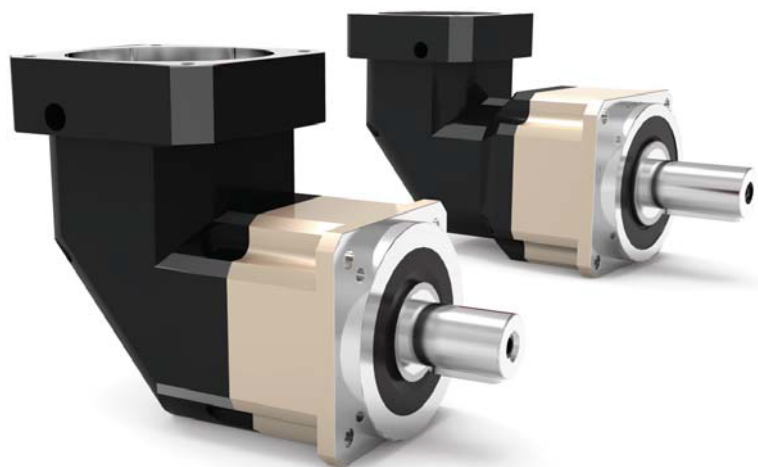


FABR

SERIES



FABR系列

型号说明 / MODEL ILLUMINATE

FABR090 - **10** - **S2** - **P2** / **马达**

| | | |
|--|-----------------------------------|------------------|
| 减速机型式： FABR042/FABR060/FABR090 FABR115/FABR142/FABR180/FABR220 | 输出轴型式选择：S1：平滑直轴 S2：附件直轴 | 马达型号： 马达制造及型号 |
| 减速比：单级(L1): 3, 4, 5, 6, 7, 8, 10, 14, 20 双级(L2): 15, 20, 25, 30, 40, 50, 60, 70, 80, 100, 120, 140, 160, 200 | 背隙：P0：超精密背隙 P1：精密背隙 P2：标准背隙 | |

选用范例: FABR090-10-S2-P2 / MHMD-082G1U

减速机性能资料 / GEAR BOX PERFORMANCE INFORMATION

| 规格 | | 级数 | 减速比 | FABR042 | FABR060 | FABR090 | FABR115 | FABR142 | FABR180 | FABR220 |
|-----------------------|-----------|-----|--------|-------------|---------|---------|---------|---------|---------|---------|
| 额定输出力矩 T_{2N} | Nm | 1 | 3 | 20 | 55 | 130 | 208 | 342 | 588 | 1,140 |
| | | | 4 | 19 | 50 | 140 | 290 | 542 | 1,050 | 1,700 |
| | | | 5 | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 |
| | | | 6 | 20 | 55 | 150 | 310 | 600 | 1,100 | 1,900 |
| | | | 7 | 19 | 35 | 140 | 300 | 550 | 1,100 | 1,800 |
| | | | 8 | 17 | 35 | 120 | 260 | 500 | 1,000 | 1,600 |
| | | | 10 | 14 | 23 | 48 | 140 | 370 | 520 | 1,220 |
| | | | 14 | - | 35 | 140 | 300 | 550 | 1,100 | 1,800 |
| | | | 20 | - | 23 | 48 | 140 | 370 | 520 | 1,220 |
| | | | 15 | 20 | 55 | 130 | 208 | 342 | 588 | 1,140 |
| | | 20 | 19 | 50 | 140 | 290 | 542 | 1,050 | 1,700 | |
| | | 25 | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 | |
| | | 30 | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 | |
| | | 35 | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 | |
| | | 40 | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 | |
| | | 50 | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 | |
| | | 60 | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 | |
| | | 70 | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 | |
| | | 80 | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 | |
| | | 100 | 22 | 60 | 160 | 330 | 650 | 1,200 | 2,000 | |
| 120 | - | - | 150 | 310 | 600 | 1,100 | 1,900 | | | |
| 140 | - | - | 140 | 300 | 550 | 1,100 | 1,800 | | | |
| 160 | - | - | 120 | 260 | 500 | 1,000 | 1,600 | | | |
| 200 | - | - | 48 | 140 | 370 | 520 | 1,220 | | | |
| 最大输出力矩 T_{2B} | Nm | 1.2 | 3~200 | 3倍额定输出力矩 | | | | | | |
| 额定输入转速 n_1 | rpm | 1.2 | 3~200 | 5,000 | 5,000 | 4,000 | 4,000 | 3,000 | 3,000 | 2,000 |
| 最大输入转速 n_{1B} | rpm | 1.2 | 3~200 | 10,000 | 10,000 | 8,000 | 8,000 | 6,000 | 6,000 | 4,000 |
| 超精密背隙 P0 | arcmin | 2 | 15~200 | - | - | ≤2 | ≤2 | ≤2 | ≤2 | ≤2 |
| 精密背隙 P1 | arcmin | 1 | 3~20 | ≤4 | ≤4 | ≤4 | ≤4 | ≤4 | ≤4 | ≤4 |
| 标准背隙 P2 | arcmin | 2 | 15~200 | ≤7 | ≤7 | ≤7 | ≤7 | ≤7 | ≤7 | ≤7 |
| 扭转刚性 | Nm/arcmin | 1.2 | 3~200 | 3 | 7 | 14 | 25 | 50 | 145 | 225 |
| 容许径向力 F_{2r}^2 | N | 1.2 | 3~200 | 780 | 1,530 | 3,250 | 6,700 | 9,400 | 14,500 | 50,000 |
| 容许轴向力 F_{2a1B}^2 | N | 1.2 | 3~200 | 350 | 630 | 1,300 | 3,000 | 4,000 | 6,200 | 35,000 |
| 容许轴向力 F_{2a2B}^2 | N | 1.2 | 3~200 | 390 | 765 | 1,625 | 3,350 | 4,700 | 7,250 | 25,000 |
| 使用寿命 | hr | 1.2 | 3~200 | 20,000* | | | | | | |
| 效率 η | % | 1 | 3~20 | ≥95% | | | | | | |
| | | 2 | 15~200 | ≥92% | | | | | | |
| 重量 | kg | 1 | 3~20 | 0.9 | 2.1 | 6.4 | 13 | 24.5 | 51 | 83 |
| | | 2 | 15~200 | 1.2 | 1.5 | 7.8 | 14.2 | 27.5 | 54 | 95 |
| 使用温度 | °C | 1.2 | 3~200 | -10°C~+90°C | | | | | | |
| 润滑 | | 1.2 | 3~200 | 合成润滑油脂 | | | | | | |
| 防护等级 | | 1.2 | 3~200 | IP65 | | | | | | |
| 安装方向 | | 1.2 | 3~200 | 任意方向 | | | | | | |
| 噪音值 ($n_1=3000rpm$) | dB | 1.2 | 3~200 | ≤61 | ≤63 | ≤65 | ≤68 | ≤70 | ≤72 | ≤74 |

减速机转动惯量

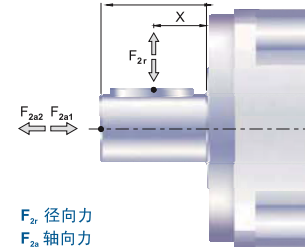
| 规格 | | 级数 | 减速比 | FABR042 | FABR060 | FABR090 | FABR115 | FABR142 | FABR180 | FABR220 |
|------------|----------------------|----|---------|---------|---------|---------|---------|---------|---------|---------|
| 转动惯量 J_1 | kg · cm ² | 1 | 3~10 | 0.09 | 0.35 | 2.25 | 6.84 | 23.4 | 68.9 | 135.4 |
| | | | 14 | - | 0.07 | 1.87 | 6.25 | 21.8 | 65.6 | 119.8 |
| | | | 20 | - | 0.07 | 1.87 | 6.25 | 21.8 | 65.6 | 119.8 |
| | | 2 | 15~100 | 0.09 | 0.35 | 2.25 | 6.84 | 23.4 | 68.9 | |
| | | | 120~200 | - | - | 0.31 | 1.87 | 6.25 | 21.8 | 65.6 |

1. 减速比 ($i=N_1/N_{2B}$)
* 连续运转降低使用寿命二分之一。

2. 输出转速 100 rpm 时, 作用于输出轴中心位置。

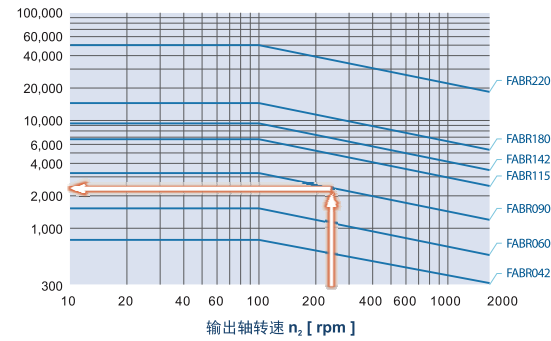
减速机输出轴之容许径向力及轴向力

REDUCER OUTPUT SHAFT OF THE PERMISSIBLE RADIAL FORCE AND SHAFT AND FORCE



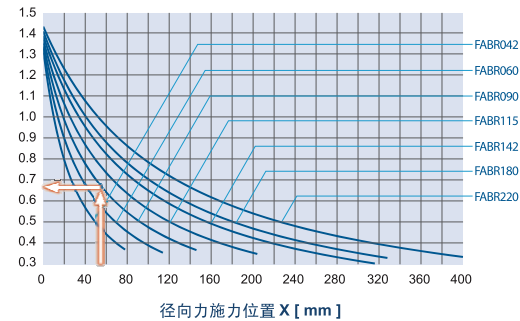
减速机输出轴所能承受之最大径向力及轴向力, 端视内部支撑轴承之设计, 减速机采用大尺寸的轴承及较大跨距的设计, 其能承受更大的径向及轴向负荷。

容许径向力 F_{2rB} [N] 施力于轴中心位置



当径向力 F_{2r} 施力于轴中心位置即 $X=1/2xL$ 时, 不同规格之减速机在不同输出转速运用下使用寿命为 20,000hr* 时, 所能承受之容许径向力 F_{2rB} , 请参照左图, 而能承受之容许轴向力 F_{2a1B} 为
 $F_{2a1B}=0.2 \times F_{2rB}$
 $F_{2a2B}=0.1 \times F_{2rB}$

位置负荷系数 k_b

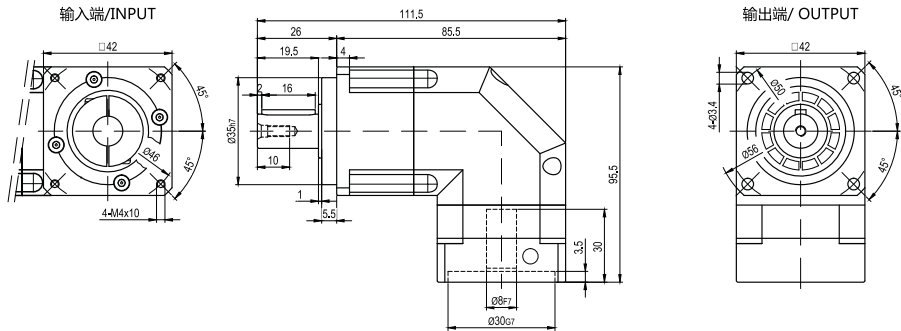


当径向力 F_{2r} 施力不在轴中心位置时, 越靠近减速机即 $X < 1/2xL$, 所能承受之容许径向力变大, 越远离减速机即 $X > 1/2xL$ 时, 所能承受之容许径向力则变小, 藉由左图, 依减速机规格及径向力施力位置 X , 查出位置负荷系数 k_b , 再代入下列公式, 求出容许径向力:
 $F'_{2rB}=k_b \times F_{2rB}$
 轴向力:
 $F'_{2a1B}=0.2 \times F'_{2rB}$
 $F'_{2a2B}=0.1 \times F'_{2rB}$

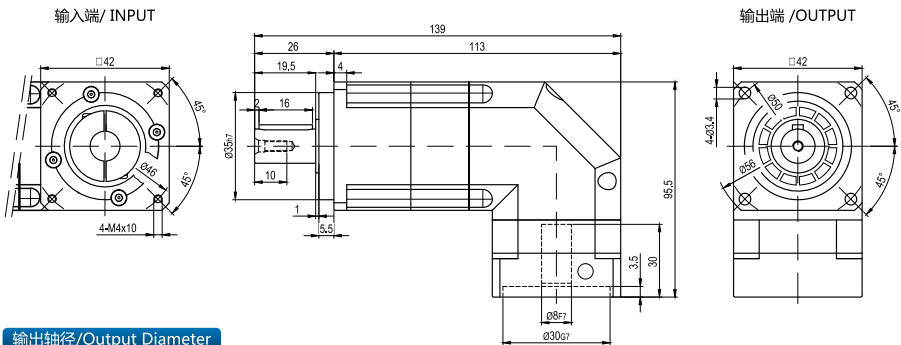
* 连续运转降低使用寿命二分之一。

外形尺寸图表 / OUTLINE DIMENSION SHEET

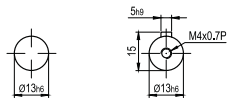
FABR-042-L1



FABR-042-L2



输出轴径/Output Diameter



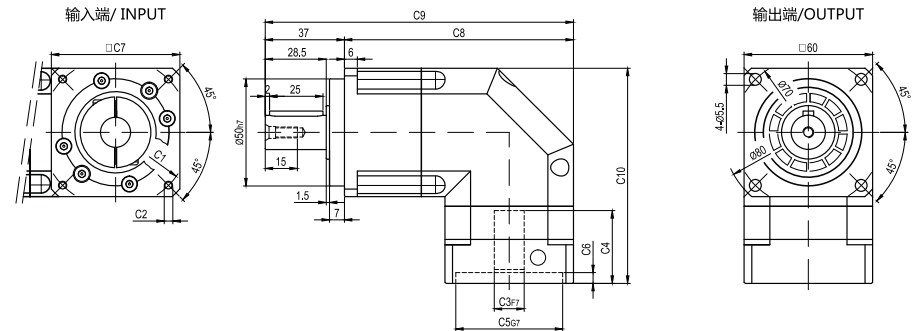
轴型式 S1

轴型式 S2

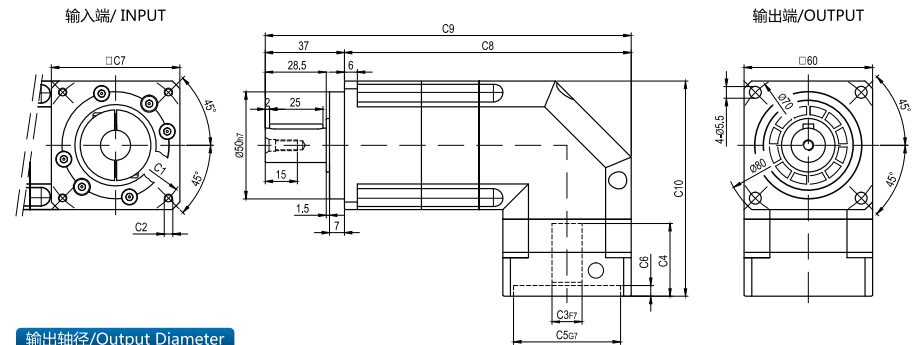
*输入马达连接板之尺寸,可根据客户要求单独定做。
*The input motor specific dimensions could be customised.

外形尺寸图表 / OUTLINE DIMENSION SHEET

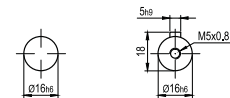
FABR-060-L1



FABR-060-L2



输出轴径/Output Diameter



轴型式 S1

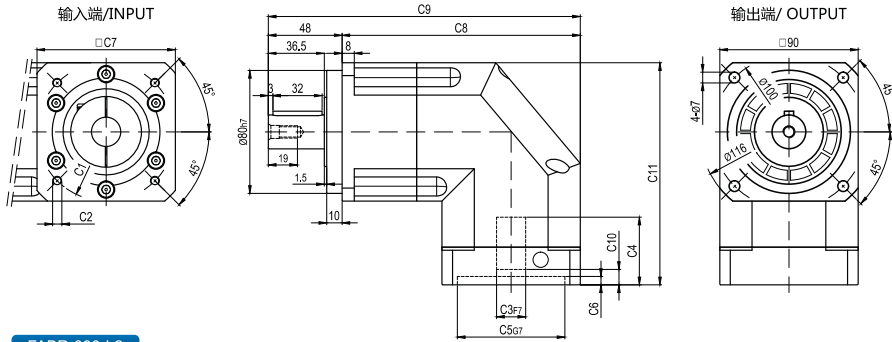
轴型式 S2

| 尺寸 | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 |
|-------------|-----|------------------|----------|----|-----|----|----|-----|-----|-------|
| FABR-060-L1 | Ø70 | 4-M4x10, 4-M5x12 | Ø11, Ø14 | 34 | Ø50 | 5 | 60 | 107 | 144 | 100.5 |
| FABR-060-L2 | Ø90 | 4-M5x12, 4-M6x12 | Ø19 | 44 | Ø70 | 5 | 80 | 117 | 154 | 110.5 |
| FABR-060-L1 | Ø70 | 4-M4x10, 4-M5x12 | Ø11, Ø14 | 34 | Ø50 | 5 | 60 | 134 | 171 | 100.5 |

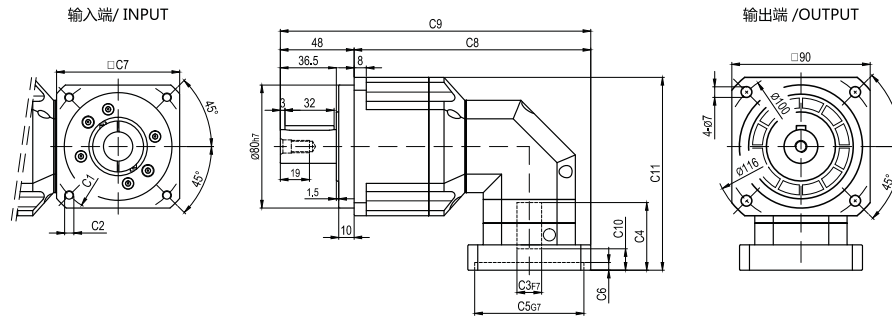
* C1~C7是公制标准马达连接板之尺寸,可根据客户要求单独定做。
* C1~C7are motor(metric standard) specific dimensions, which could be customised.

外形尺寸图表 / OUTLINE DIMENSION SHEET

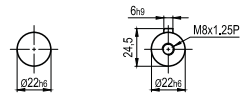
FABR-090-L1



FABR-090-L2



输出轴径/Output Diameter



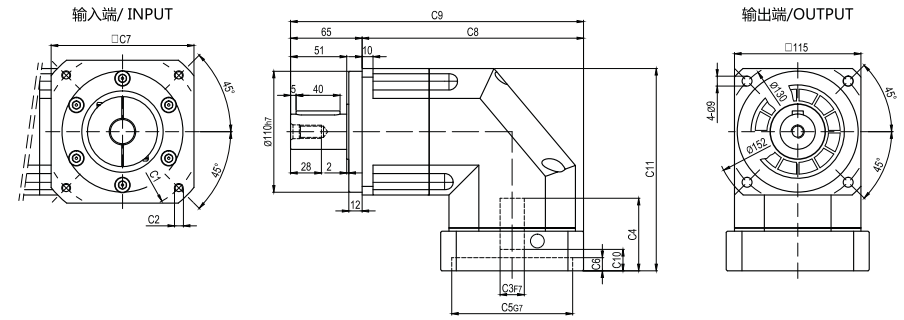
轴型式 S1 轴型式 S2

| 尺寸 | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 |
|-------------|------------------|------------------|---------------|------|------|----|-----|-----|-----|-----|--------|
| Ø90 | 4-M5x12, 4-M6x12 | Ø19 | 44 | Ø70 | 6 | 90 | 155 | 203 | 9 | 142 | |
| Ø100 | 4-M6x12 | Ø16 | 44 | Ø80 | 5 | 90 | 155 | 203 | 8 | 142 | |
| FABR-090-L1 | Ø115 | 4-M8x20 | Ø19, Ø22 | 50 | Ø95 | 8 | 100 | 160 | 208 | 14 | 148 |
| | Ø115 | 4-M8x25 | Ø19, Ø22 | 57 | Ø95 | 8 | 100 | 160 | 208 | 21 | 155 |
| | Ø145 | 4-M8x25 | Ø19, Ø22, Ø24 | 60 | Ø110 | 11 | 130 | 175 | 223 | 24 | 158 |
| | Ø70 | 4-M4x10, 4-M5x12 | Ø11, Ø14 | 34 | Ø50 | 5 | 60 | 144 | 192 | 5.5 | 115.5 |
| FABR-090-L2 | Ø90 | 4-M5x12, 4-M6x12 | Ø19 | 44 | Ø70 | 5 | 80 | 154 | 202 | 16 | 1512.5 |
| | Ø100 | 4-M6x12 | Ø16 | 38.5 | Ø80 | 5 | 86 | 157 | 205 | 10 | 120 |

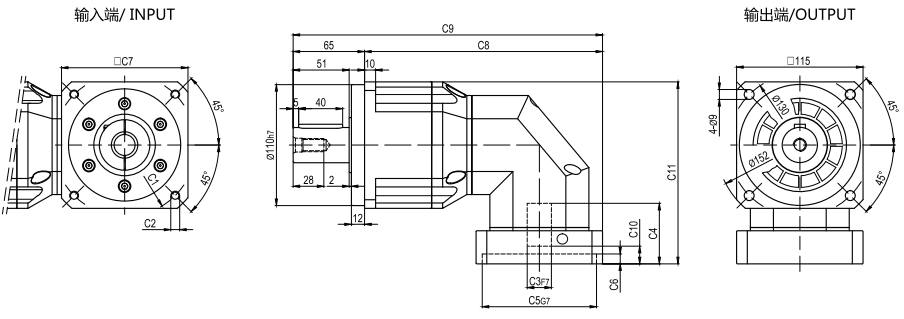
* C1~C7是公制标准马达连接板之尺寸,可根据客户要求单独定做。
* C1~C7are motor(metric standard) specific dimensions, which could be customised.

外形尺寸图表 / OUTLINE DIMENSION SHEET

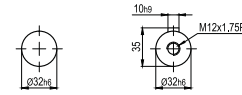
FABR-115-L1



FABR-115-L2



输出轴径/Output Diameter



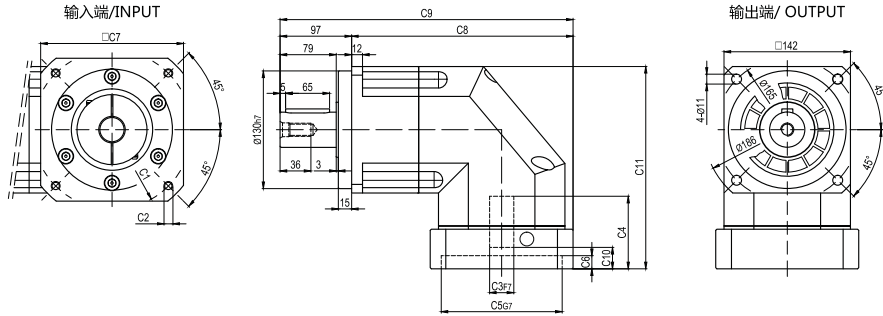
轴型式 S1 轴型式 S2

| 尺寸 | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 |
|-------------|---------|------------------|---------------|------|--------|-----|-------|-------|-------|------|-------|
| Ø145 | 4-M8x25 | Ø19, Ø22, Ø24 | 66 | Ø110 | 14 | 130 | 201.5 | 266.5 | 19.5 | 184 | |
| FABR-115-L1 | Ø200 | 4-M12x28 | Ø35 | 81 | Ø114.3 | 21 | 180 | 226.5 | 291.5 | 35.5 | 199 |
| | Ø90 | 4-M5x12, 4-M6x12 | Ø19 | 44 | Ø70 | 6 | 90 | 204 | 269 | 9 | 154.5 |
| | Ø100 | 4-M6x12 | Ø16 | 44 | Ø80 | 5 | 90 | 204 | 269 | 8 | 154.5 |
| FABR-115-L2 | Ø115 | 4-M8x20 | Ø19, Ø22 | 50 | Ø95 | 8 | 100 | 209 | 274 | 14 | 160.5 |
| | Ø115 | 4-M8x25 | Ø19, Ø22 | 57 | Ø95 | 8 | 100 | 209 | 274 | 21 | 167.5 |
| | Ø145 | 4-M8x25 | Ø19, Ø22, Ø24 | 60 | Ø110 | 11 | 130 | 224 | 289 | 24 | 170.5 |

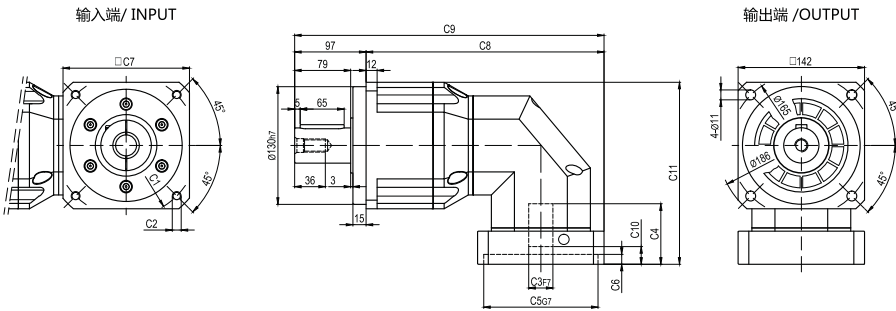
* C1~C7是公制标准马达连接板之尺寸,可根据客户要求单独定做。
* C1~C7are motor(metric standard) specific dimensions, which could be customised.

外形尺寸图表 / OUTLINE DIMENSION SHEET

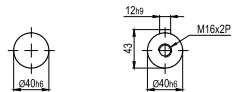
FABR-142-L1



FABR-142-L2



输出轴径/Output Diameter



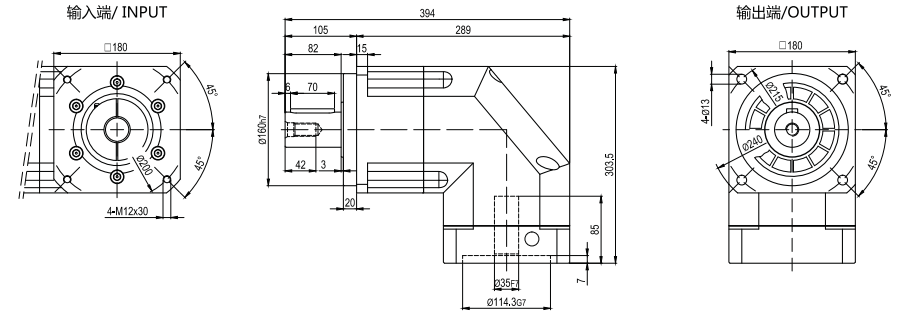
轴型式 S1 轴型式 S2

| 尺寸 | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 |
|-------------|------|----------|-------------|----|--------|----|-----|-------|-------|------|-------|
| FABR-142-L1 | Ø145 | 4-M8x25 | Ø22,Ø24 | 83 | Ø110 | 11 | 142 | 236 | 333 | 19.5 | 228 |
| | Ø200 | 4-M12x30 | Ø35 | 85 | Ø114.3 | 15 | 180 | 255 | 352 | 21.5 | 230 |
| FABR-142-L2 | Ø145 | 4-M8x25 | Ø19,Ø22,Ø24 | 66 | Ø110 | 14 | 130 | 256.5 | 353.5 | 19.5 | 197.5 |
| | Ø200 | 4-M12x28 | Ø35 | 81 | Ø114.3 | 21 | 180 | 281.5 | 378.5 | 35.5 | 212.5 |

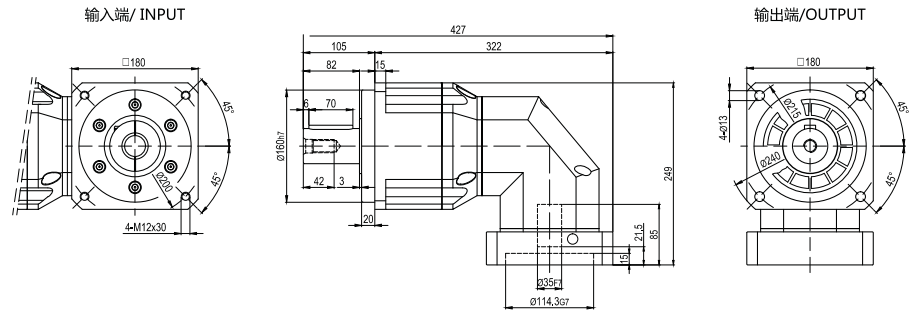
* C1 - C7是公制标准马达连接板之尺寸,可根据客户要求单独定做。
 * C1 - C7are motor(metric standard) specific dimensions, which could be customised.

外形尺寸图表 / OUTLINE DIMENSION SHEET

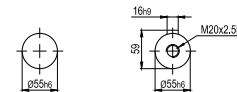
FABR-180-L1



FABR-180-L2



输出轴径/Output Diameter

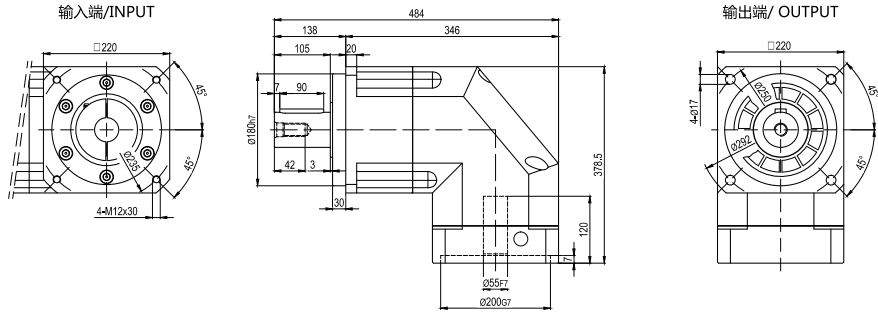


轴型式 S1 轴型式 S2

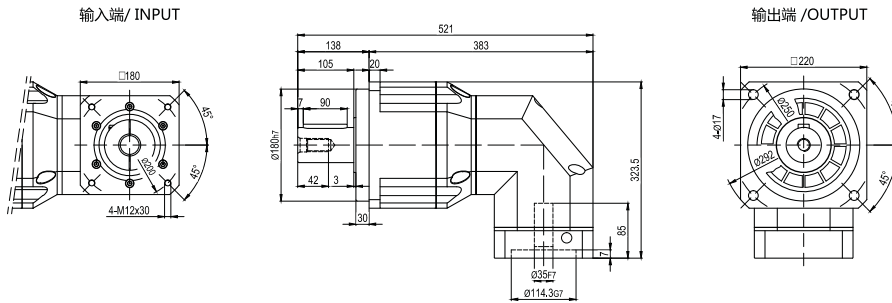
*输入马达连接板之尺寸,可根据客户要求单独定做。
 *The input motor specific dimensions could be customised.

外形尺寸图表 / OUTLINE DIMENSION SHEET

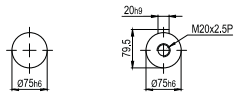
FABR-220-L1



FABR-220-L2



输出轴径/Output Diameter



轴型式 S1 轴型式 S2

*输入马达连接板之尺寸,可根据客户要求单独定做。
*The input motor specific dimensions could be customised.

马达安装说明 / MOTOR INSTALLATION INSTRUCTIONS

1 确认马达与减速机规格, 并将马达及减速机之安装面擦拭干净。

2 将2个黑色的防尘盖从机体上取出。

3 a:取下马达上原先之键;
b:如有必要, 请安装平衡键。

4 确认马达轴心尺寸, 若有必要, 装上轴衬套。

5 直立式的装入马达, 以螺丝扭力表(表一)建议扭力值之5%, 依1~4的顺序, 用扳手将附垫片之螺丝轻轻锁上。

6 参照表二建议之扭力值, 用扳手将锁紧环上的2颗螺丝用力锁紧。

7 将马达与减速机直立摆设, 以螺丝扭力表(表一)建议之扭力值, 依1~4顺序, 用扭力扳手将螺丝锁紧。

8 将2颗黑色的防尘盖再装上去。

正确的锁固方式
当马达为平轴状, 对准输入轴
夹键在平轴中心线, 使锁紧
螺丝与轴留垂直。