |
| TYPE 2         | 90 | M6 | 80 | 16 | 70 |
| TYPE 3         | 90 | M6 | 80 | 19 | 70 |

## 750W 尺寸图与性能表

## 750W DIMENSIONAL DRAWING &amp; PERFORMANCE TABLE

## ■ 尺寸图 Dimensional Drawing

VRSF-15D-20D-25D-750

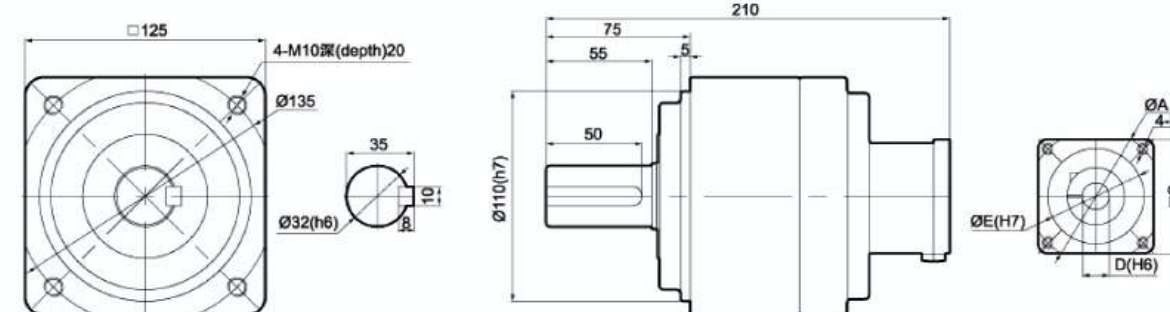


- 概略重量3.8kg
- Rough weight 3.8kg
- TYPE1~3的详细情况请参考P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm)

| 马达种类Motor type | A  | B  | C  | D  | E  |
|----------------|----|----|----|----|----|
| TYPE 1         | 90 | M5 | 80 | 19 | 70 |
| TYPE 2         | 90 | M6 | 80 | 16 | 70 |
| TYPE 3         | 90 | M6 | 80 | 19 | 70 |

VRSF-35E-750

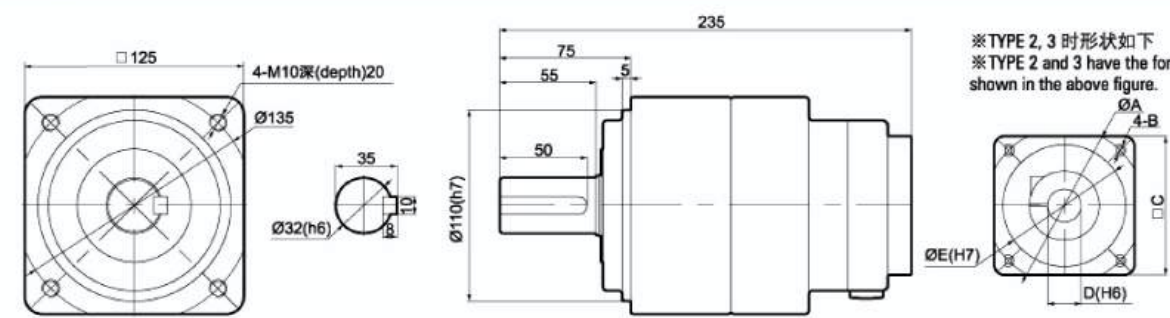


- 概略重量7.2kg
- Rough weight 7.2kg
- TYPE1~3的详细情况请参考P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm)

| 马达种类Motor type | A  | B  | C  | D  | E  |
|----------------|----|----|----|----|----|
| TYPE 1         | 90 | M5 | 80 | 19 | 70 |
| TYPE 2         | 90 | M6 | 80 | 16 | 70 |
| TYPE 3         | 90 | M6 | 80 | 19 | 70 |

VRSF-45E-750



- 概略重量12.0kg
- Rough weight 12.0kg
- TYPE1~3的详细情况请参考P.44
- For details of TYPE1~3, see 44 page.

■ 法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm)

| 马达种类Motor type | A  | B  | C  | D  | E  |
|----------------|----|----|----|----|----|
| TYPE 1         | 90 | M5 | 80 | 19 | 70 |
| TYPE 2         | 90 | M6 | 80 | 16 | 70 |
| TYPE 3         | 90 | M6 | 80 | 19 | 70 |

※TYPE 2, 3 时形状如下  
※TYPE 2 and 3 have the form as shown in the above figure.

1000W 尺寸图与性能表  
1000W DIMENSIONAL DRAWING & PERFORMANCE TABLE

性能表 Performance Table (输入转速为3,000rpm时 When input speed is 3000rpm)

| 额定输入<br>马达功率<br>Rated input<br>motor | 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed<br>(rpm) | 额定输出<br>扭矩<br>Standard<br>output torque<br>(N·m) | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque<br>(N·m) | 容许径向<br>负荷<br>Permissible<br>radial load<br>(N) | 容许轴向<br>负荷<br>Permissible<br>axial load<br>(N) | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia<br>of input shaft conversion<br>(10 <sup>-4</sup> ×kg·m <sup>2</sup> ) | 容许输出<br>扭矩<br>Permissible<br>output torque<br>(N·m) | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque<br>(N·m) |
|--------------------------------------|---------------------------|-------------|---------------------------|-----------------|---------------|---------------------------------------------|--------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------|
|                                      |                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 股位号<br>Type no. | 马达功率<br>Motor |                                             |                                                  |                                                              |                                                 |                                                |                                                                                                                      |                                                     |                                                                            |
| 1000W                                | 1/3                       | VRSF        | 3                         | D               | 1000          | 1000                                        | 7.55                                             | 22.8                                                         | 882                                             | 441                                            | 2.43                                                                                                                 | 18.3                                                | 54.9                                                                       |
|                                      | 1/5                       | VRSF        | 5                         | D               | 1000          | 600                                         | 13.4                                             | 40.5                                                         | 1080                                            | 539                                            | 1.85                                                                                                                 | 23.5                                                | 70.6                                                                       |
|                                      | 1/9                       | VRSF        | 9                         | E               | 1000          | 333                                         | 20.2                                             | 60.1                                                         | 1960                                            | 980                                            | 2.81                                                                                                                 | 73.5                                                | 221                                                                        |
|                                      | 1/15                      | VRSF        | 15                        | E               | 1000          | 200                                         | 33.3                                             | 100                                                          | 2350                                            | 1180                                           | 1.95                                                                                                                 | 91.4                                                | 274                                                                        |
|                                      | 1/25                      | VRSF        | 25                        | E               | 1000          | 120                                         | 55.7                                             | 167                                                          | 2650                                            | 1320                                           | 1.88                                                                                                                 | 65.4                                                | 196                                                                        |

注1) 安装基准机种 ( 马达适用表记载系列 ) 以外的马达时, 每次都要与  
我们联系。( 法兰尺寸可能不同 )  
注2) 输入轴换算惯性力矩仅为减速机数值, 不包括马达的惯性力矩。  
注3) 最高输入转速为5000rpm。正常情况下请转速控制在3000rpm以下。  
注4) 容许径向负荷表示输出轴中央部位的值。  
注5) 全部为斜齿轮适用范围。  
注6) 马达的安装顺序请参照P.46  
注7) 输出轴旋转方向与马达输入旋转方向相同。

Note 1) In case of attachment to a motor beyond the standard models(motor matching series),  
contact us.(How to measure dimensions of the flange may be changed in some cases.)  
Note 2) The moment of inertia of input shaft conversion is only gained from the reducer, so it  
does not include moment of inertia of the motor.  
Note 3) The max. input speed is 5000rpm, and usually set to 3000rpm or less.  
Note 4) The permissible radial load is indicated on the center of the output shaft.  
Note 5) All values are within the range corresponding to helical gear.  
Note 6) For motor assembly procedure, see 46 page.  
Note 7) Rotation of the output shaft is in the same direction as motor.

尺寸图 Dimensional Drawing

VRSF-3D-5D-1000

● 概略重量3.9kg  
● Rough weight 3.9kg  
● TYPE1~3的详细情况请参照P.45  
● For details of TYPE1~3, see 45 page.

■ 法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm)

| 马达种类Motor type | A   | B  | C   | D  | E  |
|----------------|-----|----|-----|----|----|
| TYPE 1         | 100 | M6 | 90  | 19 | 80 |
| TYPE 2         | 115 | M6 | 100 | 24 | 95 |
| TYPE 3         | 115 | M8 | 100 | 24 | 95 |

1000W 尺寸图与性能表  
1000W DIMENSIONAL DRAWING & PERFORMANCE TABLE

尺寸图 Dimensional Drawing

VRSF-9E-1000

● 概略重量11.0kg  
● Rough weight 11.0kg  
● TYPE1~3的详细情况请参照P.45  
● For details of TYPE1~3, see 45 page.

■ 法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm)

| 马达种类Motor type | A   | B  | C   | D  | E  |
|----------------|-----|----|-----|----|----|
| TYPE 1         | 100 | M6 | 90  | 19 | 80 |
| TYPE 2         | 115 | M6 | 100 | 24 | 95 |
| TYPE 3         | 115 | M8 | 100 | 24 | 95 |

尺寸图 Dimensional Drawing

VRSF-15E-25E-1000

● 概略重量12.0kg  
● Rough weight 12.0kg  
● TYPE1~3的详细情况请参照P.45  
● For details of TYPE1~3, see 45 page.

■ 法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm)

| 马达种类Motor type | A   | B  | C   | D  | E  |
|----------------|-----|----|-----|----|----|
| TYPE 1         | 100 | M6 | 90  | 19 | 80 |
| TYPE 2         | 115 | M6 | 100 | 24 | 95 |
| TYPE 3         | 115 | M8 | 100 | 24 | 95 |

### 1500W 尺寸图与性能表

■ 性能表 Performance Table (输入转速为3,000rpm时 When input speed is 3000rpm)

| 额定输入<br>马达功率<br>Rated input<br>motor | 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed | 额定输出<br>扭矩<br>Standard<br>output torque | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque | 容许径向<br>负荷<br>Permissible<br>radial load | 容许轴向<br>负荷<br>Permissible<br>axial load | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia<br>of input shaft conversion | 容许输出<br>扭矩<br>Permissible<br>output torque | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque |
|--------------------------------------|---------------------------|-------------|---------------------------|-----------------|---------------|------------------------------------|-----------------------------------------|-----------------------------------------------------|------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------|
|                                      |                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 段位号<br>Type no. | 马达功率<br>Motor | (rpm)                              | (N·m)                                   | (N·m)                                               | (N)                                      | (N)                                     | (10 <sup>-4</sup> ×kg·m <sup>2</sup> )                                     | (N·m)                                      | (N·m)                                                             |
| 1500W                                | 1/3                       | VRSF        | 3                         | D               | 1500          | 1000                               | 12.3                                    | 37.1                                                | 882                                      | 441                                     | 2.43                                                                       | 18.3                                       | 54.9                                                              |
|                                      | 1/5                       | VRSF        | 5                         | D               | 1500          | 600                                | 21.5                                    | 64.4                                                | 1080                                     | 539                                     | 1.85                                                                       | 23.5                                       | 70.6                                                              |
|                                      | 1/9                       | VRSF        | 9                         | E               | 1500          | 333                                | 34.3                                    | 103                                                 | 1960                                     | 980                                     | 2.81                                                                       | 73.5                                       | 221                                                               |
|                                      | 1/15                      | VRSF        | 15                        | E               | 1500          | 200                                | 57.2                                    | 172                                                 | 2350                                     | 1180                                    | 2.80                                                                       | 91.4                                       | 274                                                               |

注1) 安装基准机种(马达适用表记载系列)以外的马达时, 每次都要与我们联系。(法兰尺寸可能不同)

注2) 输入轴换算惯性力矩仅为减速机的数值, 不包括马达的惯性力矩。

注3) 最高输入转速为5000rpm。正常情况下请转速控制在3000rpm以下。

注4) 容许径向负荷表示输出轴中央部位的值。

注5) 全部为斜齿轮适用范围。

注6) 马达的安装顺序请参照P.46

注7) 输出轴旋转方向与马达输入旋转方向相同。

Note 1) In case of attachment to a motor beyond the standard models(motor matching series), contact us. (How to measure dimensions of the flange may be changed in some cases.)

Note 2) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.

**Note 3)** The max. input speed is 5000rpm, and usually set to 3000rpm or less.

**Note 4)** The permissible radial load is indicated on the center of the output shaft.

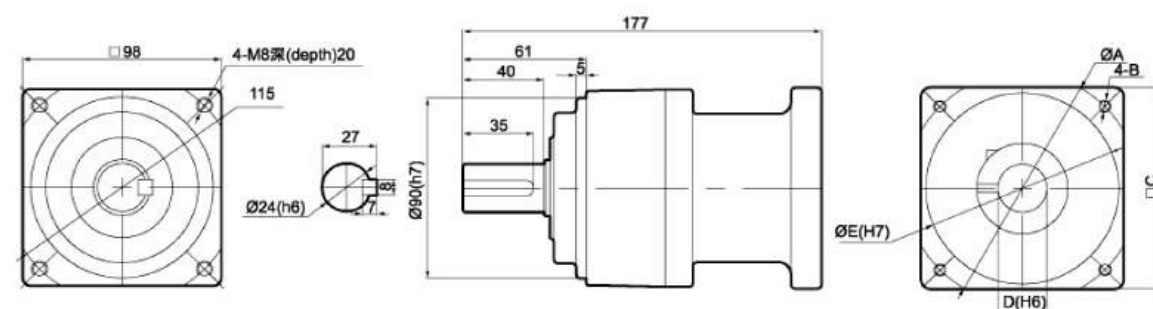
Note 5) All values are within the range corresponding to helical gear

Note 6) For motor assembly procedure, see 46 page.

Note 7) Rotation of the output shaft is in the same direction as motor.

### ■ 尺寸圖 Dimensional Drawing

VRSF-3D-5D-1500



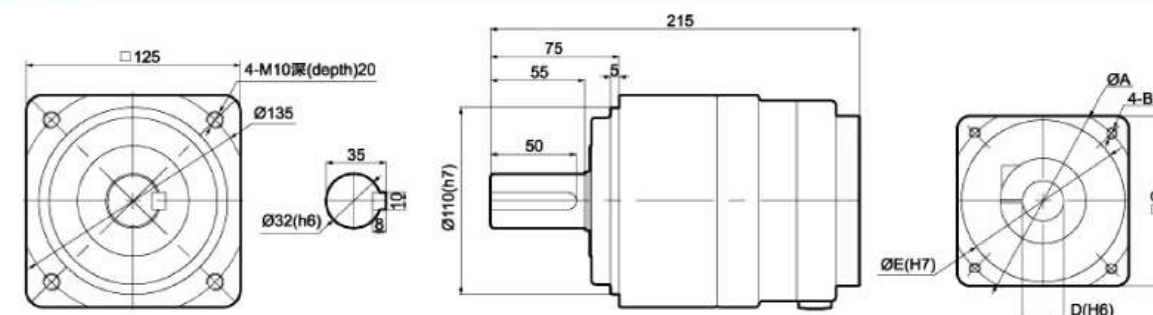
- 概略重量3.9kg
- Rough weight 3.9kg
- TYPE1~3の詳細情况请参照P.45
- For details of TYPE1~3, see 45 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位 Unit: mm)

| 马达种类Motor type | A   | B  | C   | D  | E  |
|----------------|-----|----|-----|----|----|
| TYPE 1         | 115 | M8 | 100 | 19 | 95 |
| TYPE 2         | 115 | M6 | 100 | 24 | 95 |
| TYPE 3         | 115 | M8 | 100 | 24 | 95 |

### 1500W 尺寸图与性能表

VRSF-9E-1500



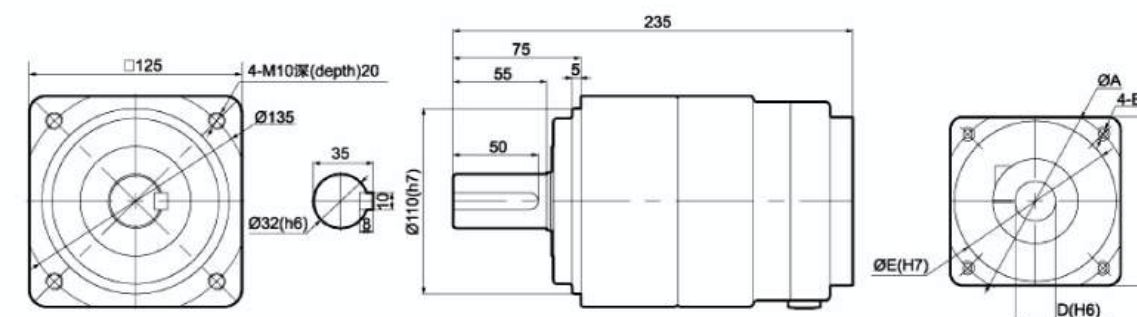
- 概略重量11.5kg
- Rough weight 11.5kg
- TYPE1~3の詳細情况请参考P.45
- For details of TYPE1~3, see 45 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位 Unit: mm)

| 马达种类Motor type | A   | B  | C   | D  | E  |
|----------------|-----|----|-----|----|----|
| TYPE 1         | 115 | M8 | 100 | 19 | 95 |
| TYPE 2         | 115 | M6 | 100 | 24 | 95 |
| TYPE 3         | 115 | M8 | 100 | 24 | 95 |

### ■ 尺寸圖 Dimensional Drawing

VRSF-15E-1500



- 概略重量12.5kg
- Rough weight 12.5kg
- TYPE1~3の詳細情况请参照P.45
- For details of TYPE1~3, see 45 page.

■ 法兰部位详细尺寸表 Detailed flange dimensions table (单位 Unit: mm)

| 马达种类Motor type | A   | B  | C   | D  | E  |
|----------------|-----|----|-----|----|----|
| TYPE 1         | 115 | M8 | 100 | 19 | 95 |
| TYPE 2         | 115 | M6 | 100 | 24 | 95 |
| TYPE 3         | 115 | M8 | 100 | 24 | 95 |



2500W 尺寸图与性能表  
2500W DIMENSIONAL DRAWING & PERFORMANCE TABLE

性能表 Performance Table (输入转速为3,000rpm时 When input speed is 3000rpm)

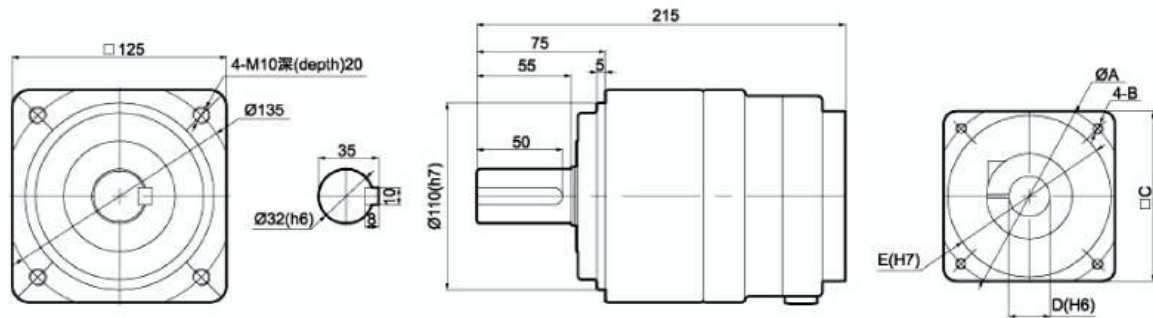
| 额定输入<br>马达功率<br>Rated input<br>motor | 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed<br>(rpm) | 额定输出<br>扭矩<br>Standard<br>output torque<br>(N·m) | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque<br>(N·m) | 容许径向<br>负荷<br>Permissible<br>radial load<br>(N) | 容许轴向<br>负荷<br>Permissible<br>axial load<br>(N) | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia<br>of input shaft conversion<br>(10 <sup>-4</sup> ×kg·m <sup>2</sup> ) | 容许输出<br>扭矩<br>Permissible<br>output torque<br>(N·m) | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque<br>(N·m) |
|--------------------------------------|---------------------------|-------------|---------------------------|-----------------|---------------|---------------------------------------------|--------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------|
|                                      |                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 段位号<br>Type no. | 马达功率<br>Motor |                                             |                                                  |                                                              |                                                 |                                                |                                                                                                                      |                                                     |                                                                            |
| 2500W                                | 1/3                       | VRSF        | 3                         | E               | 2500          | 1000                                        | 19.0                                             | 57.2                                                         | 1370                                            | 686                                            | 5.55                                                                                                                 | 44.1                                                | 132                                                                        |
|                                      | 1/5                       | VRSF        | 5                         | E               | 2500          | 600                                         | 31.8                                             | 95.5                                                         | 1670                                            | 833                                            | 3.50                                                                                                                 | 56.8                                                | 171                                                                        |
|                                      | 1/9                       | VRSF        | 9                         | E               | 2500          | 333                                         | 60.8                                             | 182                                                          | 1960                                            | 980                                            | 2.81                                                                                                                 | 73.5                                                | 221                                                                        |

- 注1) 安装基准机种 ( 马达适用表记载系列 ) 以外的马达时, 每次都要与我们联系。( 法兰尺寸可能不同 )
- 注2) 输入轴换算惯性力矩仅为减速机的数值, 不包括马达的惯性力矩。
- 注3) 最高输入转速为5000rpm。正常情况下请转速控制在3000rpm以下。
- 注4) 容许径向负荷表示输出轴中央部位的值。
- 注5) 全部为斜齿轮适用范围。
- 注6) 马达的安装顺序请参照P.46
- 注7) 输出轴旋转方向与马达输入旋转方向相同。

- Note 1) In case of attachment to a motor beyond the standard models(motor matching series), contact us.(How to measure dimensions of the flange may be changed in some cases.)
- Note 2) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.
- Note 3) The max. input speed is 5000rpm, and usually set to 3000rpm or less.
- Note 4) The permissible radial load is indicated on the center of the output shaft.
- Note 5) All values are within the range corresponding to helical gear.
- Note 6) For motor assembly procedure, see 46 page.
- Note 7) Rotation of the output shaft is in the same direction as motor.

尺寸图 Dimensional Drawing

VRSF-3E-5E-9E-2500



- 概略重量 11.5kg
- Rough weight 11.5kg
- TYPE1~2的详细情况请参照P.45
- For details of TYPE1~2, see 45 page.

法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm)

| 马达种类Motor type | A   | B  | C   | D  | E  |
|----------------|-----|----|-----|----|----|
| TYPE 1         | 115 | M8 | 100 | 19 | 95 |
| TYPE 2         | 115 | M6 | 100 | 24 | 95 |
| TYPE 3         | -   | -  | -   | -  | -  |

3000W 尺寸图与性能表  
3000W DIMENSIONAL DRAWING & PERFORMANCE TABLE

性能表 Performance Table (输入转速为3,000rpm时 When input speed is 3000rpm)

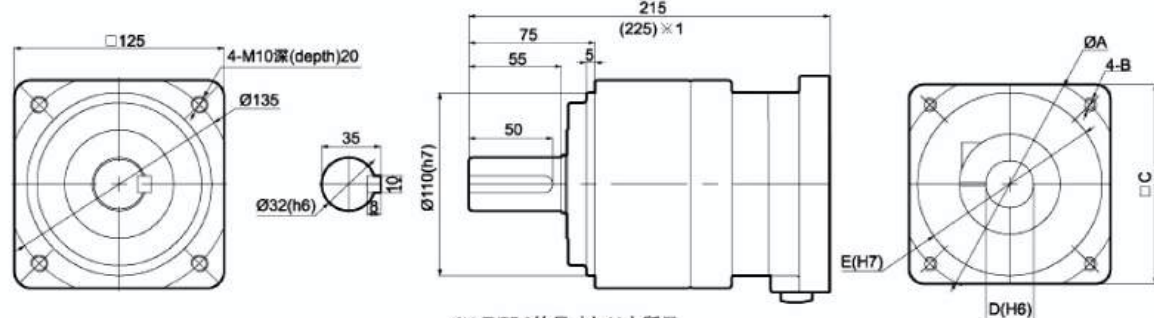
| 额定输入<br>马达功率<br>Rated input<br>motor | 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed<br>(rpm) | 额定输出<br>扭矩<br>Standard<br>output torque<br>(N·m) | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque<br>(N·m) | 容许径向<br>负荷<br>Permissible<br>radial load<br>(N) | 容许轴向<br>负荷<br>Permissible<br>axial load<br>(N) | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia<br>of input shaft conversion<br>(10 <sup>-4</sup> ×kg·m <sup>2</sup> ) | 容许输出<br>扭矩<br>Permissible<br>output torque<br>(N·m) | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque<br>(N·m) |
|--------------------------------------|---------------------------|-------------|---------------------------|-----------------|---------------|---------------------------------------------|--------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------|
|                                      |                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 段位号<br>Type no. | 马达功率<br>Motor |                                             |                                                  |                                                              |                                                 |                                                |                                                                                                                      |                                                     |                                                                            |
| 3000W                                | 1/3                       | VRSF        | 3                         | E               | 3000          | 1000                                        | 23.7                                             | 71.2                                                         | 1370                                            | 686                                            | 5.50                                                                                                                 | 44.1                                                | 132                                                                        |
|                                      | 1/5                       | VRSF        | 5                         | E               | 3000          | 600                                         | 39.6                                             | 119                                                          | 1670                                            | 833                                            | 3.48                                                                                                                 | 56.8                                                | 171                                                                        |
|                                      | 1/9                       | VRSF        | 9                         | E               | 3000          | 333                                         | 73.0                                             | 219                                                          | 1960                                            | 980                                            | 2.77                                                                                                                 | 73.5                                                | 221                                                                        |

- 注1) 安装基准机种 ( 马达适用表记载系列 ) 以外的马达时, 每次都要与我们联系。( 法兰尺寸可能不同 )
- 注2) 输入轴换算惯性力矩仅为减速机的数值, 不包括马达的惯性力矩。
- 注3) 最高输入转速为5000rpm。正常情况下请转速控制在3000rpm以下。
- 注4) 容许径向负荷表示输出轴中央部位的值。
- 注5) 全部为斜齿轮适用范围。
- 注6) 马达的安装顺序请参照P.46
- 注7) 输出轴旋转方向与马达输入旋转方向相同。

- Note 1) In case of attachment to a motor beyond the standard models(motor matching series), contact us.(How to measure dimensions of the flange may be changed in some cases.)
- Note 2) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.
- Note 3) The max. input speed is 5000rpm, and usually set to 3000rpm or less.
- Note 4) The permissible radial load is indicated on the center of the output shaft.
- Note 5) All values are within the range corresponding to helical gear.
- Note 6) For motor assembly procedure, see 46 page.
- Note 7) Rotation of the output shaft is in the same direction as motor.

尺寸图 Dimensional Drawing

VRSF-3E-5E-9E-3000



- ※1 TYPE 2的尺寸如( )内所示  
※1 TYPE2 has the numerical value indicated in ( ).

- 概略重量 12.0kg
- Rough weight 12.0kg
- TYPE1~2的详细情况请参照P.45
- For details of TYPE1~2, see 45 page.

法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm)

| 马达种类Motor type | A   | B  | C   | D  | E   |
|----------------|-----|----|-----|----|-----|
| TYPE 1         | 130 | M8 | 120 | 22 | 110 |
| TYPE 2         | 145 | M8 | 130 | 28 | 110 |
| TYPE 3         | -   | -  | -   | -  | -   |

3500W 尺寸图与性能表  
3500W DIMENSIONAL DRAWING & PERFORMANCE TABLE

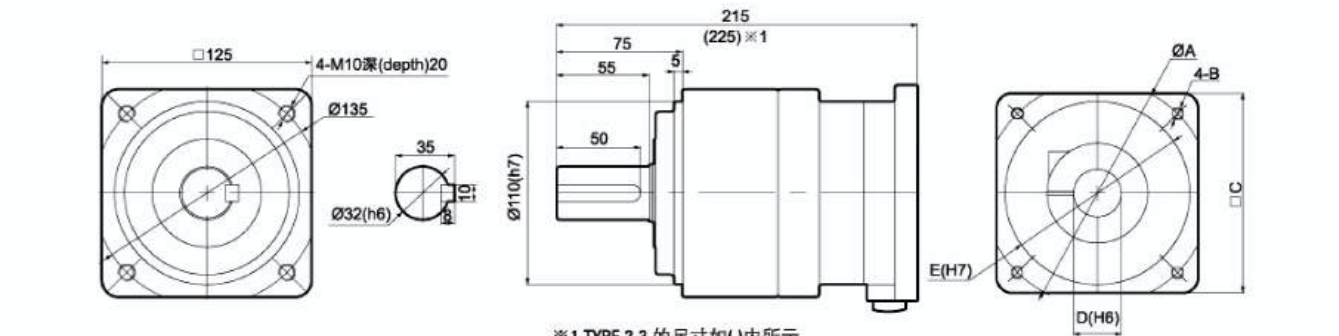
性能表 Performance Table (输入转速为3,000rpm时 When input speed is 3000rpm)

| 额定输入<br>马达功率<br>Rated input<br>motor | 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed<br>(rpm) | 额定输出<br>扭矩<br>Standard<br>output torque<br>(N·m) | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque<br>(N·m) | 容许径向<br>负荷<br>Permissible<br>radial load<br>(N) | 容许轴向<br>负荷<br>Permissible<br>axial load<br>(N) | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia<br>of input shaft conversion<br>(10 <sup>-4</sup> ×kg·m <sup>2</sup> ) | 容许输出<br>扭矩<br>Permissible<br>output torque<br>(N·m) | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque<br>(N·m) |
|--------------------------------------|---------------------------|-------------|---------------------------|-----------------|---------------|---------------------------------------------|--------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------|
|                                      |                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 段位号<br>Type no. | 马达功率<br>Motor |                                             |                                                  |                                                              |                                                 |                                                |                                                                                                                      |                                                     |                                                                            |
| 3500W                                | 1/3                       | VRSF        | 3                         | E               | 3500          | 1000                                        | 28.3                                             | 85.2                                                         | 1370                                            | 686                                            | 5.50                                                                                                                 | 44.1                                                | 132                                                                        |
|                                      | 1/5                       | VRSF        | 5                         | E               | 3500          | 600                                         | 47.2                                             | 141                                                          | 1670                                            | 833                                            | 3.48                                                                                                                 | 56.8                                                | 171                                                                        |

- 注1) 安装基准机种 ( 马达适用表记载系列 ) 以外的马达时, 每次都要与我们联系。( 法兰尺寸可能不同 )
- 注2) 输入轴换算惯性力矩仅为减速机的数值, 不包括马达的惯性力矩。
- 注3) 最高输入转速为5000rpm。正常情况下请转速控制在3000rpm以下。
- 注4) 容许径向负荷表示输出轴中央部位的值。
- 注5) 全部为斜齿轮适用范围。
- 注6) 马达的安装顺序请参照P.46
- 注7) 输出轴旋转方向与马达输入旋转方向相同。
- Note 1) In case of attachment to a motor beyond the standard models(motor matching series), contact us.(How to measure dimensions of the flange may be changed in some cases.)
- Note 2) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.
- Note 3) The max. input speed is 5000rpm, and usually set to 3000rpm or less.
- Note 4) The permissible radial load is indicated on the center of the output shaft.
- Note 5) All values are within the range corresponding to helical gear.
- Note 6) For motor assembly procedure, see 46 page.
- Note 7) Rotation of the output shaft is in the same direction as motor.

尺寸图 Dimensional Drawing

VRSF-3E-5E-3500



※1 TYPE 2-3 的尺寸如( )内所示  
※1 TYPE 2-3 has the numerical value indicated in ( ).

- 概略重量12.0kg
- Rough weight 12.0kg
- TYPE1~3的详细情况请参照P.45
- For details of TYPE1~3, see 45 page.

| 法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm) |     |    |     |    |     |
|--------------------------------------------------------|-----|----|-----|----|-----|
| 马达种类Motor type                                         | A   | B  | C   | D  | E   |
| TYPE 1                                                 | 130 | M8 | 120 | 22 | 110 |
| TYPE 2                                                 | -   | -  | -   | -  | -   |
| TYPE 3                                                 | 145 | M8 | 130 | 28 | 110 |

4000W 尺寸图与性能表  
4000W DIMENSIONAL DRAWING & PERFORMANCE TABLE

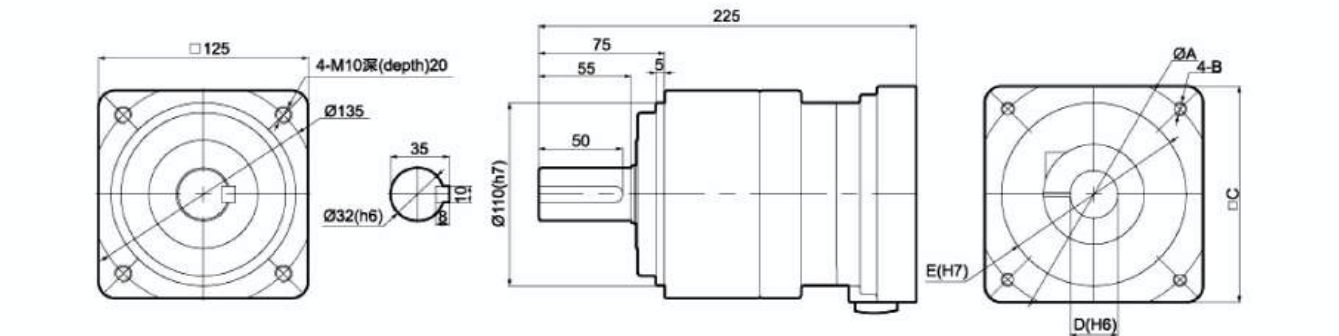
性能表 Performance Table (输入转速为3,000rpm时 When input speed is 3000rpm)

| 额定输入<br>马达功率<br>Rated input<br>motor | 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed<br>(rpm) | 额定输出<br>扭矩<br>Standard<br>output torque<br>(N·m) | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque<br>(N·m) | 容许径向<br>负荷<br>Permissible<br>radial load<br>(N) | 容许轴向<br>负荷<br>Permissible<br>axial load<br>(N) | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia<br>of input shaft conversion<br>(10 <sup>-4</sup> ×kg·m <sup>2</sup> ) | 容许输出<br>扭矩<br>Permissible<br>output torque<br>(N·m) | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque<br>(N·m) |
|--------------------------------------|---------------------------|-------------|---------------------------|-----------------|---------------|---------------------------------------------|--------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------|
|                                      |                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 段位号<br>Type no. | 马达功率<br>Motor |                                             |                                                  |                                                              |                                                 |                                                |                                                                                                                      |                                                     |                                                                            |
| 4000W                                | 1/3                       | VRSF        | 3                         | E               | 4000          | 1000                                        | 33.1                                             | 99.0                                                         | 1370                                            | 686                                            | 5.78                                                                                                                 | 44.1                                                | 132                                                                        |
|                                      | 1/5                       | VRSF        | 5                         | E               | 4000          | 600                                         | 55.3                                             | 166                                                          | 1670                                            | 833                                            | 3.75                                                                                                                 | 56.8                                                | 171                                                                        |

- 注1) 安装基准机种 ( 马达适用表记载系列 ) 以外的马达时, 每次都要与我们联系。( 法兰尺寸可能不同 )
- 注2) 输入轴换算惯性力矩仅为减速机的数值, 不包括马达的惯性力矩。
- 注3) 最高输入转速为5000rpm。正常情况下请转速控制在3000rpm以下。
- 注4) 容许径向负荷表示输出轴中央部位的值。
- 注5) 全部为斜齿轮适用范围。
- 注6) 马达的安装顺序请参照P.46
- 注7) 输出轴旋转方向与马达输入旋转方向相同。
- Note 1) In case of attachment to a motor beyond the standard models(motor matching series), contact us.(How to measure dimensions of the flange may be changed in some cases.)
- Note 2) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.
- Note 3) The max. input speed is 5000rpm, and usually set to 3000rpm or less.
- Note 4) The permissible radial load is indicated on the center of the output shaft.
- Note 5) All values are within the range corresponding to helical gear.
- Note 6) For motor assembly procedure, see 46 page.
- Note 7) Rotation of the output shaft is in the same direction as motor.

尺寸图 Dimensional Drawing

VRSF-3E-5E-4000



| 法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm) |     |    |     |    |     |
|--------------------------------------------------------|-----|----|-----|----|-----|
| 马达种类Motor type                                         | A   | B  | C   | D  | E   |
| TYPE 1                                                 | 145 | M8 | 130 | 24 | 110 |
| TYPE 2                                                 | 145 | M8 | 130 | 28 | 110 |
| TYPE 3                                                 | -   | -  | -   | -  | -   |

- 概略重量13.0kg
- Rough weight 13.0kg
- TYPE1~2的详细情况请参照P.45
- For details of TYPE1~2, see 45 page.

4500W 尺寸图与性能表  
4500W DIMENSIONAL DRAWING & PERFORMANCE TABLE

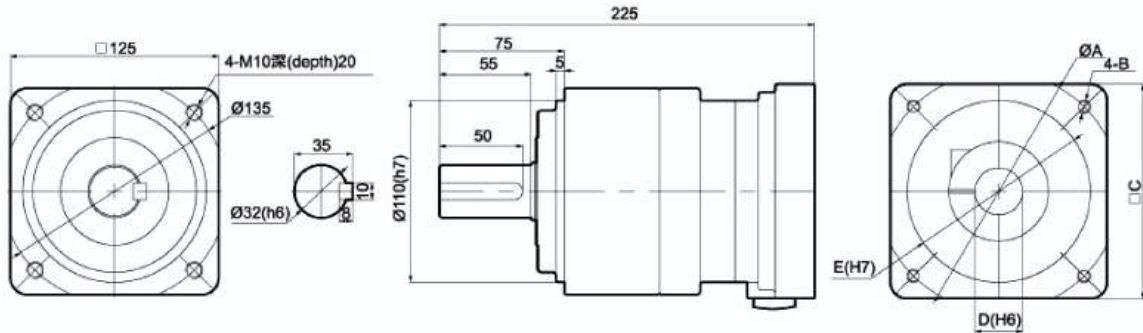
性能表 Performance Table (输入转速为3,000rpm时 When input speed is 3000rpm)

| 额定输入<br>马达功率<br>Rated input<br>motor | 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed<br>(rpm) | 额定输出<br>扭矩<br>Standard<br>output torque<br>(N·m) | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque<br>(N·m) | 容许径向<br>负荷<br>Permissible<br>radial load<br>(N) | 容许轴向<br>负荷<br>Permissible<br>axial load<br>(N) | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia<br>of input shaft conversion<br>(10 <sup>-4</sup> ×kg·m <sup>2</sup> ) | 容许输出<br>扭矩<br>Permissible<br>output torque<br>(N·m) | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque<br>(N·m) |
|--------------------------------------|---------------------------|-------------|---------------------------|-----------------|---------------|---------------------------------------------|--------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------|
|                                      |                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 段位号<br>Type no. | 马达功率<br>Motor |                                             |                                                  |                                                              |                                                 |                                                |                                                                                                                      |                                                     |                                                                            |
| 4500W                                | 1/3                       | VRSF        | 3                         | E               | 4500          | 1000                                        | 37.7                                             | 113                                                          | 1370                                            | 686                                            | 5.78                                                                                                                 | 44.1                                                | 132                                                                        |

- 注1) 安装基准机种 ( 马达适用表记载系列 ) 以外的马达时, 每次都要与我们联系。( 法兰尺寸可能不同 )
- 注2) 输入轴换算惯性力矩仅为减速机的数值, 不包括马达的惯性力矩。
- 注3) 最高输入转速为5000rpm。正常情况下请转速控制在3000rpm以下。
- 注4) 容许径向负荷表示输出轴中央部位的值。
- 注5) 全部为斜齿轮适用范围。
- 注6) 马达的安装顺序请参照P.46
- 注7) 输出轴旋转方向与马达输入旋转方向相同。
- Note 1) In case of attachment to a motor beyond the standard models(motor matching series), contact us.(How to measure dimensions of the flange may be changed in some cases.)
- Note 2) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.
- Note 3) The max. input speed is 5000rpm, and usually set to 3000rpm or less.
- Note 4) The permissible radial load is indicated on the center of the output shaft.
- Note 5) All values are within the range corresponding to helical gear.
- Note 6) For motor assembly procedure, see 46 page.
- Note 7) Rotation of the output shaft is in the same direction as motor.

尺寸图 Dimensional Drawing

VRSF-3E-4500



- 概略重量13.0kg
- Rough weight 13.0kg
- TYPE1~3的详细情况请参照P.45
- For details of TYPE1~3, see 45 page.

法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm)

| 马达种类Motor type | A   | B  | C   | D  | E   |
|----------------|-----|----|-----|----|-----|
| TYPE 1         | 145 | M8 | 130 | 24 | 110 |
| TYPE 2         | -   | -  | -   | -  | -   |
| TYPE 3         | -   | -  | -   | -  | -   |

5000W 尺寸图与性能表  
5000W DIMENSIONAL DRAWING & PERFORMANCE TABLE

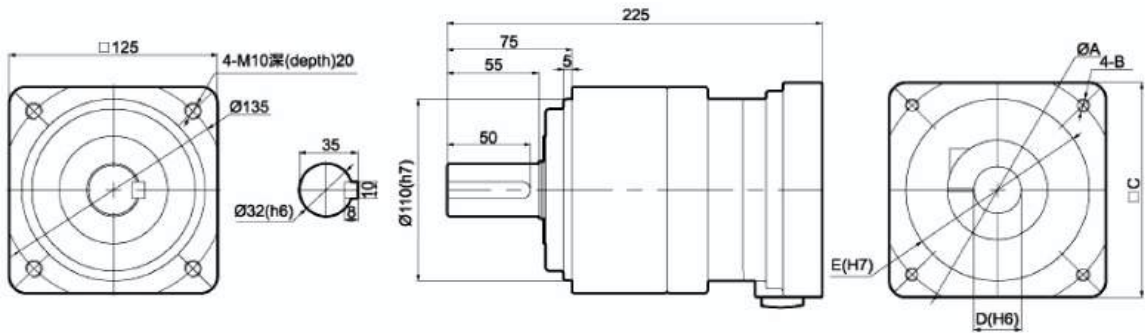
性能表 Performance Table (输入转速为3,000rpm时 When input speed is 3000rpm)

| 额定输入<br>马达功率<br>Rated input<br>motor | 减速比<br>Reduction<br>ratio | 型号<br>Type  |                           |                 |               | 输出轴<br>转速<br>Output<br>shaft speed<br>(rpm) | 额定输出<br>扭矩<br>Standard<br>output torque<br>(N·m) | 瞬间最大<br>输出扭矩<br>Instantaneous<br>max. output torque<br>(N·m) | 容许径向<br>负荷<br>Permissible<br>radial load<br>(N) | 容许轴向<br>负荷<br>Permissible<br>axial load<br>(N) | 输入轴换算<br>内部惯性力矩<br>Internal moment of inertia<br>of input shaft conversion<br>(10 <sup>-4</sup> ×kg·m <sup>2</sup> ) | 容许输出<br>扭矩<br>Permissible<br>output torque<br>(N·m) | 瞬间最大容<br>许输出扭矩<br>Instantaneous max.<br>permissible output torque<br>(N·m) |
|--------------------------------------|---------------------------|-------------|---------------------------|-----------------|---------------|---------------------------------------------|--------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------|
|                                      |                           | 机种<br>Model | 减速比<br>Reduction<br>ratio | 段位号<br>Type no. | 马达功率<br>Motor |                                             |                                                  |                                                              |                                                 |                                                |                                                                                                                      |                                                     |                                                                            |
| 5000W                                | 1/3                       | VRSF        | 3                         | E               | 5000          | 1000                                        | 42.9                                             | 128                                                          | 1370                                            | 686                                            | 5.78                                                                                                                 | 44.1                                                | 132                                                                        |

- 注1) 安装基准机种 ( 马达适用表记载系列 ) 以外的马达时, 每次都要与我们联系。( 法兰尺寸可能不同 )
- 注2) 输入轴换算惯性力矩仅为减速机的数值, 不包括马达的惯性力矩。
- 注3) 最高输入转速为5000rpm。正常情况下请转速控制在3000rpm以下。
- 注4) 容许径向负荷表示输出轴中央部位的值。
- 注5) 全部为斜齿轮适用范围。
- 注6) 马达的安装顺序请参照P.46
- 注7) 输出轴旋转方向与马达输入旋转方向相同。
- Note 1) In case of attachment to a motor beyond the standard models(motor matching series), contact us.(How to measure dimensions of the flange may be changed in some cases.)
- Note 2) The moment of inertia of input shaft conversion is only gained from the reducer, so it does not include moment of inertia of the motor.
- Note 3) The max. input speed is 5000rpm, and usually set to 3000rpm or less.
- Note 4) The permissible radial load is indicated on the center of the output shaft.
- Note 5) All values are within the range corresponding to helical gear.
- Note 6) For motor assembly procedure, see 46 page.
- Note 7) Rotation of the output shaft is in the same direction as motor.

尺寸图 Dimensional Drawing

VRSF-3E-5000



- 概略重量13.0kg
- Rough weight 13.0kg
- TYPE1~3的详细情况请参照P.45
- For details of TYPE1~3, see 45 page.

法兰部位详细尺寸表Detailed flange dimensions table (单位Unit: mm)

| 马达种类Motor type | A   | B  | C   | D  | E   |
|----------------|-----|----|-----|----|-----|
| TYPE 1         | 145 | M8 | 130 | 24 | 110 |
| TYPE 2         | 145 | M8 | 130 | 28 | 110 |
| TYPE 3         | 145 | M8 | 130 | 28 | 110 |

马达对应表(输入转速为3,000RPM时)  
MOTOR MATCHING TABLE (WHEN INPUT SPEED IS 3000RPM)

■对应表 MATCHING TABLE

| 生产厂家<br>Motor manufacturer                             | 马达系列<br>Motor series | 马达功率 Motor power (W) |                    |        |        |                    |
|--------------------------------------------------------|----------------------|----------------------|--------------------|--------|--------|--------------------|
|                                                        |                      | 50W                  | 100W               | 200W   | 400W   | 750W               |
| 松下电器产业(株)<br>Panasonic                                 | MSM                  | TYPE 1               |                    |        |        |                    |
|                                                        | MSMA                 | TYPE 1               |                    |        |        |                    |
|                                                        | MSMD                 | TYPE 1               |                    |        |        |                    |
|                                                        | MUMA                 | 基准外Out of standard   | 基准外Out of standard | TYPE 1 |        |                    |
|                                                        | MBMK                 | TYPE 1               | 基准外Out of standard | TYPE 1 |        |                    |
|                                                        | MUMS                 | 基准外Out of standard   |                    |        |        |                    |
| (株)安川电机<br>Yaskawa Electric                            | SGM                  | TYPE 2               |                    |        |        |                    |
|                                                        | SGMAH                | TYPE 2               |                    |        |        |                    |
|                                                        | SGMAS                | TYPE 2               |                    |        |        |                    |
|                                                        | SJME                 | 无对象No subject        | TYPE 2             |        |        |                    |
|                                                        | SGMJV                | TYPE 3               |                    |        |        |                    |
|                                                        | SGMAV                | TYPE 3               |                    |        |        |                    |
| 三菱电机(株)<br>Mitsubishi Wlectric                         | HC-KF                | TYPE 3               |                    |        |        |                    |
|                                                        | HC-KFS               | TYPE 3               |                    |        |        |                    |
|                                                        | HC-MF                | TYPE 3               |                    |        |        |                    |
|                                                        | HC-MFS               | TYPE 3               |                    |        |        |                    |
|                                                        | HA-ME                | TYPE 3               |                    |        |        |                    |
|                                                        | HC-PQ                | TYPE 3               |                    |        |        | 无对象No subject      |
|                                                        | HC-KQ                | TYPE 3               |                    |        |        | 无对象No subject      |
|                                                        | HF-KP                | TYPE 3               |                    |        |        |                    |
|                                                        | HF-MP                | TYPE 3               |                    |        |        |                    |
| 欧姆龙(株)<br>Omron                                        | R88M-U               | TYPE 2               |                    |        |        |                    |
|                                                        | R88M-W               | TYPE 2               |                    |        |        |                    |
|                                                        | R7M-A                | TYPE 2               |                    |        |        |                    |
|                                                        | R7M-Z                | TYPE 2               |                    |        |        |                    |
| 富士电机机器控制(株)<br>Fuji Electric Systems                   | GYS※                 | TYPE 2               |                    |        |        |                    |
| 山洋电气(株)<br>Sanyo denki                                 | P30B                 | TYPE 3               |                    |        |        | TYPE 2             |
|                                                        | Q1                   | TYPE 3               |                    |        |        | 基准外Out of standard |
| (株)基恩斯Keyence                                          | MV                   | TYPE 3               |                    |        |        | 基准外Out of standard |
| 东荣电机(株)<br>Toshiba Machine                             | VLBSV-Z※             | 基准外Out of standard   |                    |        | TYPE 3 |                    |
|                                                        | VLBSV-ZA※            | 基准外Out of standard   |                    |        | TYPE 3 |                    |
|                                                        | VLBST                | 基准外Out of standard   |                    |        | TYPE 3 | 基准外Out of standard |
| 多摩川精机(株)<br>Tamagawa Seiki                             | TBL-i※               | TYPE 3               |                    |        |        | 无对象No subject      |
|                                                        | TBL-i II ※           | TYPE 3               |                    |        |        | 基准外Out of standard |
| 日机电装(株)<br>Nikki denso                                 | NA50                 | TYPE 1               |                    |        |        |                    |
|                                                        | NA70※                | TYPE 3               |                    |        |        | 无对象No subject      |
|                                                        | NA80※                | TYPE 3               |                    |        |        | 基准外Out of standard |
| (株)三明Sanmei                                            | TS※                  | TYPE 3               |                    |        |        | 基准外Out of standard |
|                                                        | SS※                  | TYPE 3               |                    |        |        | 基准外Out of standard |
| (株)日立产机系统<br>Hitachi Industrial Equip-<br>ment Systems | ADMA                 | TYPE 3               |                    |        |        | 基准外Out of standard |
| 三木普利<br>Miki Pulley                                    | SA3                  | TYPE 1               |                    |        |        |                    |

注1) 没有油封和尺寸不同时，安装带油封的马达有时需特别订货。  
注2) 马达轴为D形轴、锥形时需要特别订货。  
注3) 因马达功率（适用表中带※的马达）与减速比的组合，出现瞬间最大输出扭矩时，产生的轴向力有时会超过伺服马达容许轴向力，因此，需要注意。（参照P.49轴向符合表。）  
注4) 基准外有时需要特别订货。欲知详情，请另外与本公司联系。  
Note 1) If an oil-seal is not present and the size is different, attachment of the oil-seal may correspond to specia order, in some cases.  
Note 2) If the motor shaft is of D-cut and taper type, it corresponds to a special order.  
Note 3) Note that thrust power arising out of instantaneous max. ouyput torque bu the combination of motor capacith (motor of the motor series table) aand reduction ratio may exceed permissible thrust power of the servo motor. See the thrust load table on 49 page.).  
Note 4) Out-of-standard may correspond to a special order in some cases. For details, contact us.

除上述伺服马达厂家外，本公司减速机还适配以下伺服马达厂家。安装方式请咨询本公司。  
Our gearbox can match to servo motor of followings manufacturers, including aboves. Please ask us about the assembly.

神钢电机(株)

日本电产三协

中达电通

路斯特

博世力士乐

其它  
etc.

马达对应表(输入转速为3,000RPM时)  
MOTOR MATCHING TABLE (WHEN INPUT SPEED IS 3000RPM)

■对应表 MATCHING TABLE

| 生产厂家<br>Motor manufacturer           | 马达系列<br>Motor series | 马达功率 Motor power( W) |       |               |        |               |               |               |               |        |
|--------------------------------------|----------------------|----------------------|-------|---------------|--------|---------------|---------------|---------------|---------------|--------|
|                                      |                      | 1000W                | 1500W | 2000W         | 2500W  | 3000W         | 3500W         | 4000W         | 4500W         | 5000W  |
| 松下电器产业(株)<br>Panasonic               | MSM                  | TYPE 1               |       |               |        |               |               |               |               |        |
|                                      | MSMA                 | TYPE 1               |       |               |        |               |               |               |               |        |
| (株)安川电机<br>Yaskawa Electric          | SGMS                 | TYPE 2               |       | 无对象No subject | TYPE 2 | 无对象No subject | TYPE 2        | 无对象No subject | TYPE 2        |        |
|                                      | SGMSH                | TYPE 2               |       | 无对象No subject | TYPE 2 | 无对象No subject | TYPE 2        | 无对象No subject | TYPE 2        |        |
|                                      | SGMSS                | TYPE 2               |       |               |        |               | 无对象No subject | TYPE 2        | 无对象No subject | TYPE 2 |
| 三菱电机(株)<br>Mitsubishi Wlectric       | HC-RF                | TYPE 3               |       | 无对象No subject |        | TYPE 3        | 无对象No subject |               | TYPE 3        |        |
|                                      | HC-RFS               | TYPE 3               |       | 无对象No subject |        | TYPE 3        | 无对象No subject |               | TYPE 3        |        |
|                                      | HC-RP                | TYPE3                |       | 无对象No subject |        | TYPE 3        | 无对象No subject |               | TYPE3         |        |
| 欧姆龙(株)<br>Omron                      | R88M-U               | TYPE 2               |       | 无对象No subject | TYPE 2 | 无对象No subject | TYPE 2        | 无对象No subject | TYPE 2        |        |
|                                      | R88M-W               | TYPE 2               |       | 无对象No subject | TYPE 2 | 无对象No subject | TYPE 2        | 无对象No subject | TYPE 2        |        |
| 富士电机机器控制(株)<br>Fuji Electric Systems | GYS                  | TYPE 3               |       | 无对象No subject |        | TYPE 2        | 无对象No subject | TYPE 2        | 无对象No subject | TYPE 2 |

■下列系列马达也可以标准方式适应 Standard compatibility with the follwing motor series

| 生产厂家<br>Motor manufacturer           | 马达系列<br>Motor series | 马达功率 Motor power( W)             |
|--------------------------------------|----------------------|----------------------------------|
| 三菱电机(株)<br>Mitsubishi Wlectric       | HC-SFS※              | 500W, 1000W, 1500W, 2000W, 3500W |
|                                      | HF-SP                |                                  |
| (株)安川电机<br>Yaskawa Electric          | SGMP                 | 100W, 200W, 400W, 750W, 1500W    |
|                                      | SGMPH                |                                  |
|                                      | SGMPS                |                                  |
| 松下电器产业(株)<br>Panasonic               | MQMA                 | 100W, 200W, 400W                 |
| 欧姆龙(株)<br>Omron                      | R88M-WP              | 100W, 200W, 400W, 750W, 1500W    |
|                                      | R7M-AP               | 100W, 200W, 400W, 750W           |
| 富士电机机器控制(株)<br>Fuji Electric Systems | GVC                  | 100W, 200W, 400W                 |
| 发那科(株)<br>Fanuc                      | βiS ※                | 200W, 400W, 500W, 750W, 1200W    |

注1) 没有油封和尺寸不同时，安装带油封的马达有时需特别订货。  
注2) 马达轴为D形轴、锥形时需要特别订货。  
注3) 因马达功率（适用表中带※的马达）与减速比的组合，出现瞬间最大输出扭矩时，产生的轴向力有时会超过伺服马达容许轴向力，因此，需要注意。（参照P.49轴向符合表。）  
注4) 基准外有时需要特别订货。欲知详情，请另外与本公司联系。  
Note 1) If an oil-seal is not present and the size is different, attachment of the oil-seal may correspond to specia order, in some cases.  
Note 2) If the motor shaft is of D-cut and taper type, it corresponds to a special order.  
Note 3) Note that thrust power arising out of instantaneous max. ouyput torque bu the combination of motor capacith (motor of the motor series table) aand reduction ratio may exceed permissible thrust power of the servo motor. See the thrust load table on 49 page.).  
Note 4) Out-of-standard may correspond to a special order in some cases. For details, contact us.

除上述伺服马达厂家外，本公司减速机还适配以下伺服马达厂家。安装方式请咨询本公司。  
Our gearbox can match to servo motor of followings manufacturers, including aboves. Please ask us about the assembly.

神钢电机(株)

日本电产三协

中达电通

路斯特

博世力士乐

其它  
etc.

安装  
ASSEMBLY

■ 安装马达的步骤 Assembly procedure

客户自行安装伺服马达时，请按以下要领进行安装。伺服马达的尺寸多种多样，除指定的产品外，有些马达可能会无法连接法兰，因为，一定要使用您订货时指定的马达。

If a customer personally assembles the servo motor and reducer please use the following tip. The reducer flange to which the servo motor is attached has different dimensions based on the motor specified. Therefore, assembly may be impossible for some motor. Make sure the correct motor is specified before ordering the reducer.

1、安装无键马达 VRSF规格 VRSF spec. in case of assembling a motor without key

- 取下橡胶帽，转动输入轴，使螺栓头和橡胶帽的孔吻合。并请确认固定螺栓已松开。
  - 将马达轴平稳地插入输出轴（请确保不受阻塞地顺畅的插入）。请充分注意不要让马达倾斜插入。
  - 将马达固定在减速机上，并按指定的扭矩将螺栓拧紧。参考表1
  - 使用扭矩扳手等工具，按指定的扭矩将输入轴的固定螺栓拧紧。参考表2
  - 盖上橡胶帽。安装到此结束。
- ① Take off the rubber cap, turn the input shaft, and match the head of the bolt to the hole of the rubber cap. Make sure that the set bolt is loosened.  
② Gradually put the motor shaft into the input shaft (Ensure that it is smoothly put in without jam.) Be careful not to be inserted with the motor tilted.  
③ Attach the motor to the reducer and fasten the bolt with designated fastening torque. See Table 1.  
④ Fasten the set bolt of the input shaft with designated fastening torque using torque wrench, etc. See Table 2.  
⑤ Put on a rubber cap. It is the end of assembling.

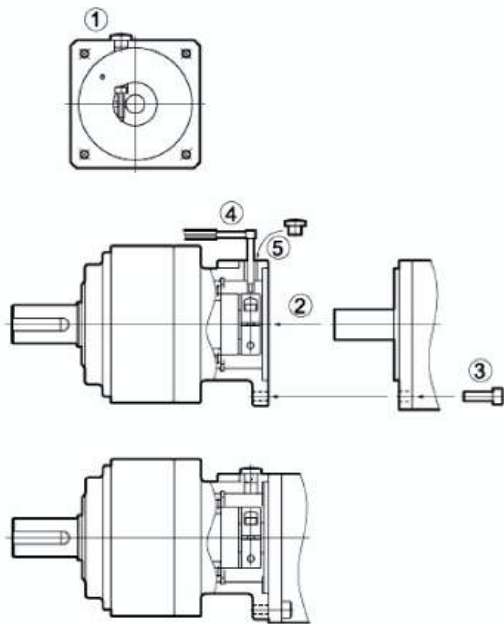
表1 Table1

| 马达固定螺栓Motor combination bolt | 拧紧扭矩Fastening torque |        |
|------------------------------|----------------------|--------|
|                              | N·m                  | kgf·cm |
| M3                           | 1.0                  | 10     |
| M4                           | 3.0                  | 30     |
| M5                           | 5.8                  | 60     |
| M6                           | 9.8                  | 100    |
| M8                           | 19.6                 | 200    |
| M10                          | 39.2                 | 400    |
| M12                          | 68.6                 | 700    |
| M16                          | 168                  | 1650   |

表2 Table2

| 固定螺栓 Combination bolt | 拧紧扭矩Fastening torque |        |
|-----------------------|----------------------|--------|
|                       | N·m                  | kgf·cm |
| M3                    | 1.5                  | 15     |
| M4                    | 3.5                  | 35     |
| M5                    | 7.1                  | 71     |
| M6                    | 12                   | 120    |
| M8                    | 30                   | 300    |

带键槽式马达的键取下后，可以像上述无键马达一样安装。无需担心会滑动。  
You can assemble the motor with keyway like above when take off the key. There is no risk of dislocation.



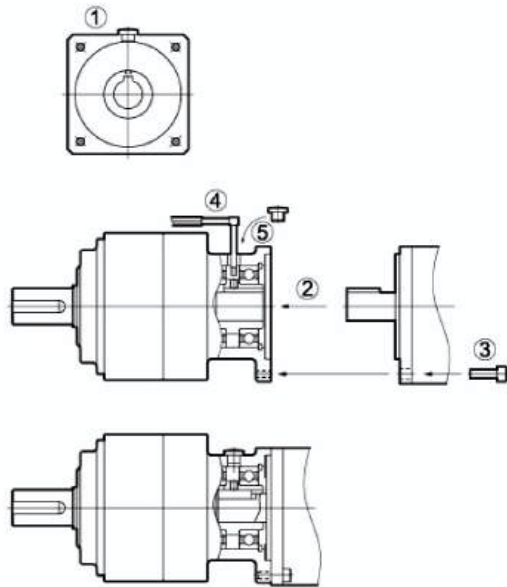
安装  
ASSEMBLY

2、安装带键槽马达 VRKF规格 VRKF spec. in case of assembling a motor with key

- 取下橡胶帽，转动输入轴，使螺栓头和橡胶帽的孔吻合。
  - 在马达轴上涂上防烧结剂（二氧化钼等），并将键与键槽对上后平稳地插入输出轴（请确保不受阻塞地顺畅的插入）。请务必注意不要让马达倾斜插入。
  - 将马达安装在减速机上，并按指定的扭矩将螺栓拧紧。参考表1
  - 使用扭矩扳手等工具按指定的扭矩将输入轴的固定螺栓拧紧，并确认键已被压紧。参考表3
  - 盖上橡胶帽。安装到此结束。
- ① Take off the rubber cap, turn the input shaft, and match the head of the bolt to the hole of the rubber cap.  
② Coat carbon formation inhibitors(molybdenum dioxide etc.) onto the motor shaft, match the key to the key slot, and gradually  
③ Combine the motor with the reducer and fasten with the designated fastening bolt. See Table 1.  
④ For set bolt of the input shaft, fasten using torque wrench with the designated fastening torque with the key firmly pressed. See Table 3.  
⑤ Put on a rubber cap. The is the end.

表3 Table3

| 固定螺栓 Combination bolt | 拧紧扭矩Fastening torque |        |
|-----------------------|----------------------|--------|
|                       | N·m                  | kgf·cm |
| M4                    | 2.0                  | 20     |
| M5                    | 4.3                  | 43     |
| M6                    | 7.3                  | 73     |
| M8                    | 16.8                 | 168    |



■ 减速机的安装 Reducer assembly

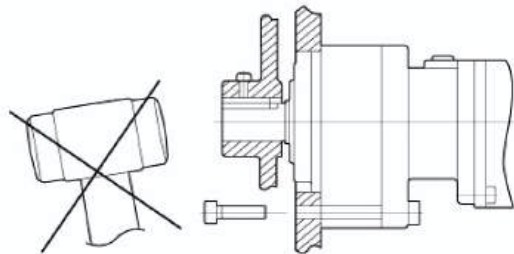
将减速机安装在设备上时，请在确认安装面平坦且无毛刺等后，使用扭矩扳手等工具按指定的扭矩用螺栓将其固定。参考表4  
Jointing with reducerIn case of jointing a reducer with the device, make sure that the combining side is plane without inconsistency, and when assemble reducer outo equipment, ensuring assembly surface smooth and without burr. See Table 4.

表4 Table4

| 减速机固定螺栓Reducercombination bolt |     | 拧紧扭矩Fastening torque |        |
|--------------------------------|-----|----------------------|--------|
|                                |     | N·m                  | kgf·cm |
| B段Type                         | M5  | 5.8                  | 60     |
| C段Type                         | M6  | 9.8                  | 100    |
| D段Type                         | M8  | 19.6                 | 200    |
| E段Type                         | M10 | 39.2                 | 400    |

■ 连接输出轴 Connection to the output shaft

- 注意事项:
- 在输出轴上安装耦合器、滑轮等时，请勿在输出轴上施加过大的轴向负荷。
  - 请勿使用强力将轴敲入，以免使轴承或减速机内部受到损伤。
  - 安装的耦合器等的轴和键槽如有较大松动，可能会导致设备烧毁，安装时请充分注意。
  - 安装耦合器等时，请使用固定螺栓来将键固定住。
  - 连接时请充分调校轴心。
- Cauti ons
- When assemble a coupling, pulley, etc. onto the output shaft, make sure that excessive axial load not be given to the output shaft.
  - In case of strongly hitting the shaft with a hammer, the shaft inlet or the inside of the reducer may be damaged, therefore it shall be prohibited.
  - If the shaft or key of a coupling assembled is loosed, it may cause carbonization, so be careful when assembling.
  - For assembling of a coupling, fix the key with a set bolt.
  - Please adjust shaft centre carefully in connecting.



噪音值比较  
COMPARISON OF NOISE VALUES



公司内部调查中的测定条件如下:  
※减速机输入转速: 3000rpm  
※测定位置: 距离产品50cm的位置  
※噪音值: 噪音值是代表值  
※负荷: 减速机额定负荷  
※减速机固定方法: 减速机固定于L型安装板上后, 再固定于平台上。

The measuring conditions in an internal survey are as mentioned below:  
※Reducer input speed: 3000rpm  
※Measurement spot: 50cm distant from the product  
※Noise value: Typical values chosen for noise values  
※Load: Reducer load rating  
※Reducer fixation: The reducer is fixed onto the L-type attachment plate so that it cannot move.

轴向、容许径向负荷  
TECHNICAL DATA THRUST LOAD

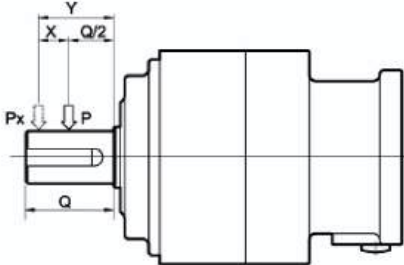
■轴向负荷(对马达的轴向负荷) Thrust load (to motor)

因采用的是斜齿轮, 故在轴的方向上会产生轴向的力。但本公司的ABLE减速机采用可以缓和轴向力的结构, 因此, 不管是背隙标准型, 还是LB型、PB型, 不会对伺服马达造成影响。至于其他的马达系列, 请对各马达生产厂家的容许轴向负荷进行确认。  
Thrust force acts in a shaft direction for units equipped with a helical gear. However, our ABLE REDUCER is designed to mitigate thrust force and thus does not influence a servo motor irrespective of backlash standard type, LB type, and PB type. For other motor series, see permissible thrust of each motor manufacturer.

| 额定输入<br>马达功率<br>Rated input<br>motor | 型号<br>Type  |                 |               | VR减速机<br>产生的径向力<br>VR Reducer Thrust Force<br>(N) | 伺服马达瞬间容许径向负荷(N)<br>Instantaneous Time Permissible Thrust Load Of Servo Motor (N) |                                                    |                                                       |
|--------------------------------------|-------------|-----------------|---------------|---------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------|
|                                      | 机种<br>Model | 段位号<br>Type no. | 马达功率<br>Motor |                                                   | 松下电器产业(株)<br>MSMA系列<br>Panasonic MSMA Series                                     | (株)安川电机SGMAH系列<br>Yaskawa Electric<br>SGMAH Series | 三菱电机(株)HC-MF系列<br>Mitsubishi Wlectric<br>HC-MF Series |
| 50W                                  | VRSF        | 3               | B             | 50                                                | 58                                                                               | 54                                                 | 59                                                    |
|                                      | VRSF        | 5               | B             | 50                                                |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 9               | B             | 50                                                |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 15              | B             | 50                                                |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 20              | B             | 50                                                |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 25              | B             | 50                                                |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 35              | B             | 50                                                |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 45              | C             | 50                                                |                                                                                  |                                                    |                                                       |
| 100W                                 | VRSF        | 81              | C             | 50                                                | 58                                                                               | 54                                                 | 59                                                    |
|                                      | VRSF        | 3               | B             | 100                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 5               | B             | 100                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 9               | B             | 100                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 15              | B             | 100                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 20              | B             | 100                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 25              | B             | 100                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 35              | C             | 100                                               |                                                                                  |                                                    |                                                       |
| 200W                                 | VRSF        | 45              | C             | 100                                               | 98                                                                               | 74                                                 | 98                                                    |
|                                      | VRSF        | 81              | D             | 100                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 3               | B             | 200                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 5               | B             | 200                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 9               | C             | 200                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 15              | C             | 200                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 20              | C             | 200                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 25              | C             | 200                                               |                                                                                  |                                                    |                                                       |
| 400W                                 | VRSF        | 35              | C             | 200                                               | 98                                                                               | 74                                                 | 98                                                    |
|                                      | VRSF        | 45              | D             | 200                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 81              | E             | 200                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 3               | B             | 400                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 5               | C             | 400                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 9               | C             | 400                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 15              | C             | 400                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 20              | C             | 400                                               |                                                                                  |                                                    |                                                       |
| 750W                                 | VRSF        | 25              | C             | 400                                               | 147                                                                              | 147                                                | 147                                                   |
|                                      | VRSF        | 35              | D             | 400                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 45              | E             | 400                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 3               | C             | 750                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 5               | C             | 750                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 9               | D             | 750                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 15              | D             | 750                                               |                                                                                  |                                                    |                                                       |
|                                      | VRSF        | 20              | D             | 750                                               |                                                                                  |                                                    |                                                       |

注 1) 产生的径向力: 产生瞬间最大输出扭矩时的数值。 Note 1) Thrust force: Numerical value upon max. instantaneous output torque

■容许径向负荷(对减速机的径向负荷) Permissible radial load (to reducer)

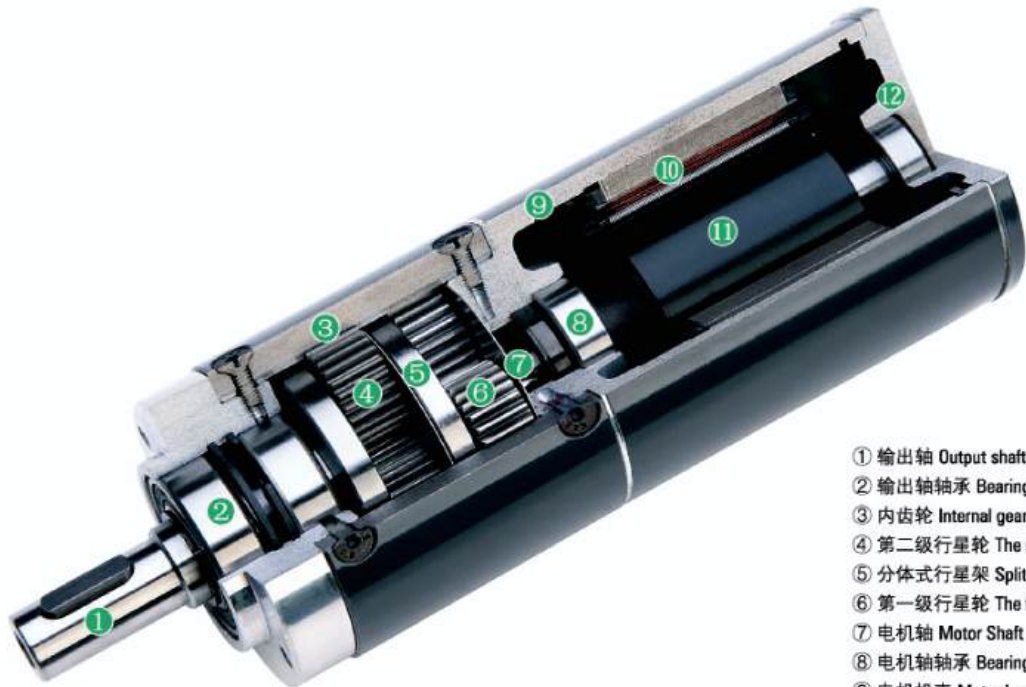


径向负荷处于输出轴中央部位以外的位置时, 请用下列公式和常数计算。  
If radial load is out of the center of the output shaft, calculate using the following equations and positive numbers:  
 $P_x = \{K/(K+X)\} \times P$   
 $X = Y - Q/2$   
P: 容许径向负荷(N) Permissible radial load (N)  
Q: 常数Positive number  
K: 常数Positive number  
X: 负荷点位移距离(mm)  
Y: 负荷点位移距离(mm)  
Px: 容许轴负荷(N) Permissible shaft load (N)

| 段位号<br>Type no. | 常数: Q<br>Positive number: Q | 常数: K<br>Positive number: K |
|-----------------|-----------------------------|-----------------------------|
| B               | 20                          | 46                          |
| C               | 30                          | 70                          |
| D               | 40                          | 79.5                        |
| E               | 55                          | 104                         |

PM系列行星齿轮减速电动机型号的阅读方法  
PRODUCT NUMBER CODE-PLANETARY GEAR MOTOR

剖视图 SECTIONAL DRAWING



- ① 输出轴 Output shaft  
② 输出轴轴承 Bearing for the output shaft  
③ 内齿轮 Internal gear  
④ 第二级行星轮 The second stage of planetary gear  
⑤ 分体式行星架 Split planet carrier  
⑥ 第一级行星轮 The first stage of planetary gear  
⑦ 电机轴 Motor shaft  
⑧ 电机轴轴承 Bearing for the motor shaft  
⑨ 电机机壳 Motor housing  
⑩ 无刷电机定子 BLDC motor stator  
⑪ 无刷电机转子 BLDC motor rotor  
⑫ 电机后盖 End cover

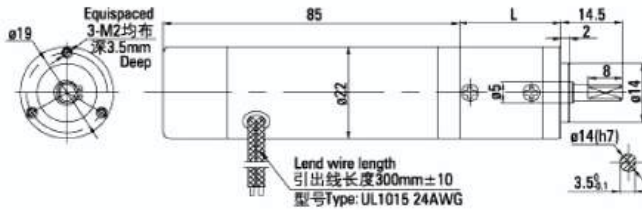
F 62 BLDP 24 60 - 30S / 62 PM 303  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

|       |   |                                                                                                                                                                                                                                                                                                     |  |
|-------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 电机参数  | ① | 广东履融传动科技有限公司标识                                                                                                                                                                                                   |  |
|       | ② | 电机外形尺寸 Motor outline dimension<br>22:电机外径 Motor external diameter $\phi 22\text{mm}$ 32:电机外径 Motor external diameter $\phi 32\text{mm}$ 42:电机外径 Motor external diameter $\phi 42\text{mm}$<br>52:电机外径 Motor external diameter $\phi 52\text{mm}$ 62:电机外径 Motor external diameter $\phi 62\text{mm}$ |  |
|       | ③ | 电机型式:<br>BLDP:无刷直流电机, 配行星减速箱式 BLDC motor matched with planetary gearbox<br>DP:有刷直流电机, 碳刷内置 (不可外部更换电刷), 配行星减速箱式<br>Brush DC motor with inner brush (no brush replacement from outside), matched with planetary gearbox                                                                               |  |
|       | ④ | 电机使用额定电压 Rated voltage for the motor using<br>12:12V<br>24:24V                                                                                                                                                                                                                                      |  |
|       | ⑤ | 电机输出额定功率 Rated output power for the motor<br>40:40W<br>60:60W                                                                                                                                                                                                                                       |  |
| 齿轮箱参数 | ⑥ | 电机输出额定转速 Rated output speed for the motor<br>20S:2000RPM<br>30S:3000RPM                                                                                                                                                                                                                             |  |
|       | ⑦ | 齿轮箱外形尺寸 The outline dimension for the gearbox<br>传动型系列transmission series 22-外径 External diameter $\phi 22\text{mm}$ 32-外径 External diameter $\phi 32\text{mm}$ 42-外径 External diameter $\phi 42\text{mm}$<br>52-外径 External diameter $\phi 52\text{mm}$ 62-外径 External diameter $\phi 62\text{mm}$ |  |
|       | ⑧ | 行星齿轮箱 Planetary gearbox<br>PM:传动型行星(金属) Transmission planetary (metal)<br>PK:传动型行星(塑料) Transmission planetary (plastic)                                                                                                                                                                             |  |
|       | ⑨ | 减速比 Reduction ratio<br>303:减速比Reduction ratio 1:303                                                                                                                                                                                                                                                 |  |

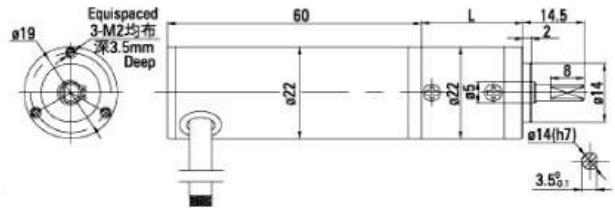
Ø22 DC/BLDP直流有刷(无刷)行星齿轮减速电机  
Ø22 DC BRUSH (BRUSHLESS) PLANETARY GEAR MOTOR



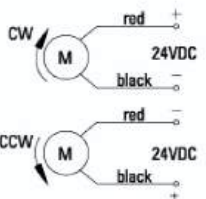
F22DP2410-60S/22PM 直流有刷行星减速电机  
F22DP2410-60S/22PM DC brush planetary gear motor



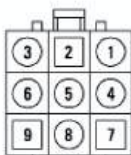
F22BLD2410-60S/22PM 直流无刷行星减速电机  
F22BLD2410-60S/22PM DC brushless planetary gear motor



F22D电机接线图  
F22D motor wiring diagram



F22BLD插孔示意图  
F22BLD plughole diagram



F22BLD接线插孔对应信号说明  
F22BLD wiring plughole corresponding signal explanation

|     |    |    |     |   |
|-----|----|----|-----|---|
| 1   | 2  | 2  | 4   | 5 |
| U   | V  | W  | +5V | / |
| 6   | 7  | 8  | 9   |   |
| GND | Hu | Hv | Hw  |   |

直流电机技术参数 DC MOTOR TECHNICAL DATA

| 直流电机型号<br>Motor type | 电压<br>Voltage | 功率<br>Power | 空载转速<br>No-load speed | 空载电流<br>No-load current | 额定转速<br>Rated speed | 额定电流<br>Rated current | 额定转矩<br>Rated torque | 电机寿命<br>Motor life | 电机重量<br>Motor weight |
|----------------------|---------------|-------------|-----------------------|-------------------------|---------------------|-----------------------|----------------------|--------------------|----------------------|
| TYPE                 | V             | W           | RPM                   | A                       | RPM                 | A                     | N.M                  | H                  | Kg                   |
| F22DP2410-60S        | 24            | 10          | 6500                  | 0.3                     | 6000                | 0.85                  | 1.6                  | 1000               | 0.5                  |
| F22BDP2410-60S       | 24            | 10          | 6500                  | 0.3                     | 6000                | 0.90                  | 1.6                  | 3000               | 0.5                  |

直流行星减速电机技术参数 DC PLANETARY GEAR MOTOR TECHNICAL DATA

| 减速比 Reduction ratio  | i   | 3.65  | 5.36  | 6.55  | 8.63 | 13   | 20   | 24   | 29  | 35  | 43  | 57  | 74  |  |  |
|----------------------|-----|-------|-------|-------|------|------|------|------|-----|-----|-----|-----|-----|--|--|
| 空载转速 No-load speed   | RPM | 1780  | 1212  | 922   | 753  | 500  | 325  | 271  | 244 | 186 | 151 | 114 | 88  |  |  |
| 额定转速 Rated speed     | RPM | 1644  | 1119  | 916   | 695  | 461  | 300  | 250  | 207 | 171 | 139 | 105 | 81  |  |  |
| 额定转矩 Rated torque    | N.M | 0.052 | 0.077 | 0.094 | 0.12 | 0.18 | 0.29 | 0.34 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |  |  |
| 减速级数 Reduction stage |     | 1     | 1     | 1     | 1    | 2    | 2    | 2    | 2   | 2   | 2   | 2   | 2   |  |  |

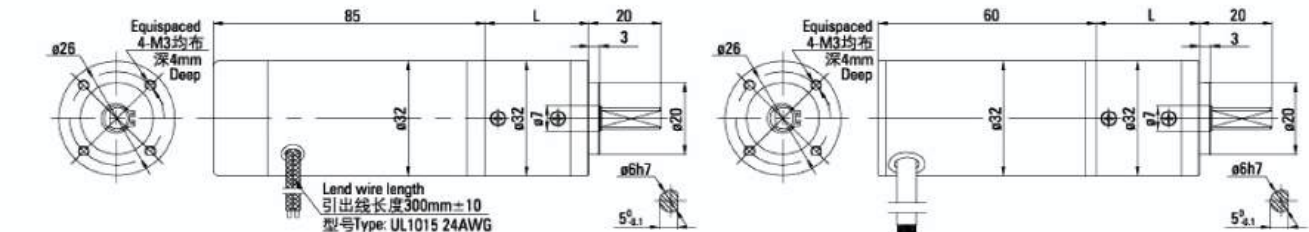
| 减速比 Reduction ratio  | i   | 87  | 105 | 128 | 154 | 169 | 188 | 206 | 248 | 272 | 303 | 370 | 399 | 488 | 643 |
|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 空载转速 No-load speed   | RPM | 75  | 62  | 51  | 42  | 38  | 34  | 31  | 26  | 24  | 21  | 17  | 16  | 13  | 10  |
| 额定转速 Rated speed     | RPM | 67  | 57  | 47  | 39  | 35  | 32  | 29  | 24  | 22  | 20  | 16  | 15  | 12  | 9   |
| 额定转矩 Rated torque    | N.M | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.6 |
| 减速级数 Reduction stage |     | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   |

Ø32 DC/BLDP直流有刷(无刷)行星齿轮减速电机  
Ø32 DC BRUSH (BRUSHLESS) PLANETARY GEAR MOTOR



F32DP2415-30S/32PM□直流有刷行星减速机  
F32DP2415-30S/32PM□DC btush planetary gear motor

F32BLD2415-30S/32PM□直流无刷行星减速机  
F32BLD2415-30S/32PM□DC btushless planetary gear motor

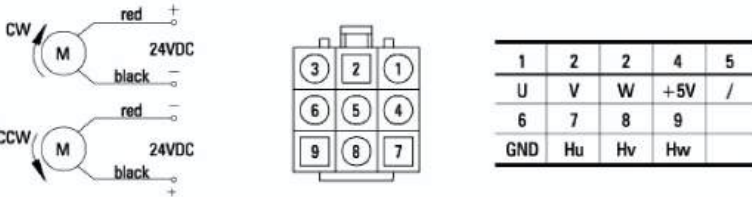


F32D电机接线图  
F32D motor wiring diagram

F32BLD插孔示意图  
F32BLD plughole diagram

F32BLD接线插孔对应信号说明  
F32BLD wiring plughole corresponding signal explanation

| 电动机型号<br>Motor type | 减速箱型号<br>Gearbox type | 减速比<br>Reduction ratio | L尺寸mm<br>Dimension |
|---------------------|-----------------------|------------------------|--------------------|
| F32DP<br>F32BLDP    | 32PM□                 | 3.65~8.63              | 28.5               |
|                     |                       | 13~74                  | 38.3               |
|                     |                       | 87~643                 | 48.1               |



■直流电机技术参数 DC MOTOR TECHNICAL DATA

| 无刷电机型号<br>Motor type | 电压<br>Voltage | 功率<br>Power | 空载转速<br>No-load speed | 空载电流<br>No-load current | 额定转速<br>Rated speed | 额定电流<br>Rated current | 额定转矩<br>Rated torque | 电机寿命<br>Motor life | 电机重量<br>Motor weight |
|----------------------|---------------|-------------|-----------------------|-------------------------|---------------------|-----------------------|----------------------|--------------------|----------------------|
| TYPE                 | V             | W           | RPM                   | A                       | RPM                 | A                     | N.M                  | H                  | Kg                   |
| F32DP2415-30S        | 24            | 15          | 3500                  | 0.5                     | 3000                | 1.20                  | 47.5                 | 1000               | 0.8                  |
| F32BDP2415-30S       | 24            | 15          | 3500                  | 0.5                     | 3000                | 1.20                  | 47.5                 | 2000               | 0.8                  |

■直行星减速电机技术参数 DC PLANETARY GEAR MOTOR TECHNICAL DATA- Z32DP2415-30S

| 减速比 Reduction ratio  | i   | 3.65 | 5.36 | 6.55 | 8.63 | 13   | 20   | 24  | 29  | 35  | 43  | 57  | 74  |  |  |
|----------------------|-----|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|--|--|
| 空载转速 No-load speed   | RPM | 956  | 653  | 534  | 405  | 269  | 175  | 146 | 121 | 100 | 83  | 61  | 47  |  |  |
| 额定转速 Rated speed     | RPM | 822  | 560  | 458  | 348  | 225  | 153  | 126 | 105 | 85  | 70  | 53  | 40  |  |  |
| 额定转矩 Rated torque    | N.M | 0.15 | 0.22 | 0.27 | 0.36 | 0.49 | 0.76 | 0.9 | 1.1 | 1.3 | 1.5 | 1.5 | 1.5 |  |  |
| 减速级数 Reduction stage |     | 1    | 1    | 1    | 1    | 2    | 2    | 2   | 2   | 2   | 2   | 2   | 2   |  |  |

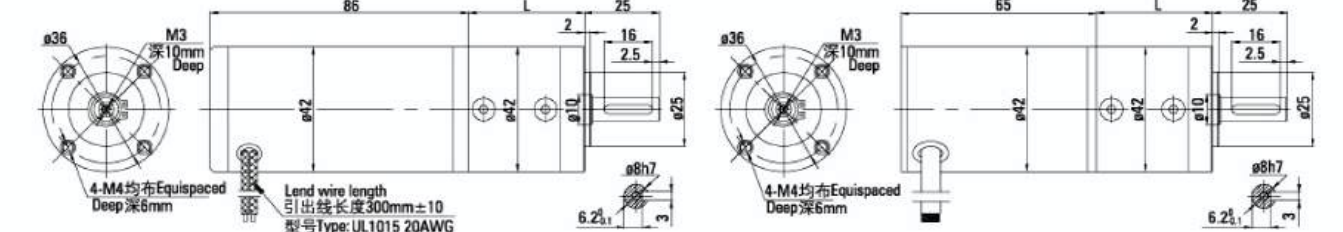
| 减速比 Reduction ratio  | i   | 87 | 105 | 128 | 154 | 169 | 188 | 206 | 248 | 272 | 303 | 370 | 399 | 488 | 643 |
|----------------------|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 空载转速 No-load speed   | RPM | 40 | 33  | 27  | 23  | 21  | 19  | 17  | 14  | 13  | 11  | 9   | 8   | 7   | 6   |
| 额定转速 Rated speed     | RPM | 34 | 29  | 23  | 19  | 18  | 16  | 14  | 12  | 11  | 10  | 8   | 7   | 6   | 5   |
| 额定转矩 Rated torque    | N.M | 3  | 3.6 | 4   | 4   | 4   | 4   | 4   | 4   | 4   | 4   | 4   | 4   | 4   | 2.5 |
| 减速级数 Reduction stage |     | 3  | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   |

Ø42 DC/BLDP直流有刷(无刷)行星齿轮减速电机  
Ø42 DC BRUSH (BRUSHLESS) PLANETARY GEAR MOTOR



F42DP2425-30S/42PM□直流有刷行星减速机  
F42DP2425-30S/42PM□DC btush planetary gear motor

F42BLD2425-30S/42PM□直流无刷行星减速机  
F42BLD2425-30S/42PM□DC btushless planetary gear motor

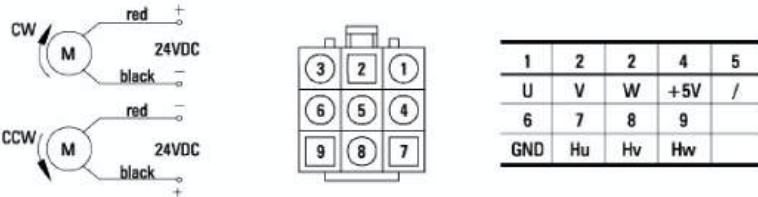


F42D电机接线图  
F42D motor wiring diagram

F42BLD插孔示意图  
F42BLD plughole diagram

F42BLD接线插孔对应信号说明  
F42BLD wiring plughole corresponding signal explanation

| 电动机型号<br>Motor type | 减速箱型号<br>Gearbox type | 减速比<br>Reduction ratio | L尺寸mm<br>Dimension |
|---------------------|-----------------------|------------------------|--------------------|
| F42DP<br>F42BLDP    | 42PM□                 | 3.65~8.63              | 38.6               |
|                     |                       | 13~74                  | 56.9               |
|                     |                       | 87~643                 | 75.2               |



■直流电机技术参数 DC MOTOR TECHNICAL DATA

| 直流电机型号<br>Motor type | 电压<br>Voltage | 功率<br>Power | 空载转速<br>No-load speed | 空载电流<br>No-load current | 额定转速<br>Rated speed | 额定电流<br>Rated current | 额定转矩<br>Rated torque | 电机寿命<br>Motor life | 电机重量<br>Motor weight |
|----------------------|---------------|-------------|-----------------------|-------------------------|---------------------|-----------------------|----------------------|--------------------|----------------------|
| TYPE                 | V             | W           | RPM                   | A                       | RPM                 | A                     | N.M                  | H                  | Kg                   |
| F42DP2425-30S        | 24            | 25          | 3500                  | 0.7                     | 3000                | 1.8                   | 79.6                 | 1000               | 1.0                  |
| F42BDP2425-30S       | 24            | 25          | 3500                  | 0.7                     | 3000                | 1.7                   | 79.6                 | 3000               | 1.2                  |

■直行星减速电机技术参数 DC PLANETARY GEAR MOTOR TECHNICAL DATA- Z42DP2425-30S

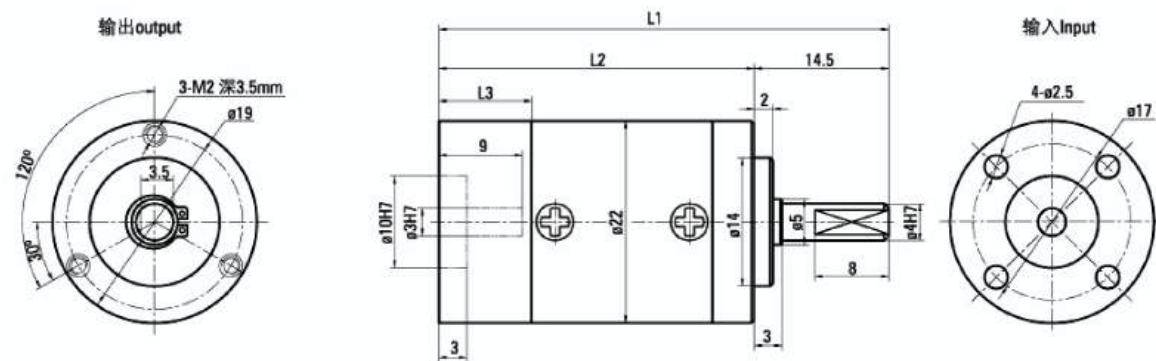
| 减速比 Reduction ratio  | i   | 3.65 | 5.36 | 6.55 | 8.63 | 13  | 20  | 24  | 29  | 35  | 43  | 57  | 74  |  |  |
|----------------------|-----|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| 空载转速 No-load speed   | RPM | 956  | 653  | 534  | 405  | 269 | 175 | 146 | 121 | 100 | 83  | 61  | 47  |  |  |
| 额定转速 Rated speed     | RPM | 822  | 560  | 458  | 348  | 225 | 153 | 126 | 105 | 85  | 70  | 53  | 40  |  |  |
| 额定转矩 Rated torque    | N.M | 0.26 | 0.38 | 0.46 | 0.61 | 0.8 | 1.3 | 1.5 | 1.9 | 2.2 | 2.5 | 2.5 | 2.5 |  |  |
| 减速级数 Reduction stage |     | 1    | 1    | 1    | 1    | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   |  |  |

| 减速比 Reduction ratio  | i   | 87 | 105 | 128 | 154 | 169 | 188  | 206  | 248  | 272 | 303 | 370 | 399 | 488 | 643 |
|----------------------|-----|----|-----|-----|-----|-----|------|------|------|-----|-----|-----|-----|-----|-----|
| 空载转速 No-load speed   | RPM | 40 | 33  | 27  | 23  | 21  | 19   | 17   | 14   | 13  | 11  | 9   | 8   | 7   | 6   |
| 额定转速 Rated speed     | RPM | 34 | 29  | 23  | 19  | 18  | 16   | 14   | 12   | 11  | 10  | 8   | 7   | 6   | 5   |
| 额定转矩 Rated torque    | N.M | 5  | 6   | 7.4 | 8.9 | 9.7 | 10.8 | 11.9 | 14.3 | 15  | 15  | 15  | 15  | 15  | 10  |
| 减速级数 Reduction stage |     | 3  | 3   | 3   | 3   | 3   | 3    | 3    | 3    | 3   | 3   | 3   | 3   | 3   | 3   |



PMØ22 传动型行星减速机  
PMØ22 PLANETARY GEAR MOTOR FOR TRANSMISSION

机械参数 DIMENSIONS



■技术资料 Technical Data

| 传动级数 Transmission stage      | 一级传动 Stage 1 transmission               | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|------------------------------|-----------------------------------------|---------------------------|---------------------------|
| 传动效率 Transmission efficiency | 90%                                     | 81%                       | 73%                       |
| 最大径向负载 Max radial load       | 80N                                     | 80N                       | 80N                       |
| 最大轴向负载 Max axial load        | 30N                                     | 30N                       | 30N                       |
| 瞬间承受扭矩 Instant beared torque | 3倍于额定扭矩 Three times of the rated torque |                           |                           |
| 工作温度 Operating temperature   | -10℃~+80℃                               |                           |                           |
| 润滑方式 Lubrication type        | 终身润滑 Lifetime lubrication               |                           |                           |
| 安装方式 Mounting type           | 任意安装 Any                                |                           |                           |
| 推荐输入转速 Recommend input speed | 3000RPM                                 |                           |                           |
| 输入与输出 Input and output       | 同向 Same direction                       |                           |                           |
| 齿轮箱长度L1 / Gearbox length     | 48.5mm                                  | 56.8mm                    | 65.1mm                    |
| 箱体长度L2 / Body length         | 34mm                                    | 42.3mm                    | 50.6mm                    |
| 后盖长度L3 / End-cover length    |                                         | 10mm                      |                           |

| 第一级行星轮材料 Stage 1 planetary material |                | 一级传动 Stage 1 transmission | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|-------------------------------------|----------------|---------------------------|---------------------------|---------------------------|
| 传动扭矩 Transmission torque            | 塑料 Plastic POM | 0.2N.M                    | 0.7N.M                    | 0.8N.M                    |
|                                     | 金属 Metal 40Cr  | 0.6N.M                    | 0.7N.M                    | 0.8N.M                    |
| 噪声 Noise                            | 塑料 Plastic POM | 45dB(A)                   |                           |                           |
|                                     | 金属 Metal 40Cr  | 60dB(A)                   |                           |                           |

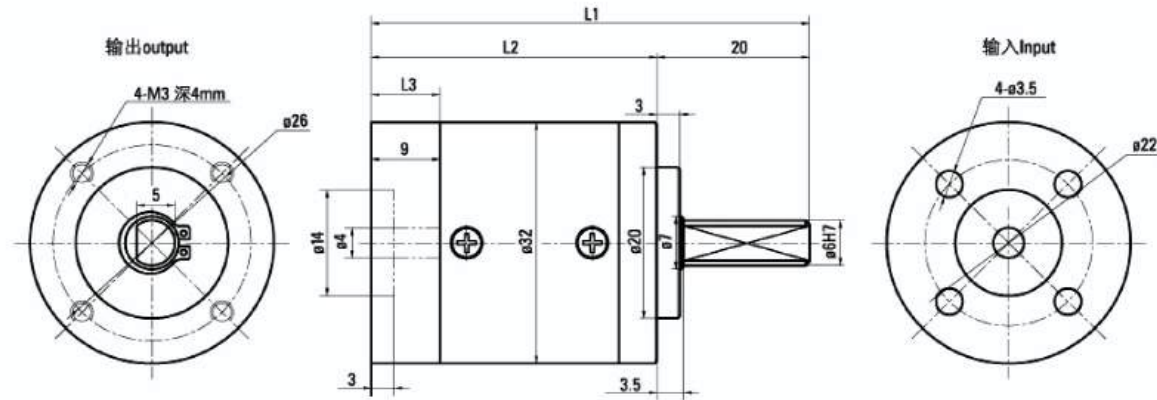
■速比排列 Reduction ratio list

| 一级传动 Stage 1 transmission | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|---------------------------|---------------------------|---------------------------|
| 3.7                       | 14(13.8)                  | 51(50.6)                  |
| 5.18                      | 19(19.1)                  | 71(70.9)                  |
| 6.75                      | 25(24.9)                  | 92(92.4)                  |
|                           | 27(26.8)                  | 99(99.2)                  |
|                           | 35(34.9)                  | 129(129.3)                |
|                           | 45 (45.5)                 | 139(139)                  |

- 作用在额定扭矩下第一级行星两种材质的寿命相同，塑料材质一般用于同直径电机。
- 输入端可以按电机的尺寸合理调节:1. 可调尺寸:止口直径Ø20H7, 止口深度3.2。电机轴有效长度9 (变化齿轮长度成正比) 3. 可调尺寸:后盖的直径大小。
- 输出端可以按客户特殊要求特配: 1. 出轴直径不能超过Ø4, 安装凸台不能小于直径Ø14。2. 输出法兰可为方型。
- The lifetime of the two materials for the stage 1 planetary is the same under the circumstance of rated torque. plastic material is generally used for the motor with same diameter. ● The input end can be adjusted according to the motor dimension: 1. adjustable dimension: spigot diameter Ø20H7, spigot depth 3.2. motor shaft effective length 9 (it is proportional to the change of gear length) 3. djustable dimension: end-cover diameter. ● The output end can be decided by the customer: 1. the output diameter can not be exceed 4, assembling allocating convex can not be less than 14. 2. output flange can be square.

PMØ32 传动型行星减速机  
PMØ32 PLANETARY GEAR MOTOR FOR TRANSMISSION

机械参数 DIMENSIONS



■技术资料 Technical Data

| 传动级数 Transmission stage      | 一级传动 Stage 1 transmission               | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|------------------------------|-----------------------------------------|---------------------------|---------------------------|
| 传动效率 Transmission efficiency | 90%                                     | 81%                       | 73%                       |
| 最大径向负载 Max radial load       | 80N                                     | 115N                      | 140N                      |
| 最大轴向负载 Max axial load        | 30N                                     | 40N                       | 50N                       |
| 瞬间承受扭矩 Instant beared torque | 3倍于额定扭矩 Three times of the rated torque |                           |                           |
| 工作温度 Operating temperature   | -10℃~+80℃                               |                           |                           |
| 润滑方式 Lubrication type        | 终身润滑 Lifetime lubrication               |                           |                           |
| 安装方式 Mounting type           | 任意安装 Any                                |                           |                           |
| 推荐输入转速 Recommend input speed | 3000RPM                                 |                           |                           |
| 输入与输出 Input and output       | 同向 Same direction                       |                           |                           |
| 齿轮箱长度L1 / Gearbox length     | 57.5mm                                  | 67.3mm                    | 77.1mm                    |
| 箱体长度L2 / Body length         | 37.5mm                                  | 47.3mm                    | 57.1mm                    |
| 后盖长度L3 / End-cover length    |                                         | 9mm                       |                           |

| 第一级行星轮材料 Stage 1 planetary material |                | 一级传动 Stage 1 transmission | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|-------------------------------------|----------------|---------------------------|---------------------------|---------------------------|
| 传动扭矩 Transmission torque            | 塑料 Plastic POM | 0.4N.M                    | 1.5~2.25N.M               | 4N.M                      |
|                                     | 金属 Metal 40Cr  | 1N.M                      | 2.25N.M                   | 4N.M                      |
| 噪声 Noise                            | 塑料 Plastic POM | 45dB(A)                   |                           |                           |
|                                     | 金属 Metal 40Cr  | 60dB(A)                   |                           |                           |

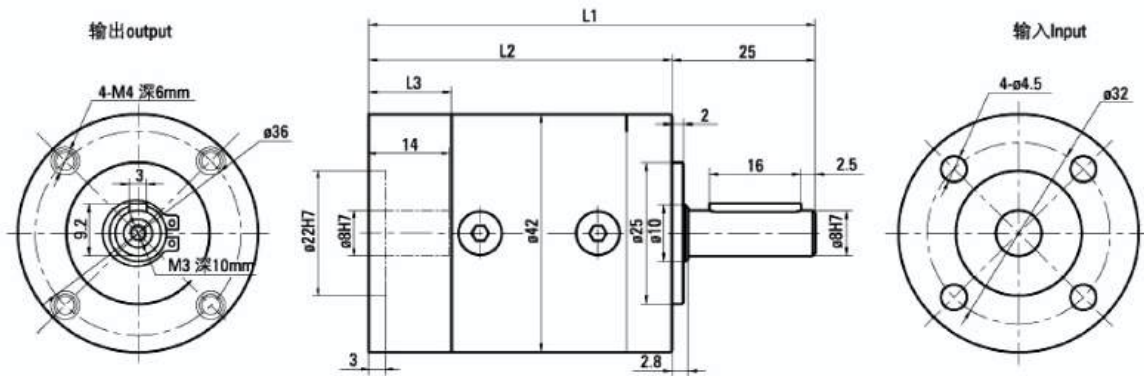
■速比排列 Reduction ratio list

| 一级传动 Stage 1 transmission | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|---------------------------|---------------------------|---------------------------|
| 3.7                       | 14(13.8)                  | 51(50.6)                  |
| 5.18                      | 19(19.1)                  | 71(70.9)                  |
| 6.75                      | 25(24.9)                  | 92(92.4)                  |
|                           | 27(26.8)                  | 99(99.2)                  |
|                           | 35(34.9)                  | 129(129.3)                |
|                           | 45 (45.5)                 | 139(139)                  |

- 作用在额定扭矩下第一级行星两种材质的寿命相同，塑料材质一般用于同直径电机。●输入端可以按电机的尺寸合理调节:1. 可调尺寸:止口直径Ø20H7, 止口深度3.2。2. 电机轴有效长度9 (变化齿轮长度成正比) 3. 可调尺寸:后盖的直径大小。●输出端可以按客户特殊要求特配: 1. 出轴直径不能超过Ø7, 安装凸台不能小于直径Ø20。2. 输出法兰可为方型。
- The lifetime of the two materials for the stage 1 planetary is the same under the circumstance of rated torque. plastic material is generally used for the motor with same diameter. ● The input end can be adjusted according to the motor dimension: 1. adjustable dimension: spigot diameter Ø20H7, spigot depth 3.2. motor shaft effective length 9 (it is proportional to the change of gear length) 3. djustable dimension: end-cover diameter. ● The output end can be decided by the customer: 1. the output diameter can not be exceed 7, assembling allocating convex can not be less than 20. 2. output flange can be square.

PMØ42 传动型行星减速机  
PMØ42 PLANETARY GEAR MOTOR FOR TRANSMISSION

机械参数 DIMENSIONS



技术资料 TECHNICAL DATA

| 传动级数 Transmission stage      | 一级传动 Stage 1 transmission               | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|------------------------------|-----------------------------------------|---------------------------|---------------------------|
| 传动效率 Transmission efficiency | 90%                                     | 81%                       | 73%                       |
| 最大径向负载 Max radial load       | 160N                                    | 230N                      | 300N                      |
| 最大轴向负载 Max axial load        | 50N                                     | 80N                       | 110N                      |
| 瞬间承受扭矩 Instant beared torque | 3倍于额定扭矩 Three times of the rated torque |                           |                           |
| 工作温度 Operating temperature   | -10℃~+80℃                               |                           |                           |
| 润滑方式 Lubrication type        | 终身润滑 Lifetime lubrication               |                           |                           |
| 安装方式 Mounting type           | 任意安装 Any                                |                           |                           |
| 推荐输入转速 Recommend input speed | 3000RPM                                 |                           |                           |
| 输入与输出 Input and output       | 同向 Same direction                       |                           |                           |
| 齿轮箱长度L1 / Gearbox length     | 78.1mm                                  | 90.9mm                    | 103.7mm                   |
| 箱体长度L2 / Body length         | 53.1mm                                  | 65.9mm                    | 78.7mm                    |
| 后盖长度L3 / End-cover length    |                                         | 14.5mm                    |                           |

| 第一级行星轮材料 Stage 1 planetary material |                | 一级传动 Stage 1 transmission | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|-------------------------------------|----------------|---------------------------|---------------------------|---------------------------|
| 传动扭矩 Transmission torque            | 塑料 Plastic POM | 0.7N.M                    | 2.5~6N.M                  | 15N.M                     |
|                                     | 金属 Metal 40Cr  | 3N.M                      | 7.5N.M                    | 15N.M                     |
| 噪声 Noise                            | 塑料 Plastic POM | 45dB(A)                   |                           |                           |
|                                     | 金属 Metal 40Cr  | 60dB(A)                   |                           |                           |

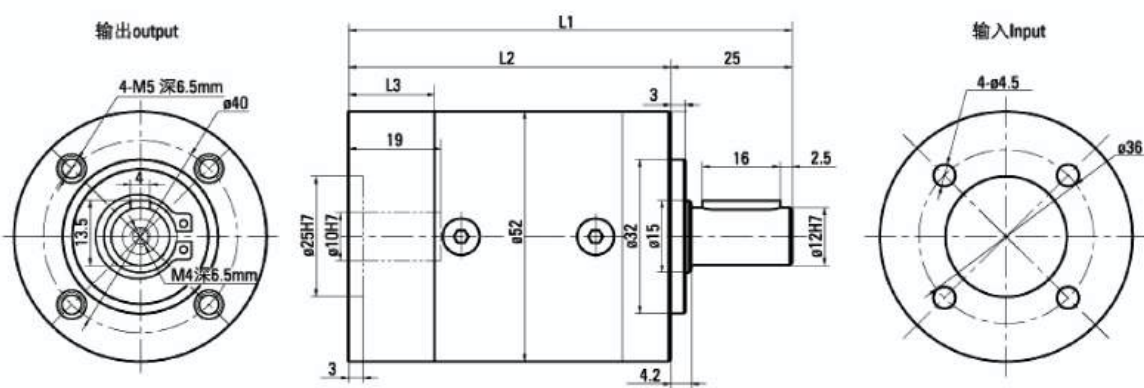
速比排列 Reduction ratio list

| 一级传动 Stage 1 transmission | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |            |
|---------------------------|---------------------------|---------------------------|------------|
| 3.65                      | 13(13.3)                  | 49(48.63)                 | 188(188.2) |
| 5.36                      | 20(19.5)                  | 71(71.4)                  | 206(206.3) |
| 6.55                      | 24(23.9)                  | 87(87.2)                  | 248(247.9) |
| 8.63                      | 31(31.5)                  | 105(104.8)                | 272(271.8) |
|                           | 29(28.7)                  | 115(114.9)                | 281(281)   |
|                           | 35(35.1)                  | 128(128.1)                | 303(302.9) |
|                           | 43(42.9)                  | 154(154)                  | 370(370.2) |
|                           | 46(46.2)                  | 157(156.6)                | 399(399.2) |
|                           | 56(56.5)                  | 169(168.8)                | 489(488.8) |

- 作用在额定扭矩下第一级行星两种材质的寿命相同，塑料材质一般用于同直径电机。● 输入端可以按电机的尺寸合理调节：1. 可调尺寸：止口直径Ø22H7，止口深度3。2. 电机轴有效长度14（变化齿轮长度成正比）。3. 可调尺寸：后盖的直径大小。● 输出端可以按客户特殊要求特配：1. 出轴直径不能超过Ø10，安装凸台不能小于直径Ø25。2. 输出法兰可为方型。
- the lifetime of the two materials for the stage 1 planetary is the same under the circumstance of rated torque, plastic material is generally used for the motor with same diameter. ● the input end can be adjusted according to the motor dimension: 1. adjustable dimension: spigot diameter Ø22H7, spigot depth 3. 2. motor shaft effective length 14 (it is proportional to the change of gear length) 3. djustable dimension: end-cover diameter. ● the output end can be decided by the customer: 1. the output diameter can not be exceed 10, assembling allocating convex can not be less than 25. 2. output flange can be square.

PMØ52 传动型行星减速机  
PMØ52 PLANETARY GEAR MOTOR FOR TRANSMISSION

机械参数 DIMENSIONS



技术资料 TECHNICAL DATA

| 传动级数 Transmission stage      | 一级传动 Stage 1 transmission               | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|------------------------------|-----------------------------------------|---------------------------|---------------------------|
| 传动效率 Transmission efficiency | 90%                                     | 81%                       | 73%                       |
| 最大径向负载 Max radial load       | 200N                                    | 320N                      | 450N                      |
| 最大轴向负载 Max axial load        | 60N                                     | 100N                      | 150N                      |
| 瞬间承受扭矩 Instant beared torque | 3倍于额定扭矩 Three times of the rated torque |                           |                           |
| 工作温度 Operating temperature   | -10℃~+80℃                               |                           |                           |
| 润滑方式 Lubrication type        | 终身润滑 Lifetime lubrication               |                           |                           |
| 安装方式 Mounting type           | 任意安装 Any                                |                           |                           |
| 推荐输入转速 Recommend input speed | 3000RPM                                 |                           |                           |
| 输入与输出 Input and output       | 同向 Same direction                       |                           |                           |
| 齿轮箱长度L1 / Gearbox length     | 91.4mm                                  | 107.8mm                   | 124.2mm                   |
| 箱体长度L2 / Body length         | 66.4mm                                  | 82.8mm                    | 99.2mm                    |
| 后盖长度L3 / End-cover length    |                                         | 17.7mm                    |                           |

| 第一级行星轮材料 Stage 1 planetary material |                | 一级传动 Stage 1 transmission | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|-------------------------------------|----------------|---------------------------|---------------------------|---------------------------|
| 传动扭矩 Transmission torque            | 塑料 Plastic POM | 1.2N.M                    | 4~10N.M                   | 25N.M                     |
|                                     | 金属 Metal 40Cr  | 4N.M                      | 12N.M                     | 25N.M                     |
| 噪声 Noise                            | 塑料 Plastic POM | 45dB(A)                   |                           |                           |
|                                     | 金属 Metal 40Cr  | 60dB(A)                   |                           |                           |

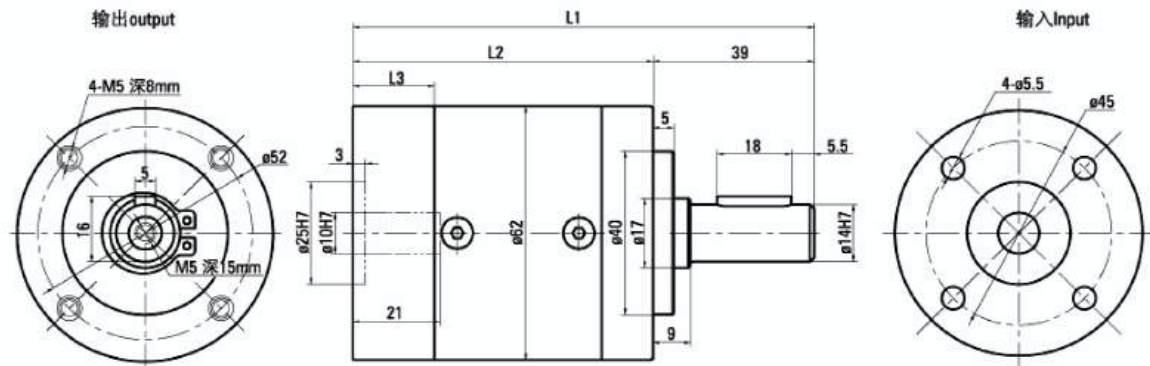
速比排列 Reduction ratio list

| 一级传动 Stage 1 transmission | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |            |
|---------------------------|---------------------------|---------------------------|------------|
| 3.65                      | 13(13.3)                  | 49(48.63)                 | 188(188.2) |
| 5.36                      | 20(19.5)                  | 71(71.4)                  | 206(206.3) |
| 6.55                      | 24(23.9)                  | 87(87.2)                  | 248(247.9) |
| 8.63                      | 31(31.5)                  | 105(104.8)                | 272(271.8) |
|                           | 29(28.7)                  | 115(114.9)                | 281(281)   |
|                           | 35(35.1)                  | 128(128.1)                | 303(302.9) |
|                           | 43(42.9)                  | 154(154)                  | 370(370.2) |
|                           | 46(46.2)                  | 157(156.6)                | 399(399.2) |
|                           | 56(56.5)                  | 169(168.8)                | 489(488.8) |

- 作用在额定扭矩下第一级行星两种材质的寿命相同，塑料材质一般用于同直径电机。● 输入端可以按电机的尺寸合理调节：1. 可调尺寸：止口直径Ø25H7，止口深度3。2. 电机轴有效长度19（变化齿轮长度成正比）。3. 可调尺寸：后盖的直径大小。● 输出端可以按客户特殊要求特配：1. 出轴直径不能超过Ø15，安装凸台不能小于直径Ø32。2. 输出法兰可为方型。
- the lifetime of the two materials for the stage 1 planetary is the same under the circumstance of rated torque, plastic material is generally used for the motor with same diameter. ● the input end can be adjusted according to the motor dimension: 1. adjustable dimension: spigot diameter Ø25H7, spigot depth 3. 2. motor shaft effective length 21 (it is proportional to the change of gear length) 3. djustable dimension: end-cover diameter. ● the output end can be decided by the customer: 1. the output diameter can not be exceed 15, assembling allocating convex can not be less than 32. 2. output flange can be square.

PMØ62 传动型行星减速机  
PMØ62 PLANETARY GEARBOX FOR TRANSMISSION

机械参数 DIMENSIONS



技术资料 TECHNICAL DATA

| 传动级数 Transmission stage      | 一级传动 Stage 1 transmission               | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|------------------------------|-----------------------------------------|---------------------------|---------------------------|
| 传动效率 Transmission efficiency | 90%                                     | 81%                       | 73%                       |
| 最大径向负载 Max radial load       | 240N                                    | 360N                      | 520N                      |
| 最大轴向负载 Max axial load        | 70N                                     | 100N                      | 150N                      |
| 瞬间承受扭矩 Instant beared torque | 3倍于额定扭矩 Three times of the rated torque |                           |                           |
| 工作温度 Operating temperature   | -10℃~+80℃                               |                           |                           |
| 润滑方式 Lubrication type        | 终身润滑 Lifetime lubrication               |                           |                           |
| 安装方式 Mounting type           | 任意安装 Any                                |                           |                           |
| 推荐输入转速 Recommend input speed | 3000RPM                                 |                           |                           |
| 输入与输出 Input and output       | 同向 Same direction                       |                           |                           |
| 齿轮箱长度 L1 / Gearbox length    | 111.7mm                                 | 129.6mm                   | 147.5mm                   |
| 箱体长度 L2 / Body length        | 72.7mm                                  | 90.6mm                    | 108.5mm                   |
| 后盖长度 L3 / End-cover length   |                                         | 19.7mm                    |                           |

| 第一级行星轮材料 Stage 1 planetary material | 一级传动 Stage 1 transmission | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|-------------------------------------|---------------------------|---------------------------|---------------------------|
| 传动扭矩 Transmission torque            | 塑料 Plastic POM            | 4.5N.M                    | 15~25N.M                  |
|                                     | 金属 Metal 40Cr             | 8N.M                      | 25N.M                     |
| 噪声 Noise                            | 塑料 Plastic POM            | 45dB(A)                   | 45N.M                     |
|                                     | 金属 Metal 40Cr             | 60dB(A)                   |                           |

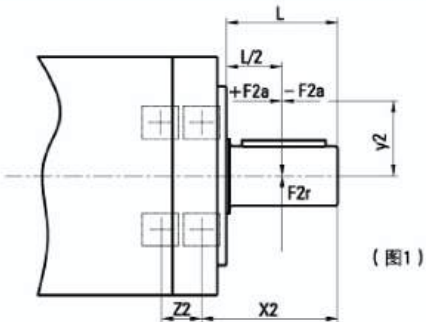
速比排列 Reduction ratio list

| 一级传动 Stage 1 transmission | 二级传动 Stage 2 transmission | 三级传动 Stage 3 transmission |
|---------------------------|---------------------------|---------------------------|
| 3.65                      | 13(13.3)                  | 49(48.63)                 |
| 5.36                      | 20(19.5)                  | 71(71.4)                  |
| 6.55                      | 24(23.9)                  | 87(87.2)                  |
| 8.63                      | 31(31.5)                  | 105(104.8)                |
|                           | 29(28.7)                  | 115(114.9)                |
|                           | 35(35.1)                  | 128(128.1)                |
|                           | 43(42.9)                  | 154(154)                  |
|                           | 46(46.2)                  | 157(156.6)                |
|                           | 56(56.5)                  | 169(168.8)                |

- 作用在额定扭矩下第一级行星两种材质的寿命相同，塑料材质一般用于同直径电机。● 输入端可以按电机的尺寸合理调节：1. 可调尺寸：止口直径ø25H7，止口深度3。2. 电机轴有效长度21（变化齿轮长度成正比）3. 可调尺寸：后盖的直径大小。● 输出端可以按客户特殊要求特配：1. 出轴直径不能超过17，安装凸台不能小于40。2. 输出法兰可为方型。
- The lifetime of the two materials for the stage 1 planetary is the same under the circumstance of rated torque, plastic material is generally used for the motor with same diameter.
- The input end can be adjusted according to the motor dimension: 1. adjustable dimension: spigot diameter ø25H7, spigot depth 3. 2. motor shaft effective length 21 (it is proportional to the change of gear length) 3. adjustable dimension: end-cover diameter
- The output end can be decided by the customer: 1. the output diameter can not be exceed 17, assembling allocating convex can not be less than 40. 2. the output flange can be square.

参数定义与减速器的选型  
PARAMETER AND SELECTION OF GEARBOX TYPE

参数定义 PARAMETER



1. 额定输入转速(电机额定转速) $n_1$ [rpm]: 在环境温度为20℃的条件下机械设备在正常运行的工作状态下的转速。
2. 额定输入功率(电机额定功率) $P$ : 直流电路中，额定电压与额定电流的乘积就是电器的额定功率。
3. 减速比*i*: 减速比是机械工程中评价减速机的一个重要指标。减速机通过齿轮等传动方式将输入轴输入的转速转换成输出轴的转。
4. 额定输出转速  $n_2$ [rpm]: 额定输出转速按照下列公式通过额定输入转速和传动比计算出来  
$$n_2 = n_1 / i$$

例如：电机额定转速输入3000RPM，齿轮箱总减速比*i*=1:50, $n_2=3000RPM/50=60RPM$ 。
5. 传动效率 $[\eta]$ : 由于摩擦引起的损失总是使有效率小于1，也就是少于100%。样本上的效率是齿轮箱在满负荷运动情况下，减速机的传输效率。
6. 额定输出扭矩  $T_N$ [N.m]: 指减速机长时间（连续工作制）可以加载的力矩（无磨损），条件应满足负载均匀，弯曲安全系数>2.5。额定输出转速按照下列公式通过额定输入转速和传动比*i*及传动效率 $[\eta]$ 和输入额定功率计算出来  
$$T_N = (W \cdot 9.55 / 3000) \cdot i \cdot \eta$$

例如：直流电机额定输出90W,额定转速3000RPM,齿轮箱总减速比*i*=1:50,传动总效率 $\eta$ 总81%,则额定输出扭矩  $T_N=(90 \cdot 9.55 / 3000) \cdot 50 \cdot 0.81=11.6 N.m$ 。
7. 直流电机的一般规格
- a. 绝缘电阻: 于常温与常湿下的电动机额定运行后，以DC500V的电阻表测量线圈与外壳时，测量值在200MΩ以上
- b. 绝缘耐压: 于常温与常湿下的电动机额定运行后，在线圈与外壳间施加一分钟50Hz或60Hz、1.5kV(三相400V为2 kV)的电压，亦无异常
- c. 电机温升: 运转电机后，用温度法来测量时，电机表机最热点温升值在80K以下
- d. 绝缘等级: B级（130℃）
- e. 使用温度: -10~40℃（无冰冻）
- f. 使用湿度: 80%以下（无结露的场所）
8. 直流行星减速机在电机与行星同直径时，行星齿轮箱（传动型）第一级行星齿轮使用塑料齿轮，第二级、第三级使用金属齿轮。
9. 寿命: 指在减速机在额定负载下，额定输入转速时的连续工作时间，直流有刷电机的寿命是由碳刷决定，一般碳刷使用寿命2000小时，直流有刷电机有碳刷外置与内置两种，外置碳刷可换，内置碳刷不可换。
10. 瞬间急停扭矩[N.m]: 指减速机输出端所能加载的最大扭矩。输出齿轮是金属材料的情况下加载到最大扭矩时齿轮的弯曲安全系数为1
11. 轴向力 $F_{2A}$ [N.m]:是指平行于轴心一个力，它的作用点与输出轴端有一定的轴向偏差（ $y_2$ ）时，会形成一个额定的弯矩力矩。（见图1）
12. 轴向力 $F_{2R}$ [N.m]:指垂直作用于轴向的一个力，客观存在的作用点与轴端有一定的轴向距离（ $X_2$ ），这个点成一个杠杆作用，横向力形成一个弯矩力矩
13. 回程间隙: 指减速机输出轴与输入轴的最大偏差，测量时输出轴用加载一定力矩（2% $T_N$ ），测量时以输出的信号脉冲通过编码器获得测量数据，测量最小为1弧分，分别可以测量回程间隙与传动误差。
14. 弧分（arcmin）:一度为60弧分（60 arcmin=60'），如回程间隙为1 arcmin时，减速机输入一转，输出端的角偏差为1/60°，在实际应用过程中，角偏差与轴的直径有关  
$$b = 2 \pi \cdot r \cdot a$$

例如80PLE系列精度行星轴半径12.5mm,减速机精度为3 arcmin时,减速机一转偏差为0.01mm
15. 转动惯量: 刚体绕轴转动惯性的度量，与物体的质量、直径、回转中心等有关。高精度行星的转动惯量与输入轴有关。
16. 抗扭刚性(N.m/arcmin): 由加载力矩的所产生扭角之间的比率来定义，它说明需要多大的力矩才能把输出轴转动一个弧分
17. 定位精确度: 在高速机械往复运动中作到精确定位的关键在于尽量减少通过运动产生的角偏差，定位精确度取决于两个值，一个是与加载有关的偏转角，涉及到回程间隙与扭转刚性，另一个是与运动控制有关的偏转角，涉及到同步偏差问题。
18. 噪声dB(A): 减速器的速比与输入转速直接影响到噪声的大小，转速越高，噪声也就越大，速比比越大，噪声就越小，在高精度行星噪声测量，是不带负载下，输入3000RPM，测量距离为1m时测得。直流行星减速机测量是不带负载下，输入3000RPM，测量距离为40mm时测得。

减速器的选型 SELECTION OF GEARBOX TYPE

选用减速机应考虑其结构类型、安装形式、承载能力、输出转速、工作条件等因素。减速机规格的确定：减速机的承载能力是在额定转速下，每天工作10小时，每小时启动数少于10次，平稳无冲击的条件下得出的，所以应按以下步骤进行选型。

检查所选配置 OPTION CHECKING LIST

■ 根据负载类型、每小时启停次数和预期工作寿命确定使用系数fs

| 使用系数fs |              |           |       |        |         |         |
|--------|--------------|-----------|-------|--------|---------|---------|
| 负载类型   | 每小时启动次数<br>Z | 每日运行时间(h) |       |        |         |         |
|        |              | h<4       | 4<h<8 | 8<h<12 | 12<h<16 | 16<h<24 |
| 均匀负载   | Z<10         | 0.85      | 0.95  | 1.00   | 1.20    | 1.60    |
|        | 10<Z<30      | 0.90      | 1.10  | 1.15   | 1.40    | 1.80    |
|        | 30<Z<100     | 1.00      | 1.20  | 1.30   | 1.60    | 2.00    |
| 中等负载   | Z<10         | 1.00      | 1.20  | 1.30   | 1.60    | 2.00    |
|        | 10<Z<30      | 1.10      | 1.35  | 1.45   | 1.80    | 2.20    |
|        | 30<Z<100     | 1.20      | 1.45  | 1.60   | 2.00    | 2.40    |
| 重负载    | Z<10         | 1.20      | 1.45  | 1.60   | 2.00    | 2.40    |
|        | 10<Z<30      | 1.30      | 1.55  | 1.75   | 2.20    | 2.60    |
|        | 30<Z<100     | 1.40      | 1.65  | 1.90   | 2.40    | 2.80    |

■ 根据所需扭矩Tr2按以下公式得出计算扭矩:

Tc2= Tr2 \* fs

Tc2—计算用扭矩

Tr2—实际所需扭矩

fs—使用系数

所选减速机的额定扭矩TN必须大于这个扭矩

■ 由所要求的输出转速n2和输入转速n1传动比：i= n1 / n2

■ 确定了Tc2和i后，根据减速机额定值表，选择最接近计算值的传动比并满足以下条件的减速机型号：Tn ≥ Tc2

■ 悬臂载荷

输入轴和输出轴上的悬臂载荷可通过下列公式求出：

FC1-2 = ( 2000 \* Tr1-2 \* Kr ) / d                      d传动部件的分度圆直径(链轮,齿轮,带轮等)(mm)

Fc1-2悬臂载荷(N)                      Kr =1.0链条传动

1=表示输入轴                      Kr =1.25齿轮传动

2=表示输出轴                      Kr =1.5-2.0 V形带传动

Tr1-2轴上的扭矩(Nm)

如需要延长工作寿命,在下列表中选择寿命系数fl.

| 工作寿命 | 5000h | 10000h | 20000h | 25000h | 50000h | 100000h |
|------|-------|--------|--------|--------|--------|---------|
| fl   | 0.66  | 0.81   | 0.81   | 1.32   | 1.62   | 2.00    |

此时 Fr1-2r ≥ Fc1-2 \* fl

Fr1-2 — 输入轴和输出轴中点的额定径向力[N]

■ 输出轴

对于作用在轴中点的负载，需要按以下公式校核：

Fm2 ≥ Fr c2 \* fl

这里Fr n2是指输出轴中点的额定径向载荷，Fr c2是指输出轴计算用径向力

若悬臂载荷不在轴中点上，确定偏移距离X，在相关图表中查找径向载荷位置系数fx2，且必须满足以下条件：

Frx2 = Fm2 \* fx2 ≥ Frc2 \* fl

这里Frx2是指在轴中心点的容许悬臂载荷

确定径向载荷Frc2

确定轴向载荷Fac2

载荷Fr c2的偏移距离

查询相应减速机的图表，确定与距离相对应，并且Fac2/Frc2比值接近Fan2 / Fm2比值的径向载荷Rx2。必须满

足以下条件：Frx2 ≥ Frc2

图表中的值适用于：n2 = 100rpm，20000小时理论工作寿命或n2 = 50rpm，10000小时理论工作寿命

对于不同的输出转速n2和工作寿命，需要考虑:

下表所示的速度系数fn2:

| n2  | 10   | 25   | 50   | 100  | 250  | 500  | 1000 |
|-----|------|------|------|------|------|------|------|
| fn2 | 2.00 | 1.51 | 1.23 | 1.00 | 0.76 | 0.62 | 0.50 |

寿命系数表中所示的工作寿命系数fl，必须满足以下条件：Fr n2 \* fn2 ≥ Fr c2 \* fl

■ 电机选型

确定减速机实际所需扭矩Tr2，输入转速n1，效率 η，根据公式计算减速机所需的输入功率

Pr1=Tr2 \* n1 / 9549 \* η \* i ( 效率 η 的值在减速机技术参数表中有说明 )

按照以下条件，在电机选型表中选择合适的电机：

Pn ( 电机额定功率 ) ≥ Pr1

对于非连续工作制S1条件下使用的电机，电机额定值可以运用调节系数调整；四极电机或更低转速电机优先选择。