



**QUALITY ASSURANCE  
POWER PEAK**

**LOW BACKLASH  
PLANETARY GEARBOXES**





## ► 关于我们

苏州长木传动科技有限公司（简称CM）是浙江来福谐波传动股份有限公司全资子公司。

浙江来福谐波传动股份有限公司(简称LaifualDrive),是一家专业从事高精密谐波减速机及精密行星减速机的研发、生产、销售于一体的国家高新技术企业。公司拥坐落于浙江绍兴嵊州,拥有30000平方米的标准厂房,企业在职员工300人左右。

公司使用世界顶级的生产、检验设备,从原材料到成品的所有环节经过严格的质量把控,关注每一个生产细节,从而保证产品的优良品质。所有产品完全自主开发,公司的研发中心被认定为“省级高新技术企业研发中心”。经过多年的勤劳耕耘,我司在谐波及行星传动领域取得的专利30项,其中重大科技专利1项,自主知识产权专利29项。并被认定为国家高新技术企业,浙江省科技型中小企业,并成功通过ISO9001质量管理体系认证。

我司生产的精密行星及谐波减速机在多方面特殊性能取得重大突破。具有温升低、启动扭矩小、可靠性高、背隙低、寿命长等特性。来福谐波减速机批量应用于工业机器人、服务机器人、医疗器械、高精度自动化设备等领域。来福行星减速机大量应用于自动化设备、激光切割机、印刷设备、3C领域、纺织行业等。来福产品竭诚为国内外客户提供满意的多元化定制设计服务。

来福将继续砥砺前行,以品质、创新、优化服务为己任。为国内外客户提供满意的产品,让中国制造拥抱世界,共创美好未来。

## ► ABOUT US

Suzhou Changmu drive CO., LTD. (CM) is a wholly-owned subsidiary of Zhejiang Laifual Drive CO.,LTD.

Zhejiang Laifual Drive CO.,LTD. (Laifual Drive) is a national high-tech enterprise specializing in the R & D, production and sales of high-precision harmonic gearbox and precision planetary gearbox. The company is located in Shengzhou, Shaoxing, Zhejiang Province, with 30000 square meters of standard plant and about 300 employees.

The company uses the world's top production and inspection equipment to strictly control the quality of all links from raw materials to finished products, and pays attention to every production detail, so as to ensure the excellent quality of products. All products are completely self-developed, and the company's R & D center is recognized as "provincial R & D center of high-tech enterprises". After years of hard work, our company has obtained 30 patents in the field of harmonic gearbox and planetary gearbox, including 1 major technological patent and 29 independent intellectual property patents. And was identified as a national high-tech enterprises, small and medium-sized science and technology enterprises in Zhejiang Province, and successfully passed the ISO9001 quality management system certification.

Our precision planetary gearbox and harmonic gearbox have made great breakthroughs in many aspects of special performance. It has the characteristics of low temperature rise, small starting torque, high reliability, low back clearance and long service life. Laifual harmonic gearboxes are widely used in industrial robots, service robots, medical devices, high-precision automation equipment and other fields. Laifual planetary gearboxes are widely used in automation equipment, laser cutting machine, printing equipment, 3C field, textile industry, etc. Laifual will sincerely offer satisfactory diversified customized design services for domestic and overseas customers.

Taking professionalization, internationalization as standard, to build Laifual into the most respectable harmonic gearbox and planetary gearbox brand.



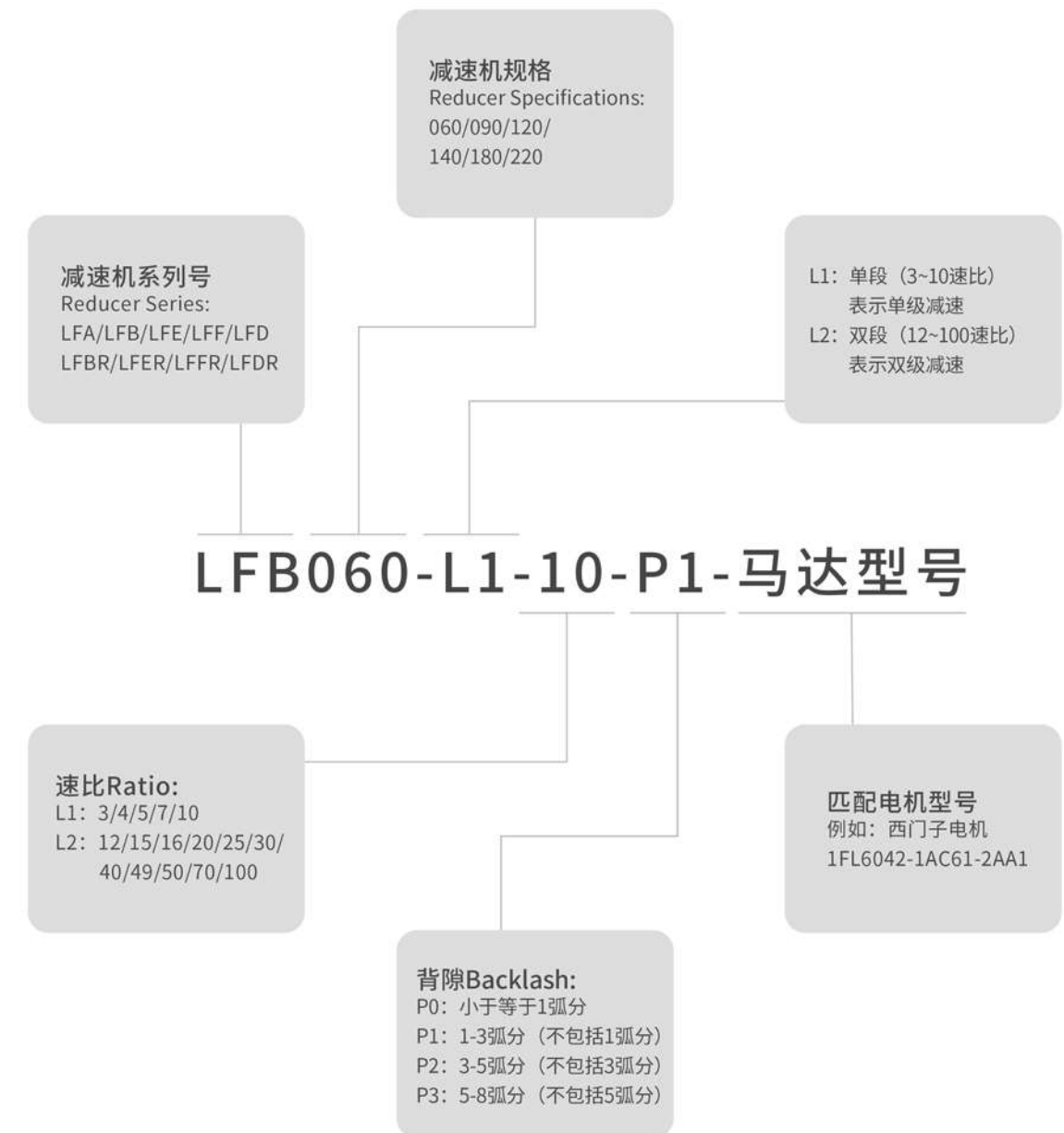
## 减速机设计制造环境

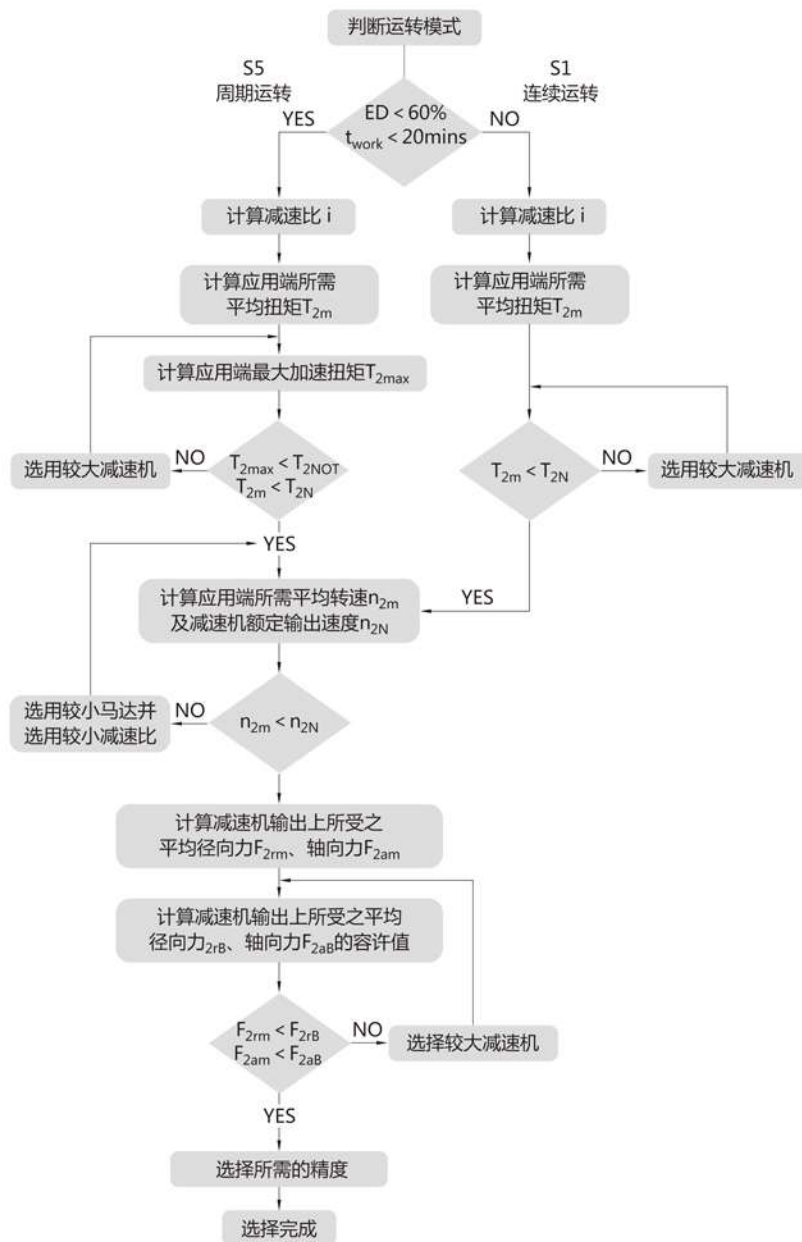
REDUCER DESIGN AND MANUFACTURING ENVIRONMENT



## 减速机型号说明

REDUCER MODEL DESCRIPTION



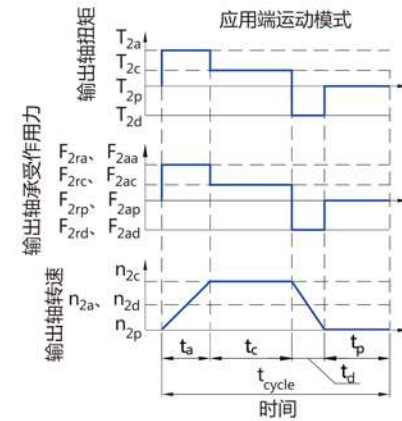


S5周期运转建议事项  
一般的应用惯量须符合以下公式：  
 $\frac{J_L}{i^2} \leq 4 \times J_m$

最恰当的应用惯量须符合以下公式：

$$\frac{J_L}{i^2} \cong J_m$$

$J_L$  : 负载惯量,  $J_m$  : 马达惯量



$$1. ED = \frac{t_a + t_c + t_d}{t_{cycle}} \times 100\%, t_{work} = t_a + t_c + t_d$$

a : 加速, c : 等速, d : 减速, p : 停止

$$2. i \cong \frac{n_m}{n_{work}}$$

$n_m$  : 马达输出速度,  $n_{work}$  : 实际应用速度

$$3. T_{2m} = 3 \sqrt{\frac{n_{2a} \times t_a \times T_{2a}^3 + n_{2c} \times t_c \times T_{2c}^3 + n_{2d} \times t_d \times T_{2d}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$$

$$4. T_{2max} = T_{mb} \times i \times k_s \times \eta$$

$k_s$  : 负载系数

$k_s$	周期次数/小时
1.0	0 ~ 1000
1.1	1000 ~ 1500
1.3	1500 ~ 2000
1.6	2000 ~ 3000
1.8	3000 ~ 5000

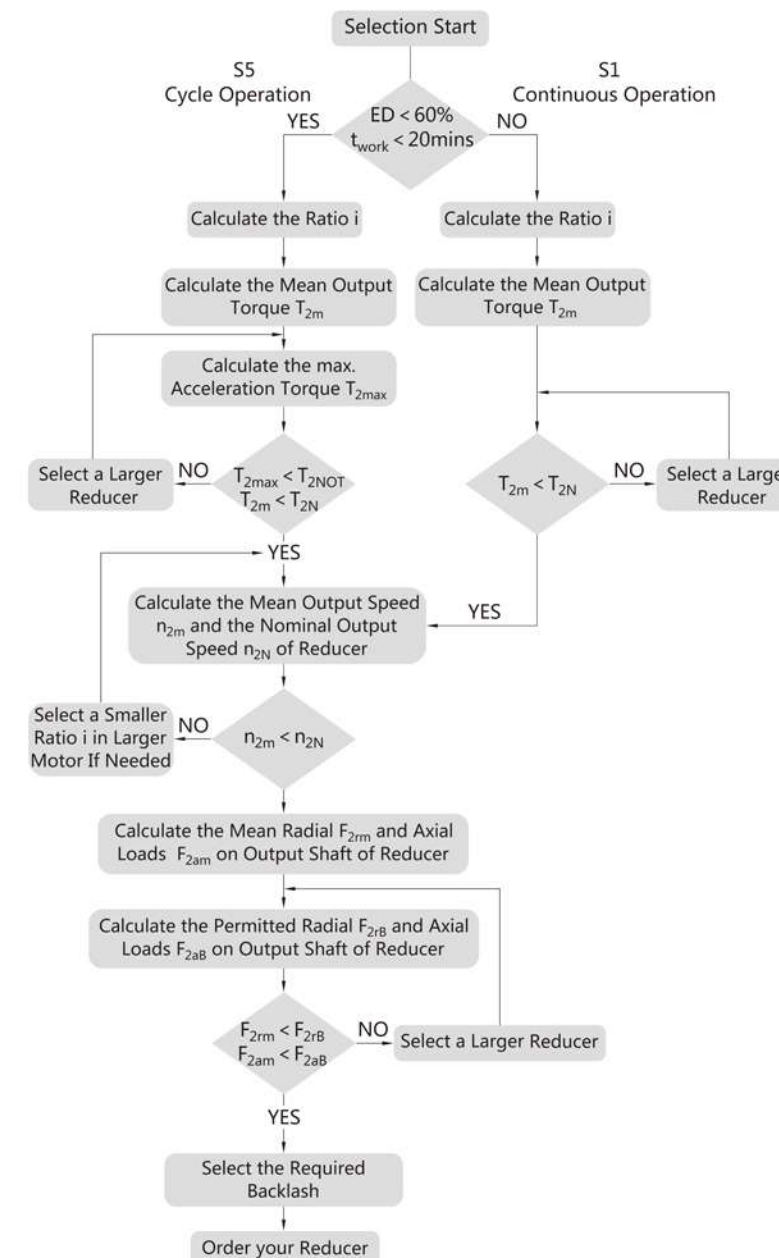
$T_{mb}$  : 马达最大输出扭矩

$$5. n_{2a} = n_{2d} = 0.5 \times n_{2c}$$

$$n_{2m} = \frac{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}{t_a + t_c + t_d}$$

$$6. F_{2rm} = 3 \sqrt{\frac{n_{2a} \times t_a \times F_{2ra}^3 + n_{2c} \times t_c \times F_{2rc}^3 + n_{2d} \times t_d \times F_{2rd}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$$

$$F_{2am} = 3 \sqrt{\frac{n_{2a} \times t_a \times F_{2aa}^3 + n_{2c} \times t_c \times F_{2ac}^3 + n_{2d} \times t_d \times F_{2ad}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$$

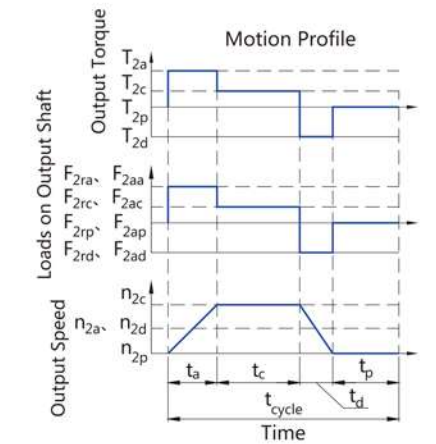


Recommended (for S5 Cycle Operation)  
The general design is given for  
 $\frac{J_L}{i^2} \leq 4 \times J_m$

The optimal design is given for

$$\frac{J_L}{i^2} \cong J_m$$

$J_L$  : Load Inertia,  $J_m$  : Motor Inertia



$$1. ED = \frac{t_a + t_c + t_d}{t_{cycle}} \times 100\%, t_{work} = t_a + t_c + t_d$$

a : Acceleration, c : Constant  
d : Deceleration, p : Pause

$$2. i \cong \frac{n_m}{n_{work}}$$

$n_m$  : Output Speed of the Motor,  
 $n_{work}$  : Working Speed

$$3. T_{2m} = 3 \sqrt{\frac{n_{2a} \times t_a \times T_{2a}^3 + n_{2c} \times t_c \times T_{2c}^3 + n_{2d} \times t_d \times T_{2d}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$$

$$4. T_{2max} = T_{mb} \times i \times k_s \times \eta$$

$k_s$  : Load coefficient

$k_s$	No. of Cycles / hr
1.0	0 ~ 1000
1.1	1000 ~ 1500
1.3	1500 ~ 2000
1.6	2000 ~ 3000
1.8	3000 ~ 5000

$T_{mb}$  : Max. Output Torque of the Motor

$$5. n_{2a} = n_{2d} = 0.5 \times n_{2c}$$

$$n_{2m} = \frac{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}{t_a + t_c + t_d}$$

$$n_{2N} = \frac{n_{1N}}{i}$$

$$6. F_{2rm} = 3 \sqrt{\frac{n_{2a} \times t_a \times F_{2ra}^3 + n_{2c} \times t_c \times F_{2rc}^3 + n_{2d} \times t_d \times F_{2rd}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$$

$$F_{2am} = 3 \sqrt{\frac{n_{2a} \times t_a \times F_{2aa}^3 + n_{2c} \times t_c \times F_{2ac}^3 + n_{2d} \times t_d \times F_{2ad}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$$

## 减速机的选用算法图

帮助您更好更快的了解并选取最适合您的产品，一站式选择  
根据您得出的需求结论，我们将为您更细致地分析并制定产品

## SELECTION ALGORITHM CHART OF REDUCER

Help you better and faster understand and select the best products for you, one-stop selection  
According to your demand conclusion, we will analyze and customize the product more carefully for you



# 产品目录

## PRODUCT CATALOG

From raw material to bearings, gaskets or lubricants, each component comes from the best suppliers of their industry because we chose them through meticulous selection process and we keep on proceeding stringent quality control to secure your relation with your final client.

We can offer you the all the modifications requested in your field of application. Our sales and service network provides quick availability and competent support. For special requirements we bring you individual solutions. Of course, our services are always cost optimized. Thank you to our professional expertise, our specialists provide technical and market consultation for a wide variety of industrial sectors.

我们所有的原材料及轴承等配件均由优秀供应商所提供，经我公司严格的技术评估、质量筛选和流程把关。在您的应用领域，我们能够满足您的每一次需求。对于一些特殊要求，我们将会考虑给您提供相应的解决方案。我们的市场化网络能够确保快速有效的获取我们想要的信息。目前我们的产品已经应用于工业领域的各个行业，适用于机床、机械手、印刷质量、纺织机械、包装机械、非标自动化、医疗设备、检测设备、汽车制造、卫星通讯、金属加工、制药行业等工业领域。



09-20 LFA



21-36 LFB



37-50 LFE



51-62 LFF



63-74 LFD



75-86 L FAR



87-98 LFBR



99-110 LFER



111-120 LFFR





# LFA Series

## 产品详情

### 产品特点

高性能，用途广，高刚性，高效率，低噪音，低背隙

### 产品介绍

- 1.优化精选油封：减小摩擦，增加传动效率，IP65防护等级，保证至90度的可持续运转
- 2.深沟球轴承：实现更大承载能力
- 3.一体化外壳：更高精度，更强抗拉刚度，更高抗扭刚度
- 4.斜齿：提高传动效率，低噪音，高精度
- 5.满滚针：提高径向负载能力，体积小
- 6.框架设计：增加扭转力矩，优化动力传输
- 7.特种铝材输入端面：减轻自重
- 8.特性：减速机整体方形设计，体现工业之美。三大一体式设计结合行星特点，生产高精度，高刚性产品。前壳体齿圈一体化设计，输出轴行星骨架一体式设计，输入轴太阳轮一体化设计

### Product features

High performance, wide application, high rigidity, high efficiency, low noise, low backlash

### Product introduction

- 1.Optimize selected oil seals: reduce friction, increase transmission efficiency, IP65 protection level, ensure sustainable operation up to 90 degrees
- 2.Deep groove ball bearings: to achieve greater carrying capacity
- 3.Integrated shell: higher precision, stronger tensile stiffness, higher torsional stiffness
- 4.Helical gear: improve transmission efficiency, low noise, high precision
- 5.Full needle roller: improve radial load capacity, small size
- 6.Frame design: increase torsion moment and optimize power transmission
- 7.Special aluminum input end face: reduce weight
- 8.Features: The overall square design of the reducer reflects the beauty of industry. Three integrated designs combine planetary features to produce high-precision, high-rigidity products. The front housing gear ring with integrated design, the output shaft planetary frame with integrated design, the input shaft sun gear with integrated design

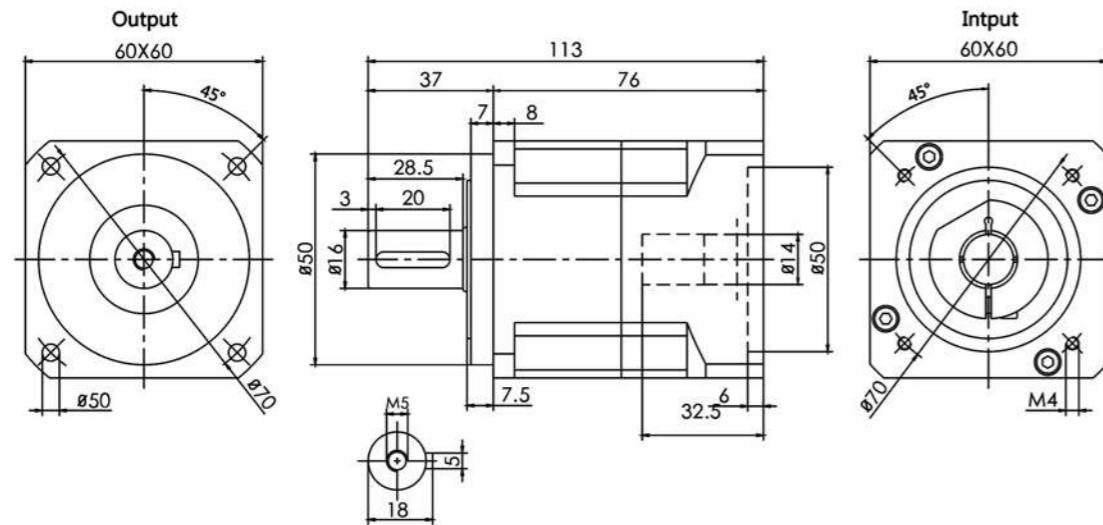
该型号具有高刚性、低噪音、高扭矩、便于安装等特点，可应用于频繁往复运动和加减速运动。

This model has the characteristics of high rigidity, low noise, high torque and easy installation, which can be used in frequent reciprocating motion and acceleration and deceleration motion.

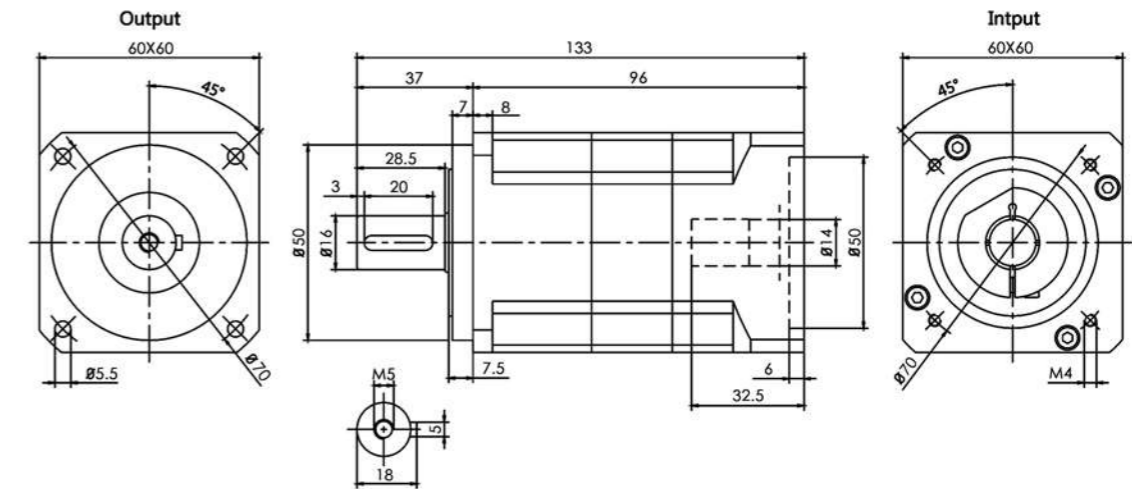




LFA060-L1



LFA060-L2



LFA060-L1						
速比	Ratio		3	4	5	7 10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	55	50	60	50 40
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000			
扭转刚性	Torsional Rigidity	Nm/arcmin	7			
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	1530			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	630			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10 ~ +90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.16	0.14	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	≤3			
标准背隙 P2	Standard Backlash P2	arcmin	≤5			
效率 $\eta$	Efficiency $\eta$	%	≥95%			

LFA060-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	55	50	60	55	50	50	60	60	40
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000								
扭转刚性	Torsional Rigidity	Nm/arcmin	7								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	1530								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	630								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

① Half-life under continuous operation mode.  
 ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

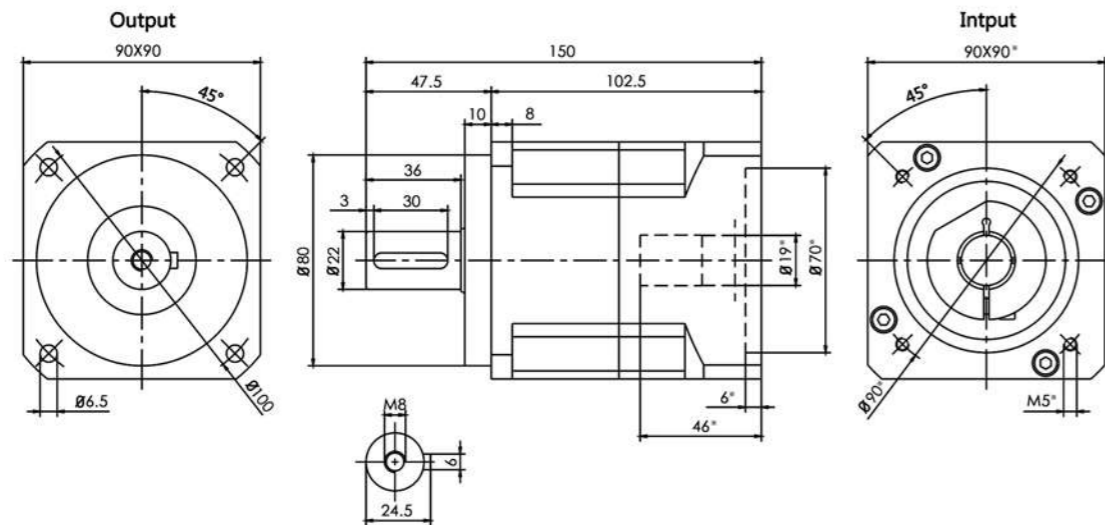
① Half-life under continuous operation mode.  
 ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

※Dimension can be customized according to the motor, if necessary, please contact us!  
 带※尺寸可根据客户电机实际尺寸定制。如有需要，请联系我们！

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LFA090-L1

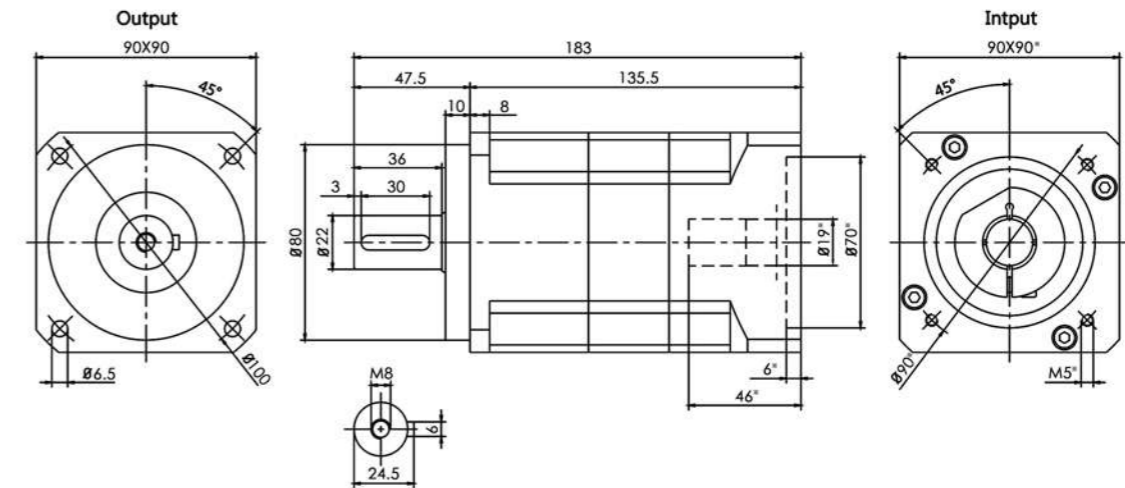


LFA090-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	130	140	160	140	100
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000				
扭转刚性	Torsional Rigidity	Nm/arcmin	14				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	3250				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	1300				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.61	0.48	0.47	0.45	0.44
精密背隙 P1	Precision Backlash P1	arcmin	≤3				
标准背隙 P2	Standard Backlash P2	arcmin	≤5				
效率 $\eta$	Efficiency $\eta$	%	≥95%				

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

※Dimension can be customized according to the motor, if necessary, please contact us!  
带※尺寸可根据客户电机实际尺寸定制。如有需要，请联系我们！

LFA090-L2



LFA090-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	130	140	160	150	140	140	160	140	100
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000								
扭转刚性	Torsional Rigidity	Nm/arcmin	14								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	3250								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	1300								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.47	0.47	0.47	0.44	0.45	0.44	0.44	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

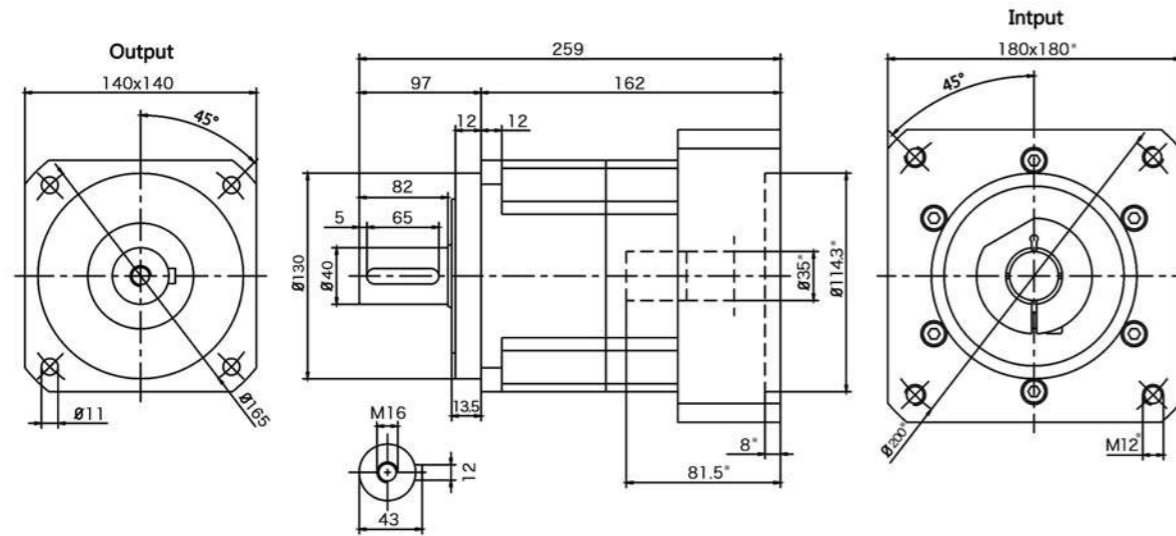
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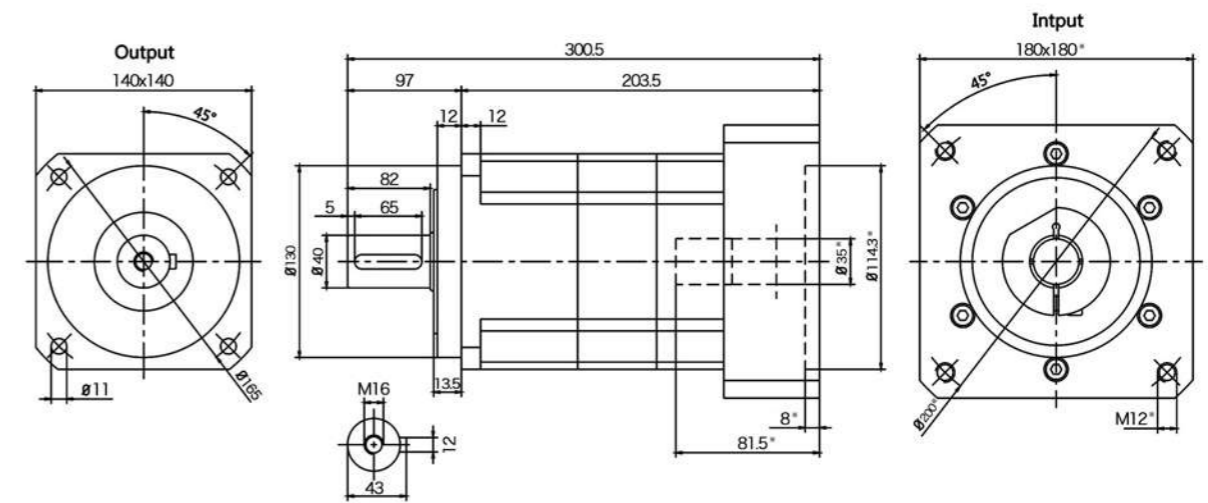




LFA140-L1



LFA140-L2



LFA140-L1						
速比	Ratio		3	4	5	7 10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	550 450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000			
扭转刚性	Torsional Rigidity	Nm/arcmin	50			
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	≤67 (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10 ~ +90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	9.21	7.54	7.42	7.14 7.03
精密背隙 P1	Precision Backlash P1	arcmin	≤3			
标准背隙 P2	Standard Backlash P2	arcmin	≤5			
效率 $\eta$	Efficiency $\eta$	%	≥95%			

LFA140-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	600	550	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	50								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤67 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.42	7.42	7.42	7.03	7.14	7.03	7.03	2.57	2.57
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

① Half-life under continuous operation mode.  
 ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

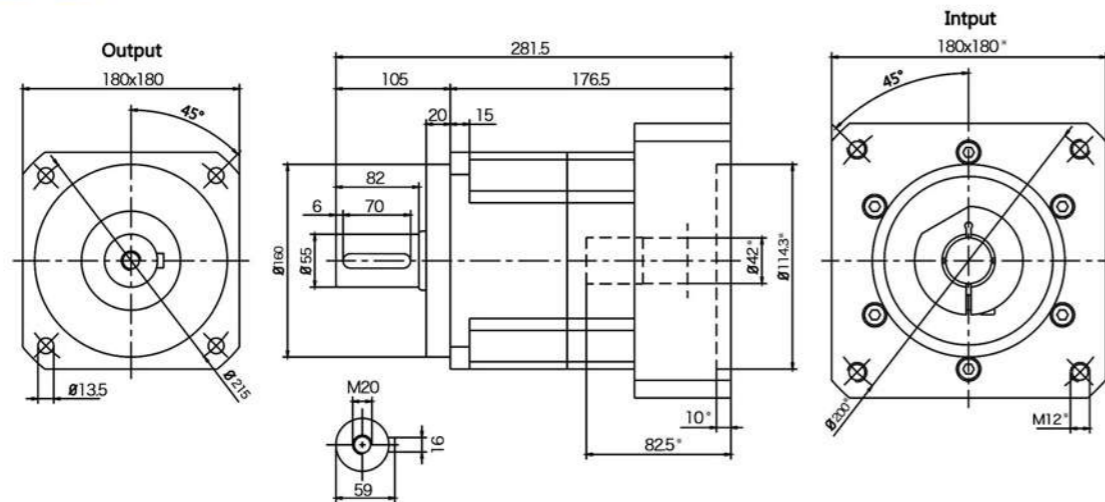
① Half-life under continuous operation mode.  
 ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

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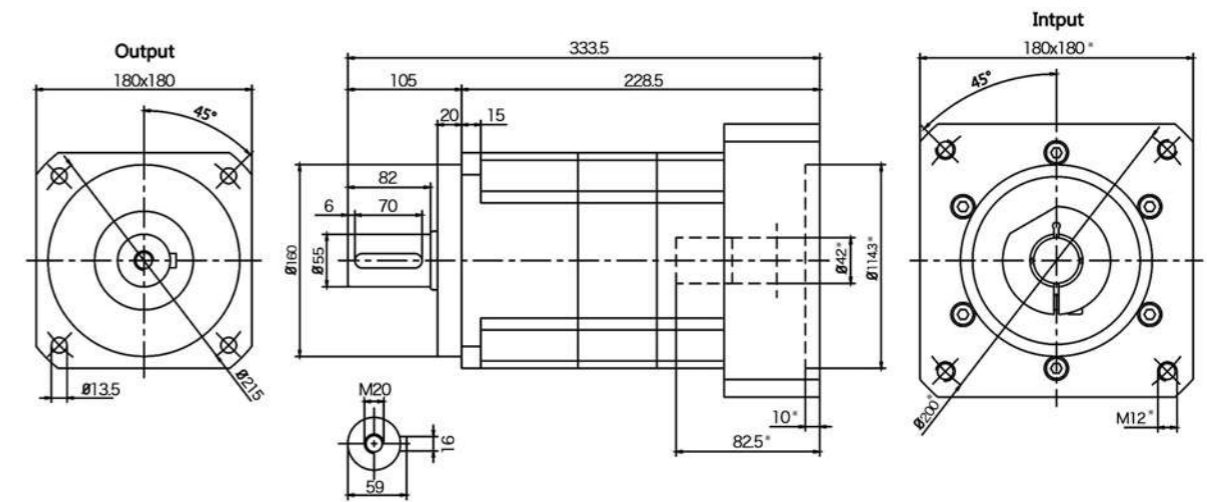
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### LFA180-L1



### LFA180-L2



LFA180-L1								
速比	Ratio		3	4	5	7	10	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	588	1050	1200	1100	588	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque					
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000					
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000					
扭转刚性	Torsional Rigidity	Nm/arcmin	145					
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	14500					
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	7250					
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)					
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)					
使用温度	Operating Temp	°C	-10 ~ +90					
防护等级	Degree of Reducer Protection		IP65					
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils					
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	3.25	2.74	2.71	2.62	2.57	
精密背隙 P1	Precision Backlash P1	arcmin	≤3					
标准背隙 P2	Standard Backlash P2	arcmin	≤5					
效率 $\eta$	Efficiency $\eta$	%	≥95%					

LFA180-L2												
速比	Ratio		15	20	25	30	35	40	50	70	100	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	588	1050	1200	1100	1100	1050	1200	1100	900	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque									
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000									
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000									
扭转刚性	Torsional Rigidity	Nm/arcmin	145									
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	14500									
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	7250									
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)									
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)									
使用温度	Operating Temp	°C	-10 ~ +90									
防护等级	Degree of Reducer Protection		IP65									
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils									
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.42	7.42	7.42	7.03	7.14	7.03	7.03	2.57	2.57	
精密背隙 P1	Precision Backlash P1	arcmin	≤5									
标准背隙 P2	Standard Backlash P2	arcmin	≤8									
效率 $\eta$	Efficiency $\eta$	%	≥92%									

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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# LFB Series

## 产品详情

### 产品特点

高性能，用途广，高刚性，高效率，低噪音，低背隙

### 产品介绍

- 1.优化精选油封：减小摩擦，增加传动效率，IP65防护等级，保证至90度的可持续运转
- 2.深沟球轴承：实现更大承载能力
- 3.一体化外壳：更高精度，更强抗拉刚度，更高抗扭刚度
- 4.斜齿：提高传动效率，低噪音，高精度
- 5.满滚针：提高径向负载能力，体积小
- 6.框架设计：增加扭转力矩，优化动力传输
- 7.特种铝材输入端面：减轻自重
- 8.特性：输出端方型设计便于使用者安装固定，减速机本体圆形设计，匹配电机更加灵活便捷。

### Product features

High performance, wide application, high rigidity, high efficiency, low noise, low backlash

### Product introduction

- 1.Optimize selected oil seals: reduce friction, increase transmission efficiency, IP65 protection level, ensure sustainable operation up to 90 degrees
- 2.Deep groove ball bearings: to achieve greater carrying capacity
- 3.Integrated shell: higher precision, stronger tensile stiffness, higher torsional stiffness
- 4.Helical gear: improve transmission efficiency, low noise, high precision
- 5.Full needle roller: improve radial load capacity, small size
- 6.Frame design: increase torsion moment and optimize power transmission
- 7.Special aluminum input end face: reduce weight
- 8.Features: The square design of the output end is convenient for users to install and fix. The circular design of the reducer body makes it more flexible and convenient to match the motor.

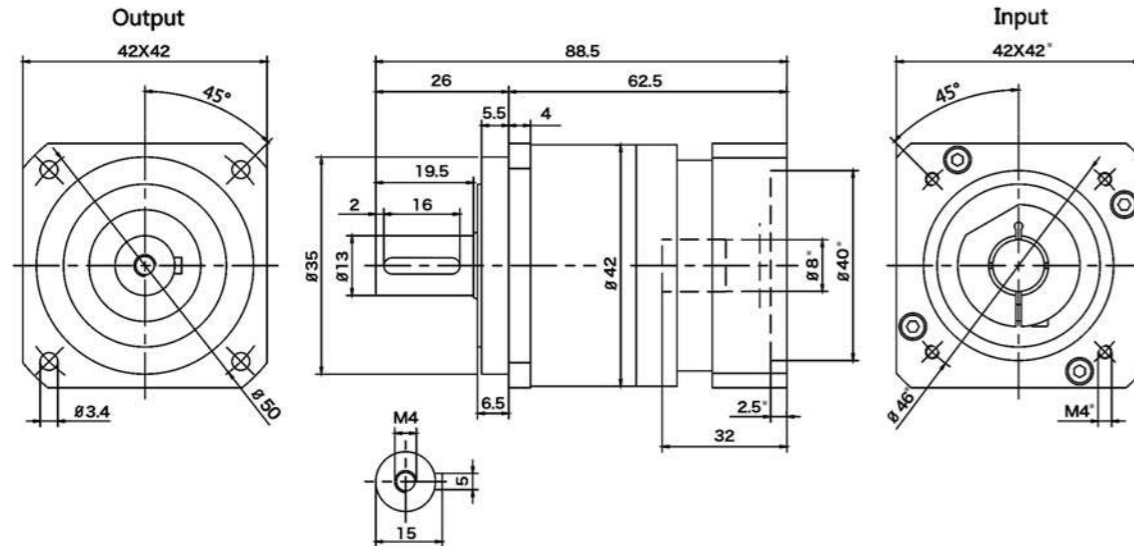
该型号具有高精度、低噪音、高扭矩、便于安装等特点，可应用于频繁往复运动和加减速运动。

This model has the characteristics of high precision, low noise, high torque and easy installation, which can be used in frequent reciprocating motion and acceleration and deceleration motion.

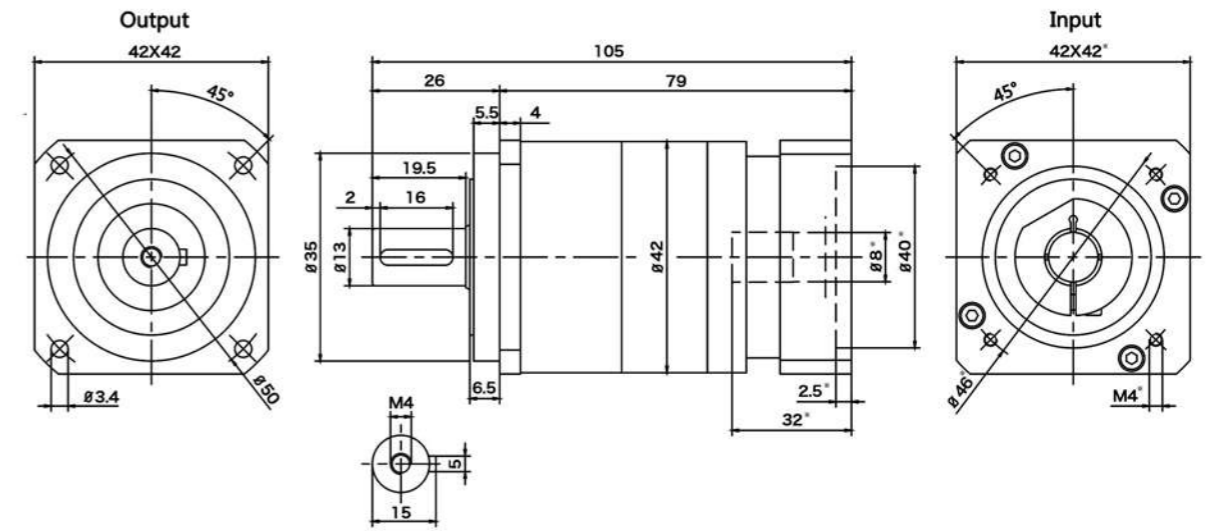




LFB042-L1



LFB042-L2



LFB042-L1								
速比	Ratio		3	4	5	7	10	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	14	14	20	20	14	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque					
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000					
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000					
扭转刚性	Torsional Rigidity	Nm/arcmin	3					
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	700					
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	610					
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)					
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)					
使用温度	Operating Temp	°C	-10 ~ +90					
防护等级	Degree of Reducer Protection		IP65					
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils					
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.03	0.03	0.03	0.03	0.03	
精密背隙 P1	Precision Backlash P1	arcmin	≤3					
标准背隙 P2	Standard Backlash P2	arcmin	≤5					
效率 $\eta$	Efficiency $\eta$	%	≥95%					

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

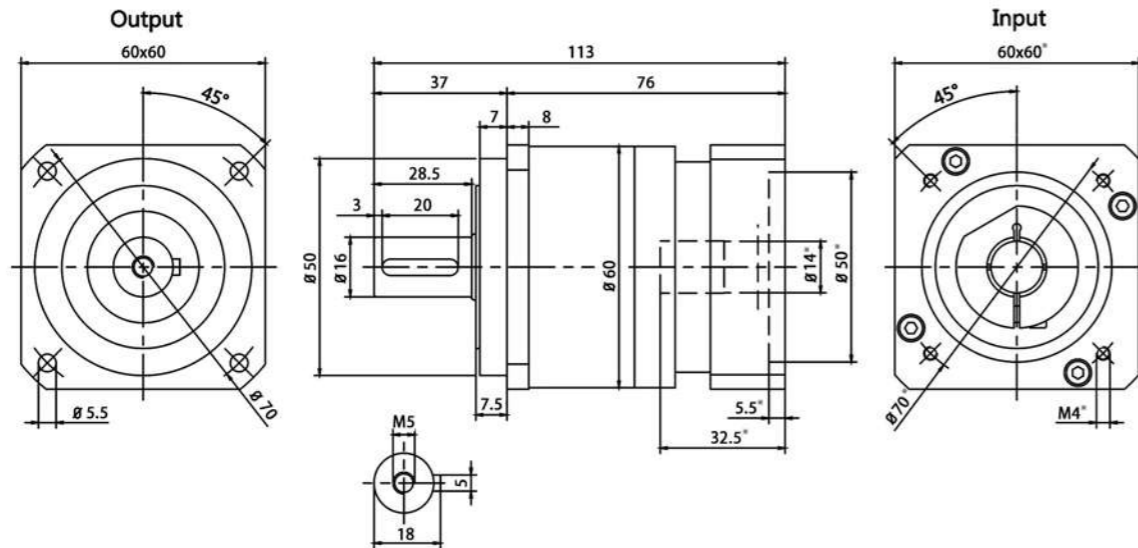
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带※尺寸可根据客户电机实际尺寸定制。如有需要，请联系我们！

LFB042-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	14	14	14	14	20	20	20	20	14
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000								
扭转刚性	Torsional Rigidity	Nm/arcmin	3								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	700								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	610								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

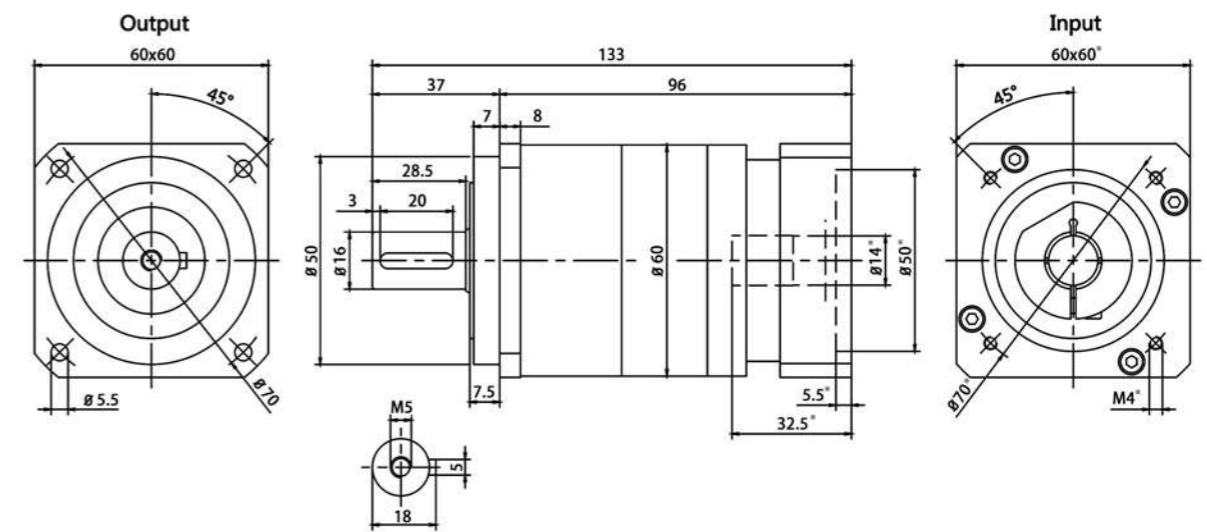
① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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LFB060-L1



LFB060-L2



LFB060-L1						
速比	Ratio		3	4	5	7 10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	55	50	60	50 40
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000			
扭转刚性	Torsional Rigidity	Nm/arcmin	7			
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	1530			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	630			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10~+90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.16	0.14	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	≤3			
标准背隙 P2	Standard Backlash P2	arcmin	≤5			
效率 $\eta$	Efficiency $\eta$	%	≥95%			

LFB060-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	55	50	60	55	50	50	60	50	40
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000								
扭转刚性	Torsional Rigidity	Nm/arcmin	7								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	1530								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	630								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10~+90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

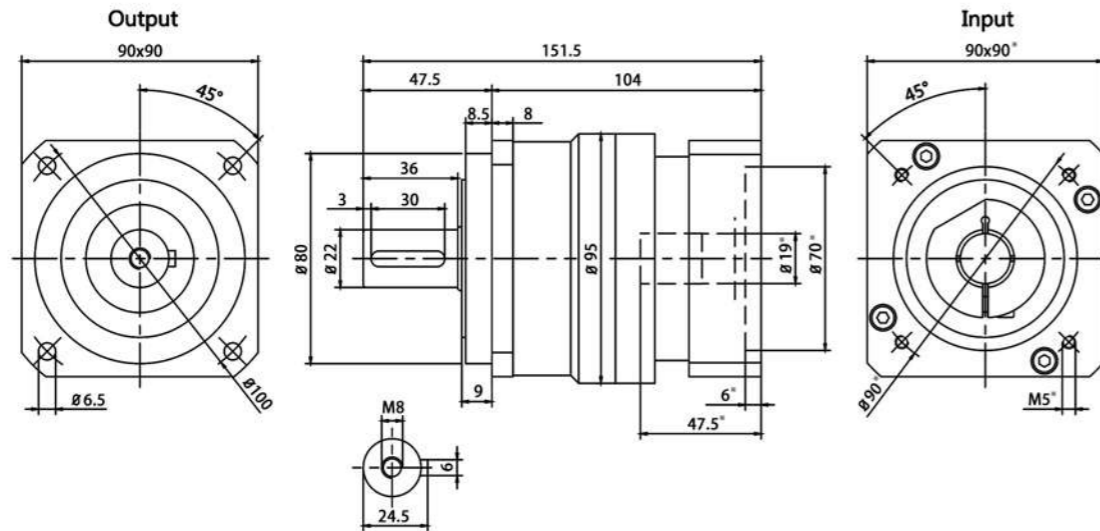
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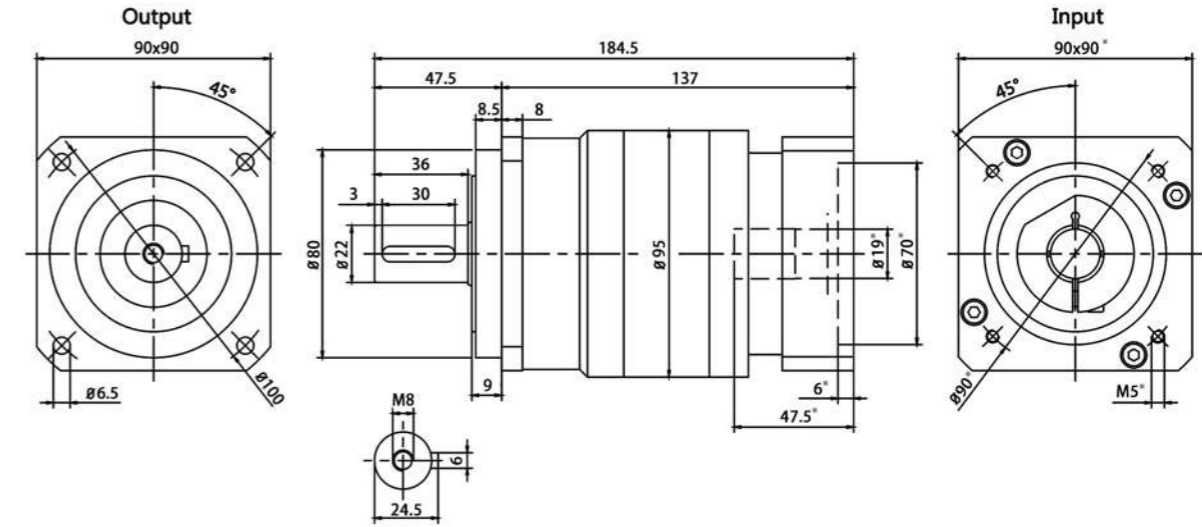
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LFB090-L1



LFB090-L2



LFB090-L1								
速比	Ratio		3	4	5	7	10	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	130	140	160	140	100	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque					
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000					
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000					
扭转刚性	Torsional Rigidity	Nm/arcmin	14					
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	3250					
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	1300					
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)					
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)					
使用温度	Operating Temp	°C	-10~+90					
防护等级	Degree of Reducer Protection		IP65					
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils					
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.61	0.48	0.47	0.45	0.44	
精密背隙 P1	Precision Backlash P1	arcmin	≤3					
标准背隙 P2	Standard Backlash P2	arcmin	≤5					
效率 $\eta$	Efficiency $\eta$	%	≥95%					

- ① Half-life under continuous operation mode.
- ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

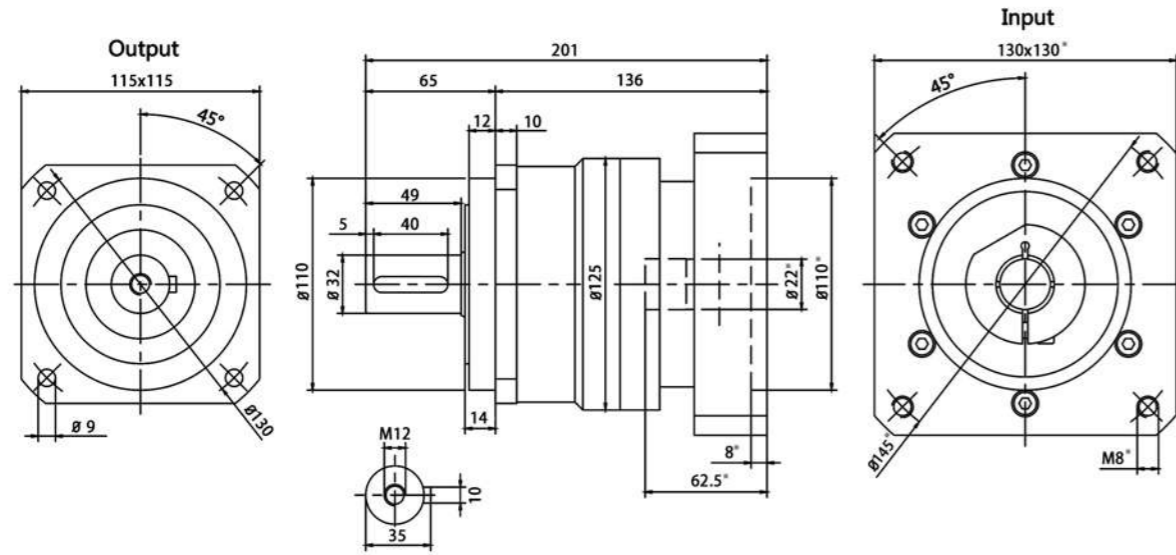
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LFB090-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	130	140	160	150	140	140	160	140	100
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000								
扭转刚性	Torsional Rigidity	Nm/arcmin	14								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	3250								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	1300								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10~+90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

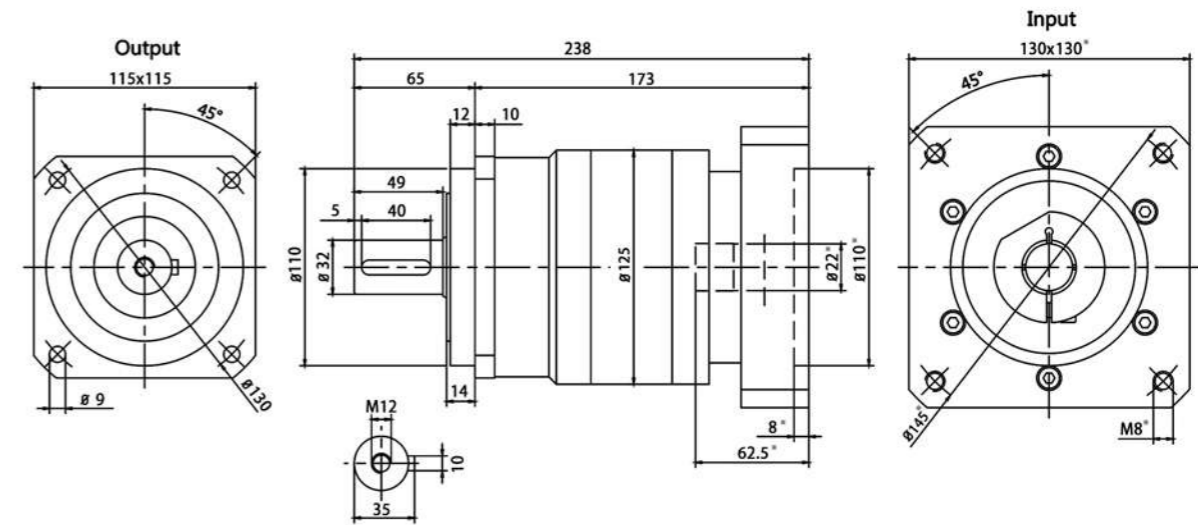
- ① Half-life under continuous operation mode.
- ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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LFB115-L1



LFB115-L2



LFB115-L1						
速比	Ratio		3	4	5	7 10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	208	290	330	300 230
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000			
扭转刚性	Torsional Rigidity	Nm/arcmin	25			
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	6700			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	3000			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	≤65 (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10 ~ +90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	3.25	2.74	2.71	2.62 2.57
精密背隙 P1	Precision Backlash P1	arcmin	≤3			
标准背隙 P2	Standard Backlash P2	arcmin	≤5			
效率 $\eta$	Efficiency $\eta$	%	≥95%			

LFB115-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	208	290	330	310	300	290	330	300	230
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000								
扭转刚性	Torsional Rigidity	Nm/arcmin	25								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	6700								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	3000								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤65 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	2.71	2.71	2.71	2.57	2.62	2.57	2.57	0.44	0.44
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

① Half-life under continuous operation mode.  
 ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

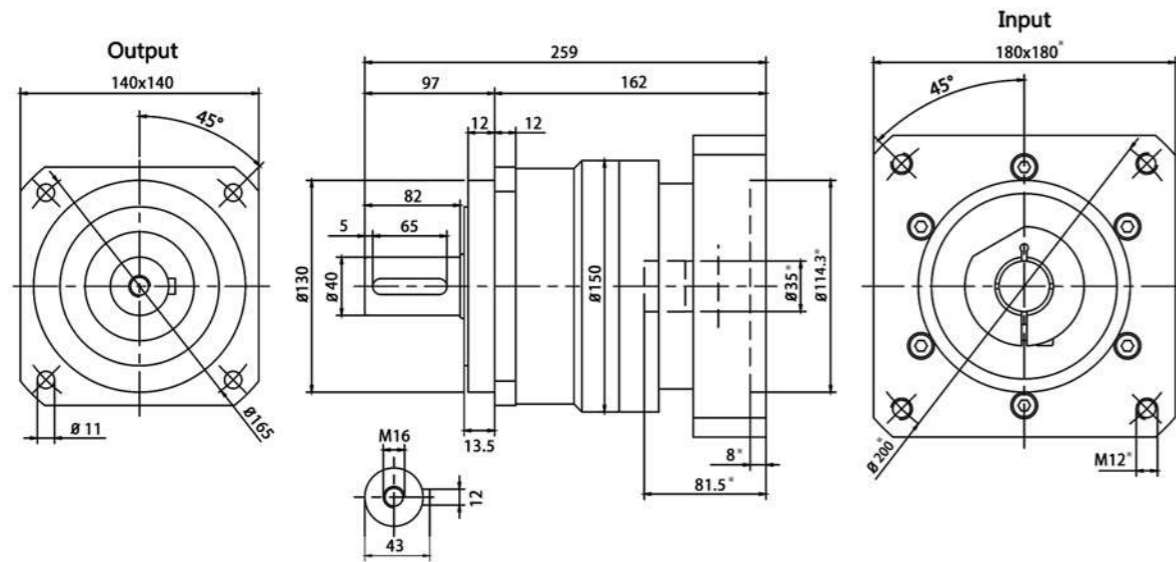
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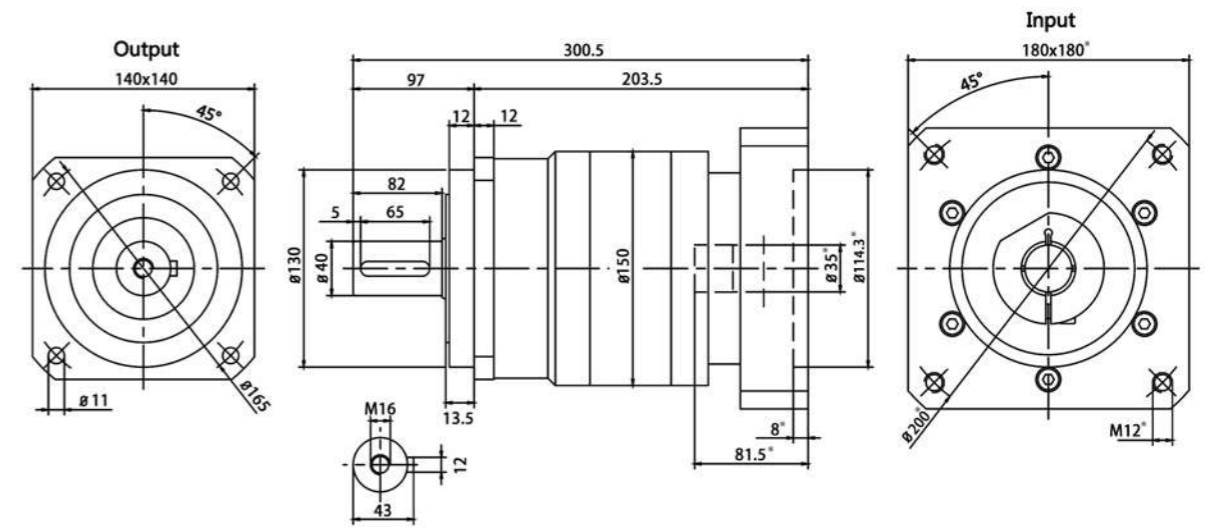
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LFB140-L1



LFB140-L2



LFB140-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 T <sub>2N</sub>	Nominal Output Torque T <sub>2N</sub>	Nm	342	542	650	550	450
急停扭矩 T <sub>2NOT</sub>	Emergency Stop Torque T <sub>2NOT</sub>	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 n <sub>1N</sub>	Nominal Input Speed n <sub>1N</sub>	rpm	3000				
最大输入转速 n <sub>1B</sub>	Max. Input Speed n <sub>1B</sub>	rpm	6000				
扭转刚性	Torsional Rigidity	Nm/arcmin	50				
容许径向力 F <sub>2rB</sub>	Max. Radial Load F <sub>2rB</sub>	N	9400				
容许轴向力 F <sub>2aB</sub>	Max. Axial Load F <sub>2aB</sub>	N	4700				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤67 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油(终身润滑) Synthetic lubrication oils				
转动惯量 J <sub>1</sub>	Mass Moments of Inertia J <sub>1</sub>	kg·cm <sup>2</sup>	9.21	7.54	7.42	7.14	7.03
精密背隙 P1	Precision Backlash P1	arcmin	≤3				
标准背隙 P2	Standard Backlash P2	arcmin	≤5				
效率 η	Efficiency η	%	≥95%				

LFB140-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 T <sub>2N</sub>	Nominal Output Torque T <sub>2N</sub>	Nm	342	542	650	600	550	542	650	550	450
急停扭矩 T <sub>2NOT</sub>	Emergency Stop Torque T <sub>2NOT</sub>	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 n <sub>1N</sub>	Nominal Input Speed n <sub>1N</sub>	rpm	3000								
最大输入转速 n <sub>1B</sub>	Max. Input Speed n <sub>1B</sub>	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	50								
容许径向力 F <sub>2rB</sub>	Max. Radial Load F <sub>2rB</sub>	N	9400								
容许轴向力 F <sub>2aB</sub>	Max. Axial Load F <sub>2aB</sub>	N	4700								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤67 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油(终身润滑) Synthetic lubrication oils								
转动惯量 J <sub>1</sub>	Mass Moments of Inertia J <sub>1</sub>	kg·cm <sup>2</sup>	7.42	7.42	7.42	7.03	7.14	7.03	7.03	2.57	2.57
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 η	Efficiency η	%	≥92%								

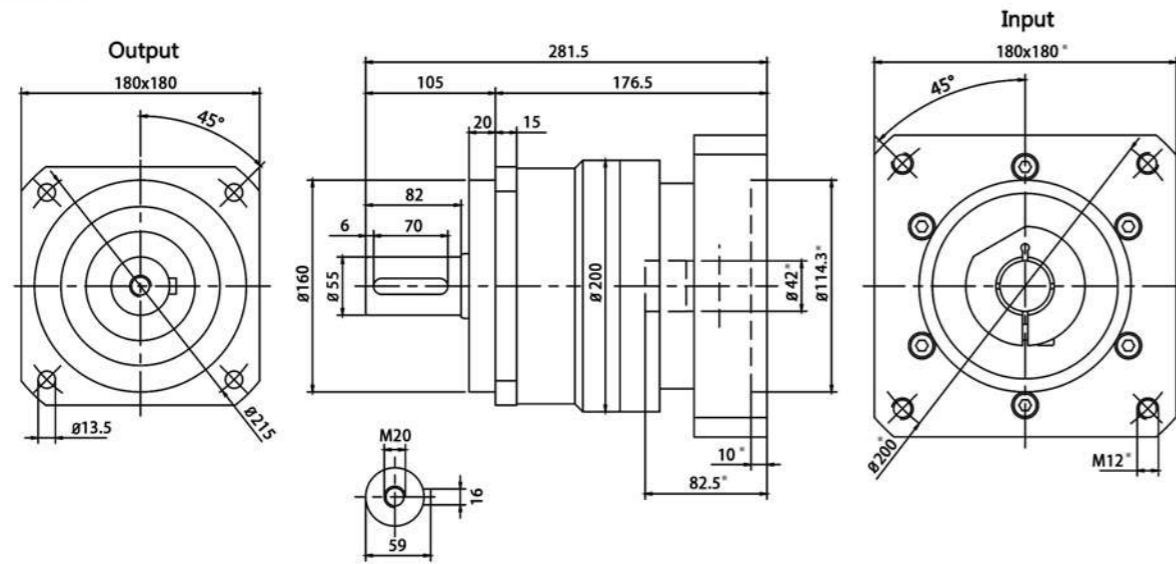
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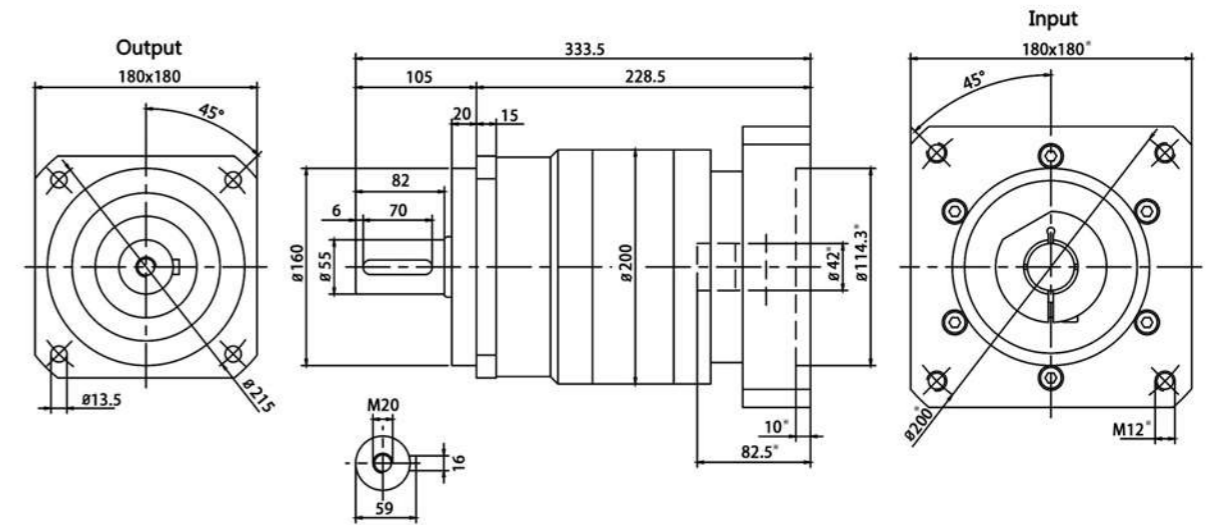
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LFB180-L1



LFB180-L2



LFB180-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	588	1050	1200	1100	900
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000				
扭转刚性	Torsional Rigidity	Nm/arcmin	145				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	14500				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	7250				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	29	23.7	23.3	22.5	22.5
精密背隙 P1	Precision Backlash P1	arcmin	≤3				
标准背隙 P2	Standard Backlash P2	arcmin	≤5				
效率 $\eta$	Efficiency $\eta$	%	≥95%				

LFB180-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	588	1050	1200	1100	1100	1050	1200	1100	900
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	145								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	14500								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	7250								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	23.3	23.3	23.3	22.5	22.5	22.5	22.5	7.03	7.03
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

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# LFE Series

## 产品详情

### 产品特点

高性能，用途广，高刚性，高效率，低噪音，低背隙

### 产品介绍

- 1.优化精选油封：减小摩擦，增加传动效率，IP65防护等级，保证至90度的可持续运转
- 2.深沟球轴承：实现最大承载能力
- 3.一体化外壳：更高精度，更强抗拉刚度，更高抗扭刚度
- 4.斜齿：提高传动效率，低噪音，高精度
- 5.满滚针：提高径向负载能力，体积小
- 6.框架设计：增加扭转力矩，优化动力传输
- 7.特种铝材输入端面：减轻自重
- 8.特性：输出端圆形设计，便于客户自己更改安装方式，减速机本体圆形设计，匹配电机更加灵活便捷

### Product features

High performance, wide application, high rigidity, high efficiency, low noise, low backlash

### Product introduction

- 1.Optimize selected oil seals: reduce friction, increase transmission efficiency, IP65 protection level, ensure sustainable operation up to 90 degrees
- 2.Deep groove ball bearings: to achieve greater carrying capacity
- 3.Integrated shell: higher precision, stronger tensile stiffness, higher torsional stiffness
- 4.Helical gear: improve transmission efficiency, low noise, high precision
- 5.Full needle roller: improve radial load capacity, small size
- 6.Frame design: increase torsion moment and optimize power transmission
- 7.Special aluminum input end face: reduce weight
- 8.Features: The circular design of the output terminal is convenient for customers to change the installation method. The circular design of the reducer body makes it more flexible and convenient to match the motor.

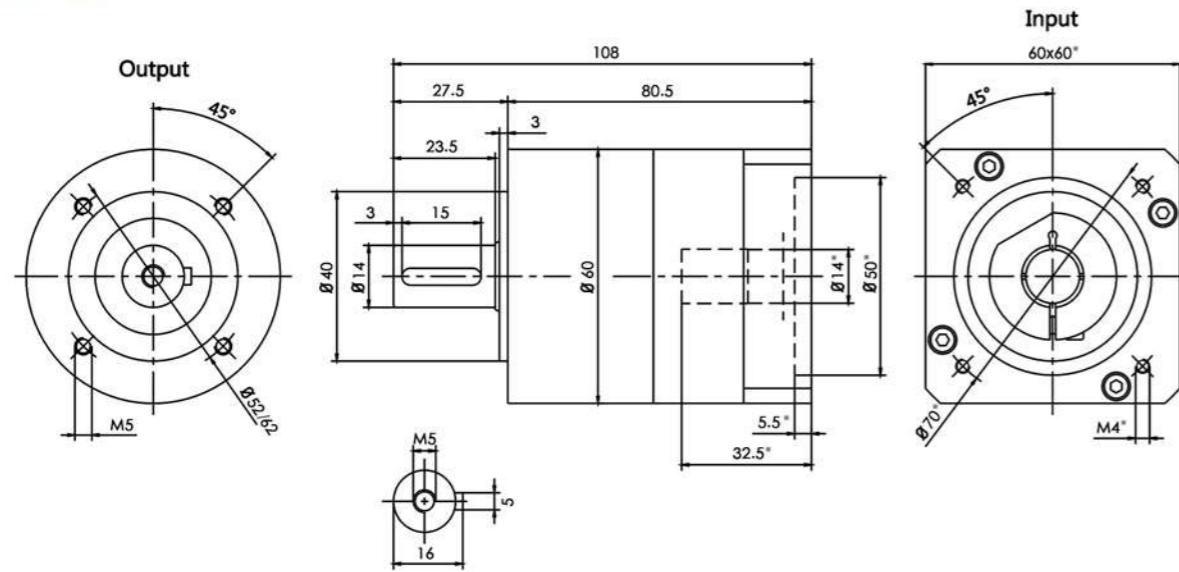
该型号具有高精度、低噪音、高扭矩、等特点，可应用于频繁往复运动和加减速运动。

This model has the characteristics of high precision, low noise, high torque, high speed, etc. it can be used in frequent reciprocating motion and acceleration and deceleration motion.

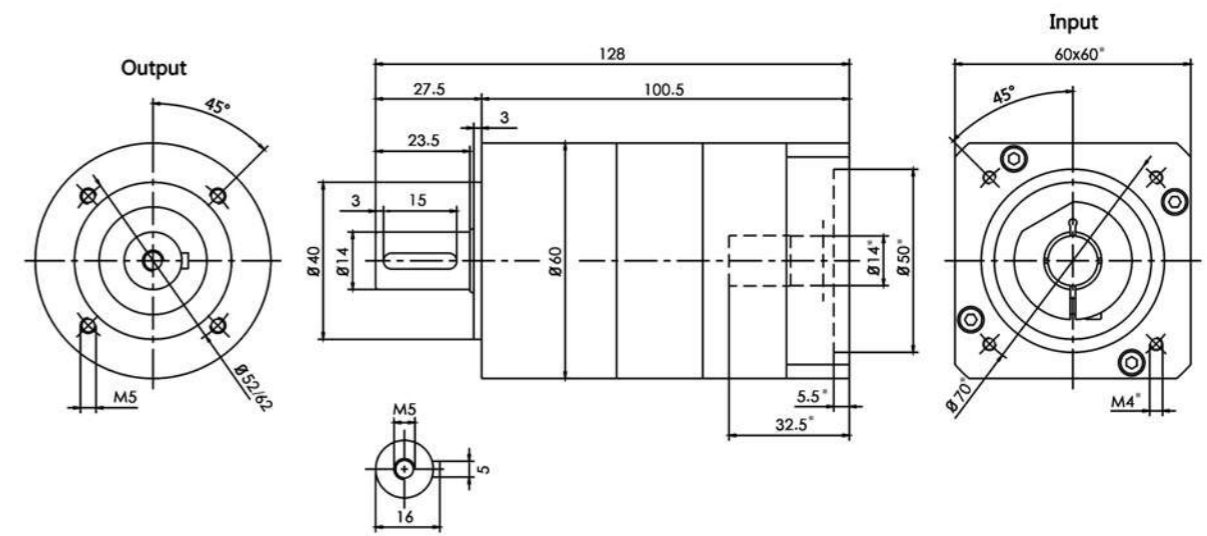




LFE060-L1



LFE060-L2



LFE060-L1								
速比	Ratio		3	4	5	7	10	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	35	40	45	40	30	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque					
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000					
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000					
扭转刚性	Torsional Rigidity	Nm/arcmin	5					
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	1300					
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	550					
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)					
噪音值	Noise	dB	$\leq 60$ (输入转速=3000rpm、空载、距离1M②)					
使用温度	Operating Temp	°C	-10 ~ +90					
防护等级	Degree of Reducer Protection		IP65					
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils					
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.16	0.14	0.13	0.13	0.13	
精密背隙 P1	Precision Backlash P1	arcmin	$\leq 3$					
标准背隙 P2	Standard Backlash P2	arcmin	$\leq 5$					
效率 $\eta$	Efficiency $\eta$	%	$\geq 95\%$					

- ① Half-life under continuous operation mode.
- ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

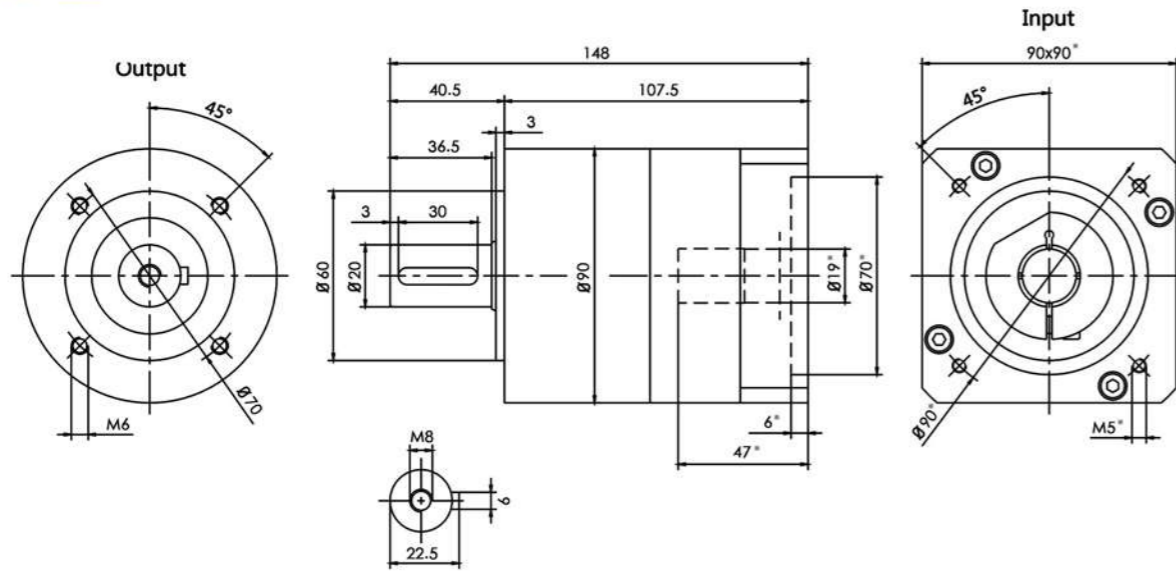
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LFE060-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	35	45	45	40	40	40	45	40	30
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000								
扭转刚性	Torsional Rigidity	Nm/arcmin	5								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	1300								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	550								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	$\leq 60$ (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	$\leq 5$								
标准背隙 P2	Standard Backlash P2	arcmin	$\leq 8$								
效率 $\eta$	Efficiency $\eta$	%	$\geq 92\%$								

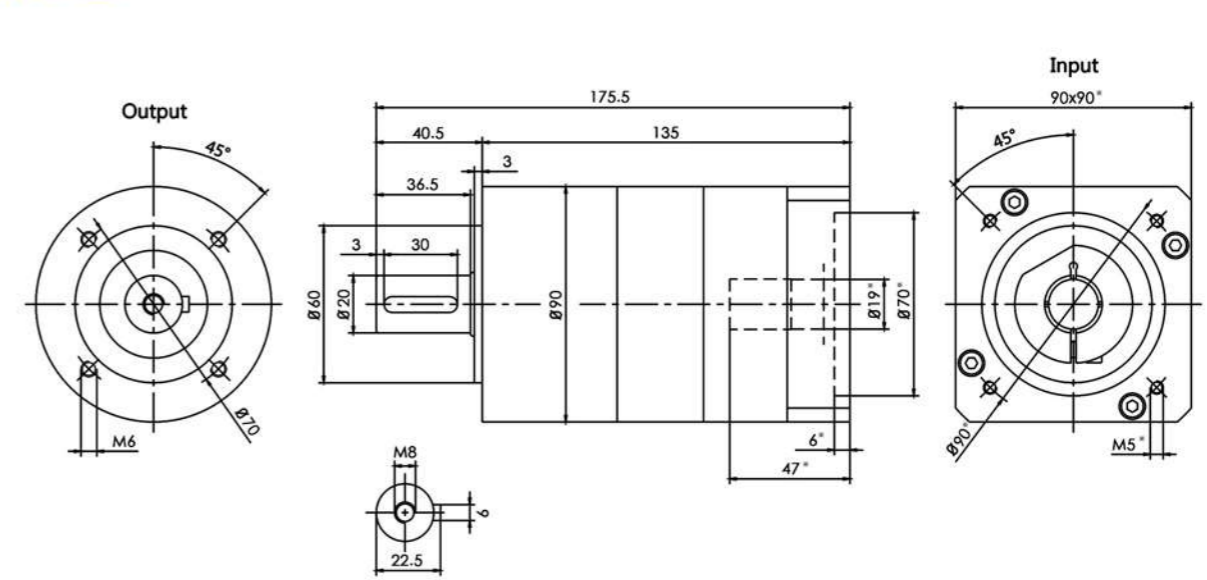
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LFE090-L1



LFE090-L2



LFE090-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	100	110	125	110	80
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000				
扭转刚性	Torsional Rigidity	Nm/arcmin	11				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	2800				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	1000				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.61	0.48	0.47	0.45	0.44
精密背隙 P1	Precision Backlash P1	arcmin	≤3				
标准背隙 P2	Standard Backlash P2	arcmin	≤5				
效率 $\eta$	Efficiency $\eta$	%	≥95%				

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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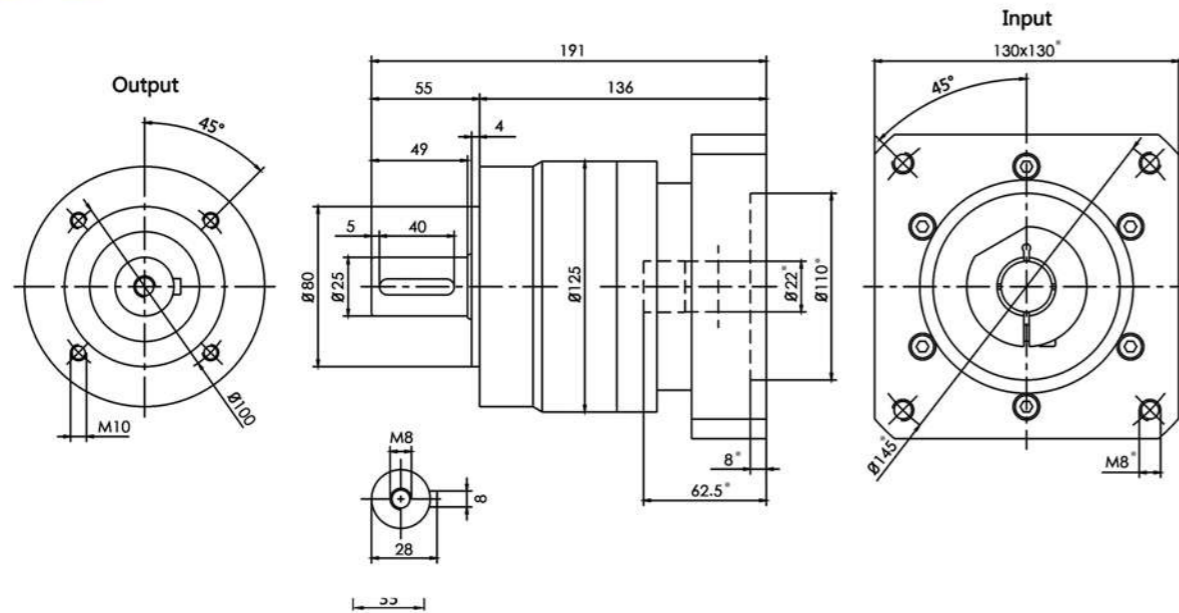
LFE090-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	100	110	125	110	125	110	125	110	80
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000								
扭转刚性	Torsional Rigidity	Nm/arcmin	11								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	2800								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	1000								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.47	0.47	0.47	0.44	0.45	0.44	0.44	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

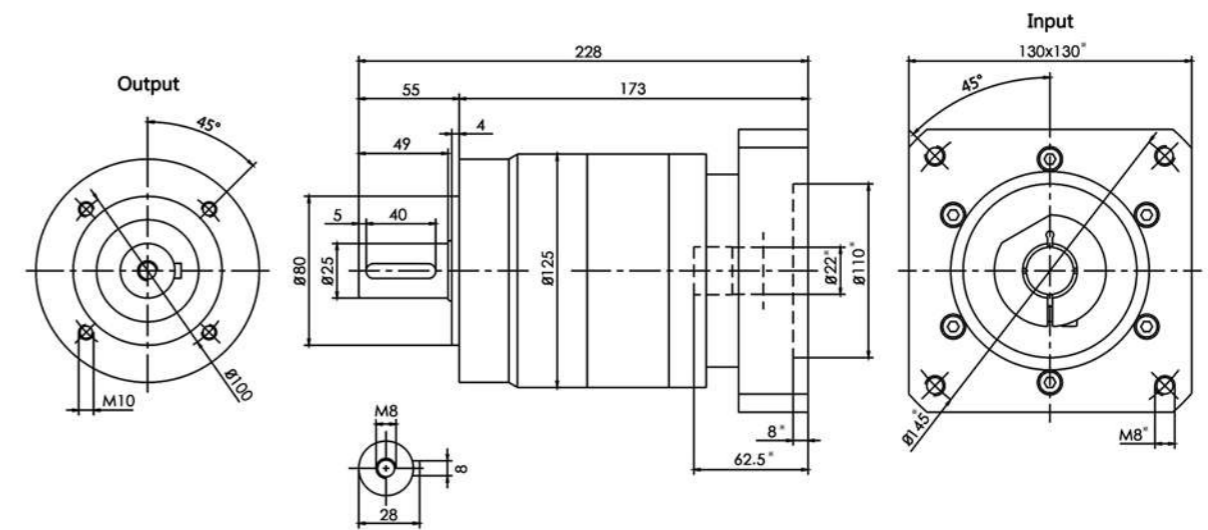
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LFE115-L1



LFE115-L2



LFE115-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	170	220	250	200	180
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000				
扭转刚性	Torsional Rigidity	Nm/arcmin	18				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	5200				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	2300				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤65 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	3.25	2.74	2.71	2.62	2.57
精密背隙 P1	Precision Backlash P1	arcmin	≤3				
标准背隙 P2	Standard Backlash P2	arcmin	≤5				
效率 $\eta$	Efficiency $\eta$	%	≥95%				

LFE115-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	100	110	125	110	125	110	125	110	80
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000								
扭转刚性	Torsional Rigidity	Nm/arcmin	18								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	5200								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	2300								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤65 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.47	0.47	0.47	0.44	0.45	0.44	0.44	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

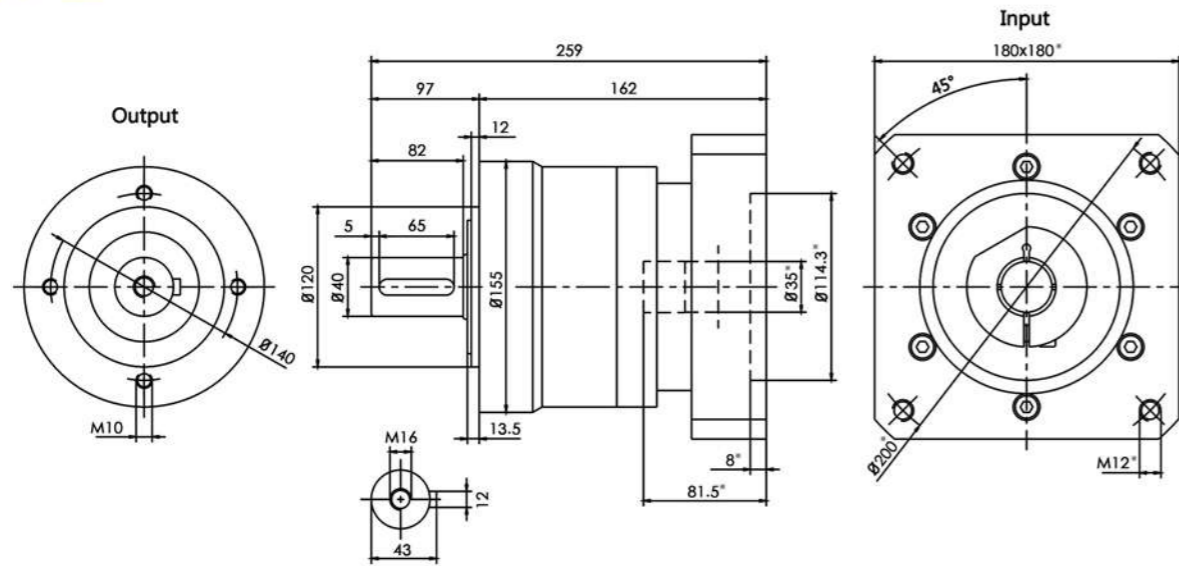
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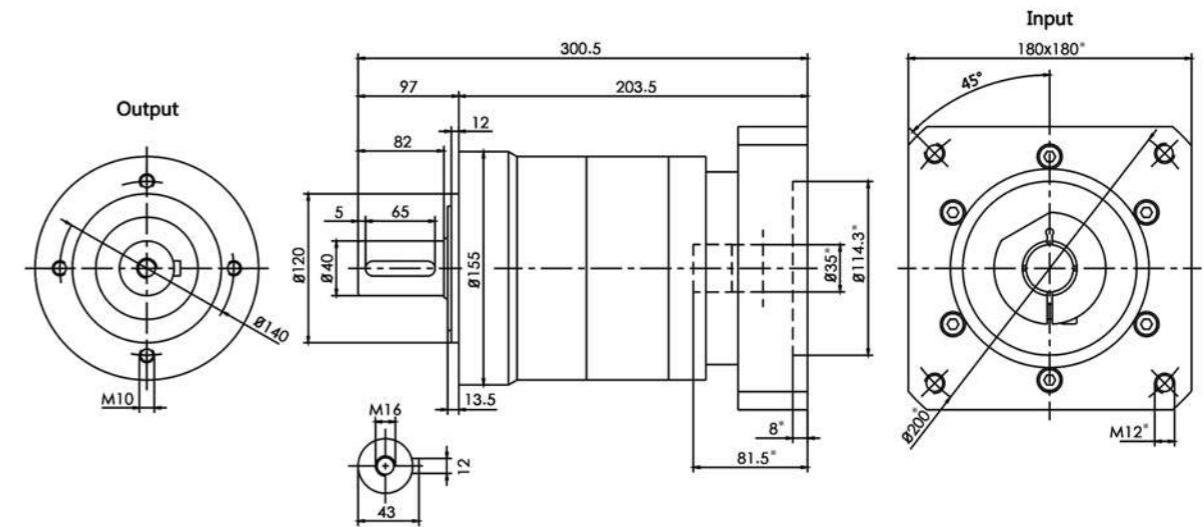
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LFE155-L1



LFE155-L2



LFE155-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000				
扭转刚性	Torsional Rigidity	Nm/arcmin	50				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	$\leq 67$ (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	$^{\circ}C$	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	$kg \cdot cm^2$	9.21	7.54	7.42	7.14	7.03
精密背隙 P1	Precision Backlash P1	arcmin	$\leq 3$				
标准背隙 P2	Standard Backlash P2	arcmin	$\leq 5$				
效率 $\eta$	Efficiency $\eta$	%	$\geq 95\%$				

LFE155-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	600	550	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	50								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	$\leq 67$ (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	$^{\circ}C$	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	$kg \cdot cm^2$	7.42	7.42	7.42	7.03	7.14	7.03	7.03	2.57	2.57
精密背隙 P1	Precision Backlash P1	arcmin	$\leq 5$								
标准背隙 P2	Standard Backlash P2	arcmin	$\leq 8$								
效率 $\eta$	Efficiency $\eta$	%	$\geq 92\%$								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

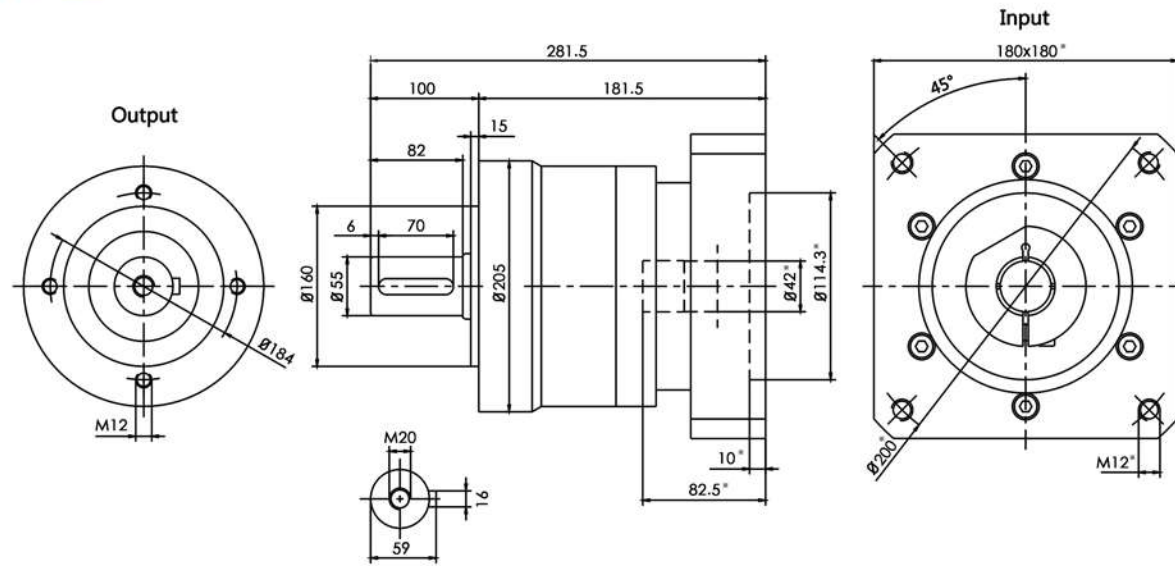
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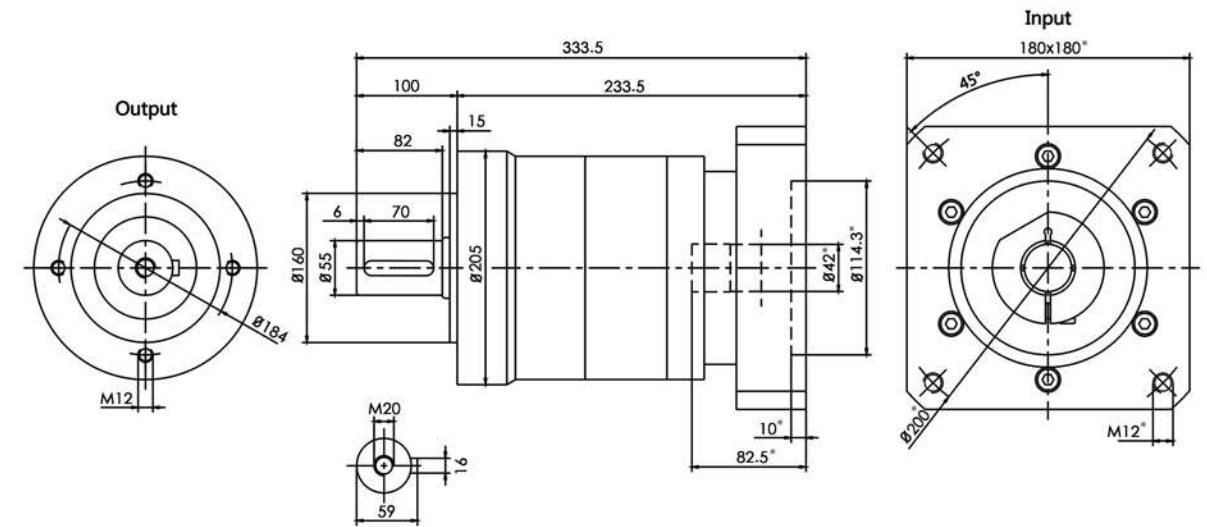
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LFE205-L1



LFE205-L2



LFE205-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	588	1050	1200	1100	900
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000				
扭转刚性	Torsional Rigidity	Nm/arcmin	145				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	14500				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	7250				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	$\leq 70$ (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	29	23.7	23.3	22.5	22.5
精密背隙 P1	Precision Backlash P1	arcmin	$\leq 3$				
标准背隙 P2	Standard Backlash P2	arcmin	$\leq 5$				
效率 $\eta$	Efficiency $\eta$	%	$\geq 95\%$				

LFE205-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	588	1050	1200	1100	1100	1050	1200	1100	900
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	145								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	14500								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	7250								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	$\leq 70$ (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	23.3	23.3	23.3	22.5	22.5	22.5	22.5	7.03	7.03
精密背隙 P1	Precision Backlash P1	arcmin	$\leq 5$								
标准背隙 P2	Standard Backlash P2	arcmin	$\leq 8$								
效率 $\eta$	Efficiency $\eta$	%	$\geq 92\%$								

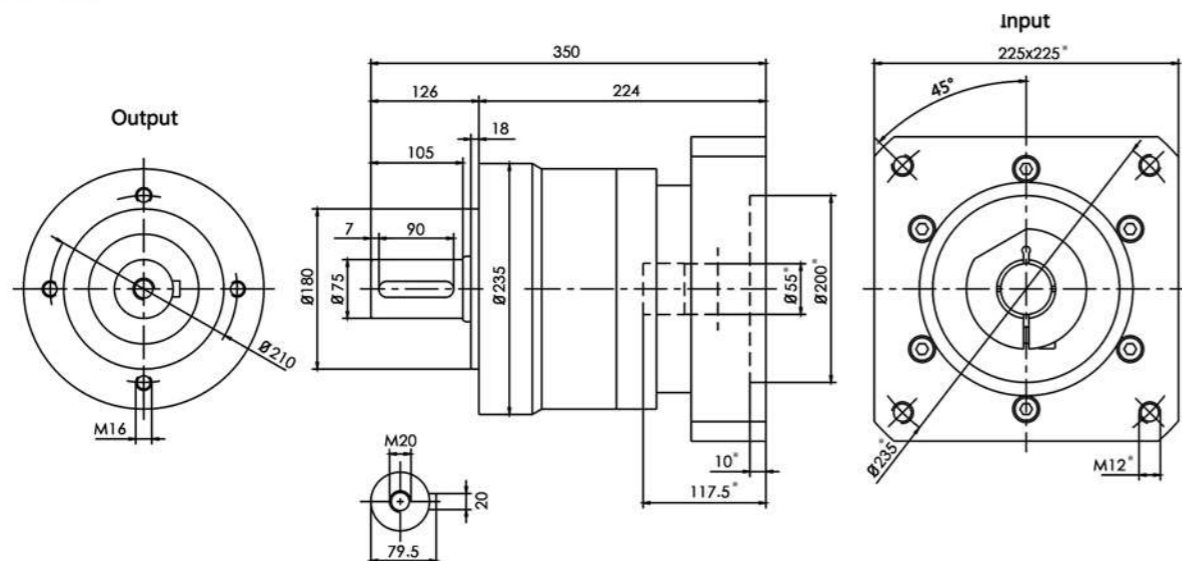
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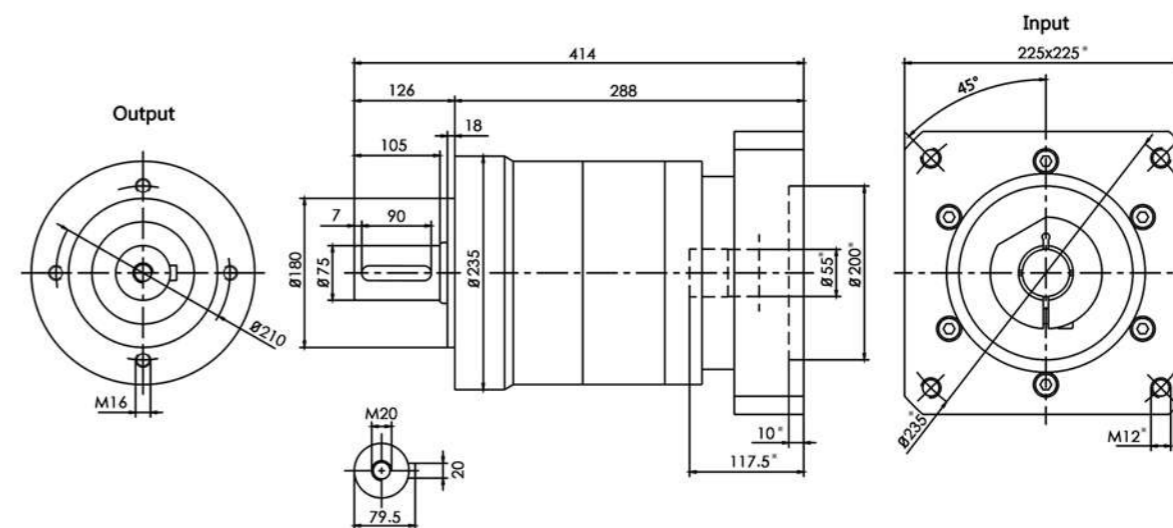
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### LFE235-L1



### LFE235-L2



LFE235-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	1140	1700	2000	1800	1500
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	2000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	4000				
扭转刚性	Torsional Rigidity	Nm/arcmin	225				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	50000				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	35000				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤72 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	69.6	54.4	53.3	51	50.6
精密背隙 P1	Precision Backlash P1	arcmin	≤3				
标准背隙 P2	Standard Backlash P2	arcmin	≤5				
效率 $\eta$	Efficiency $\eta$	%	≥95%				

LFE235-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	1140	1700	2000	1900	1800	1700	2000	1800	1500
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	2000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	4000								
扭转刚性	Torsional Rigidity	Nm/arcmin	225								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	50000								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	35000								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤72 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	53.3	53.3	53.3	50.6	51	50.6	22.5	22.5	22.5
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

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# LFF Series

## 产品详情

### 产品特点

高性能，用途广，高刚性，高效率，低噪音，低背隙

### 产品介绍

- 1.优化精选油封：减小摩擦，增加传动效率，IP65防护等级，保证至90度的可持续运转
- 2.圆锥滚子轴承：实现最大承载能力
- 3.一体化外壳：更高精度，更强抗拉刚度，更高抗扭刚度
- 4.斜齿：提高传动效率，低噪音，高精度
- 5.满滚针：提高径向负载能力，体积小
- 6.框架设计：增加扭转力矩，优化动力传输
- 7.特种铝材输入端面：减轻自重
- 8.特性：输出端法兰盘式输出，采用交叉滚子轴承设计，输出端更加平稳有效，减速机本体圆形设计，匹配电机更加灵活便捷

### Product features

High performance, wide application, high rigidity, high efficiency, low noise, low backlash

### Product introduction

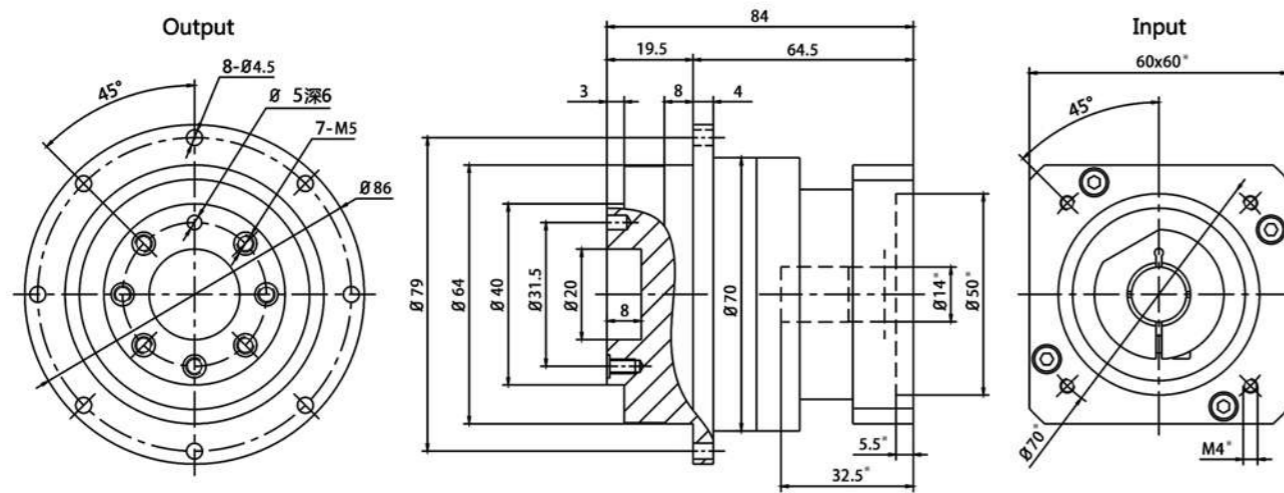
- 1.Optimize selected oil seals: reduce friction, increase transmission efficiency, IP65 protection level, ensure sustainable operation up to 90 degrees
- 2.Deep groove ball bearings: to achieve greater carrying capacity
- 3.Integrated shell: higher precision, stronger tensile stiffness, higher torsional stiffness
- 4.Helical gear: improve transmission efficiency, low noise, high precision
- 5.Full needle roller: improve radial load capacity, small size
- 6.Frame design: increase torsion moment and optimize power transmission
- 7.Special aluminum input end face: reduce weight
- 8.Features: Flange-type output end, adopts cross-roller bearing design, the output end is more stable and effective, and the circular design of the reducer body makes it more flexible and convenient to match the motor.

该型号具有高精度、低噪音、高扭矩、平稳性好等特点，可应用于加速度大的设备。

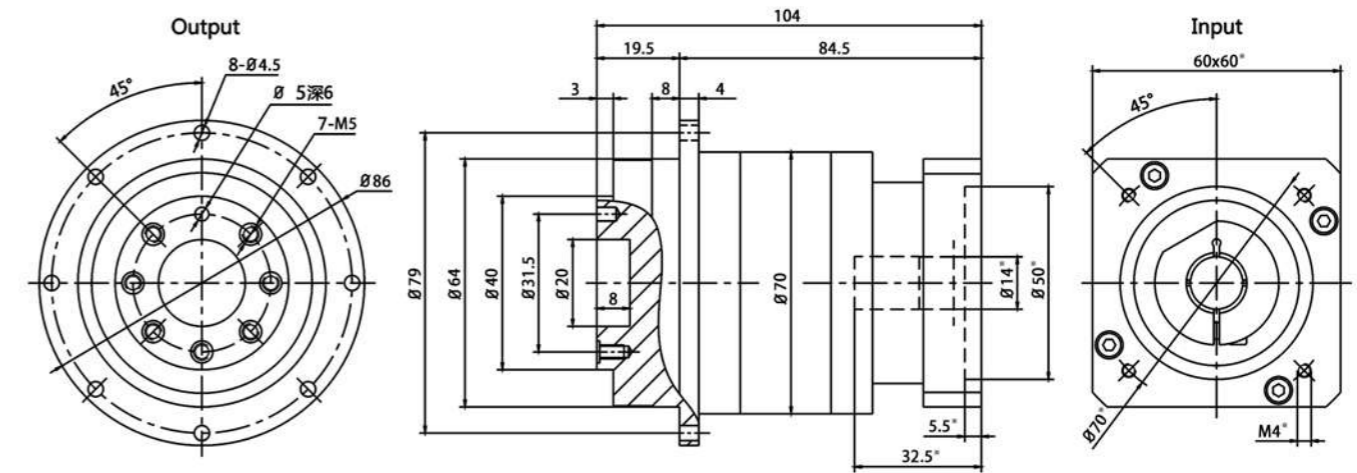
This model has the characteristics of high precision, low noise, high torque and good stability, which can be applied to the equipment with large acceleration.



LFF060-L1



LFF060-L2



LFF060-L1						
速比	Ratio		4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	48	60	50	40
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000			
扭转刚性	Torsional Rigidity	Nm/arcmin	13			
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	125			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	2110			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10 ~ +90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.14	0.13	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	≤3			
标准背隙 P2	Standard Backlash P2	arcmin	≤5			
效率 $\eta$	Efficiency $\eta$	%	≥95%			

LFF060-L2									
速比	Ratio		20	25	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	48	60	50	48	60	50	40
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque						
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000						
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000						
扭转刚性	Torsional Rigidity	Nm/arcmin	13						
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	125						
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	2110						
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)						
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)						
使用温度	Operating Temp	°C	-10 ~ +90						
防护等级	Degree of Reducer Protection		IP65						
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils						
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.13	0.13	0.13	0.13	0.13	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	≤5						
标准背隙 P2	Standard Backlash P2	arcmin	≤8						
效率 $\eta$	Efficiency $\eta$	%	≥92%						

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

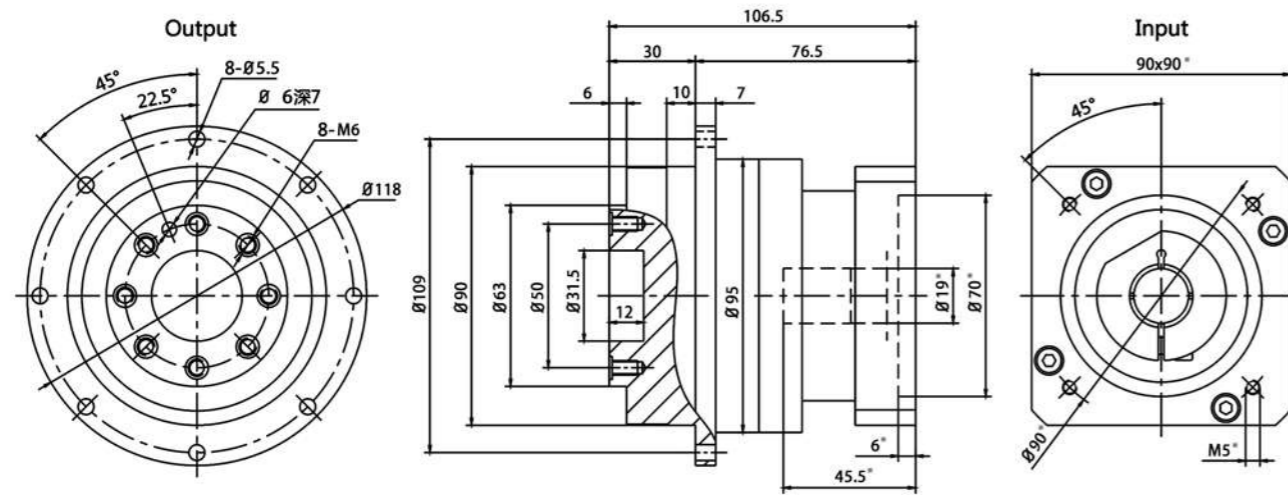
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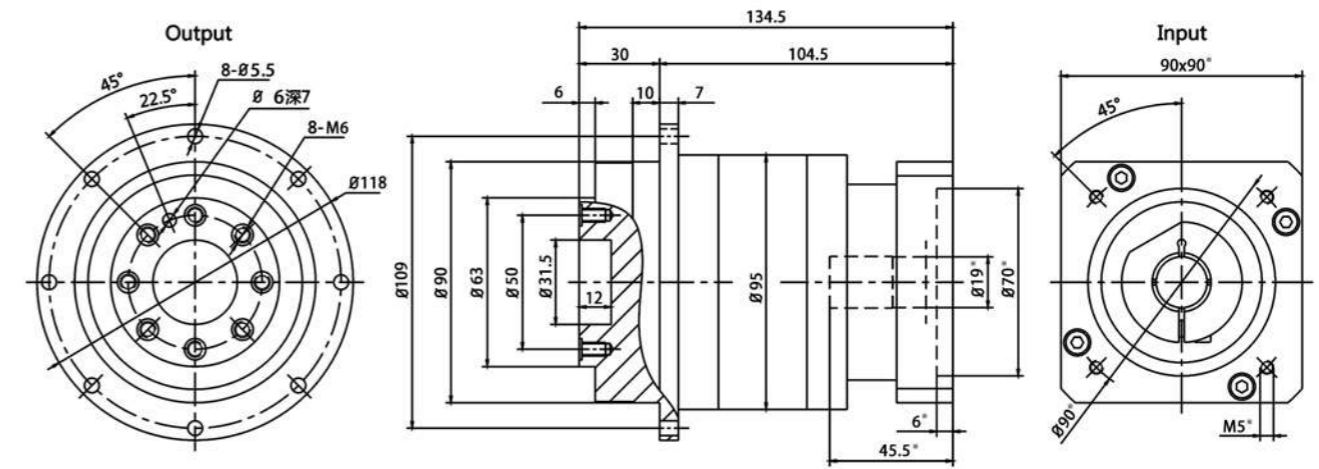
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LFF090-L1



LFF090-L2



LFF090-L1						
速比	Ratio		4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	130	160	140	100
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000			
扭转刚性	Torsional Rigidity	Nm/arcmin	31			
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	235			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	2310			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10 ~ +90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.48	0.47	0.45	0.44
精密背隙 P1	Precision Backlash P1	arcmin	≤3			
标准背隙 P2	Standard Backlash P2	arcmin	≤5			
效率 $\eta$	Efficiency $\eta$	%	≥95%			

LFF090-L2										
速比	Ratio		20	25	35	40	50	70	100	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	130	160	140	130	160	140	100	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque							
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000							
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000							
扭转刚性	Torsional Rigidity	Nm/arcmin	31							
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	235							
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	2310							
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)							
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)							
使用温度	Operating Temp	°C	-10 ~ +90							
防护等级	Degree of Reducer Protection		IP65							
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils							
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.47	0.47	0.47	0.44	0.44	0.13	0.13	
精密背隙 P1	Precision Backlash P1	arcmin	≤5							
标准背隙 P2	Standard Backlash P2	arcmin	≤8							
效率 $\eta$	Efficiency $\eta$	%	≥92%							

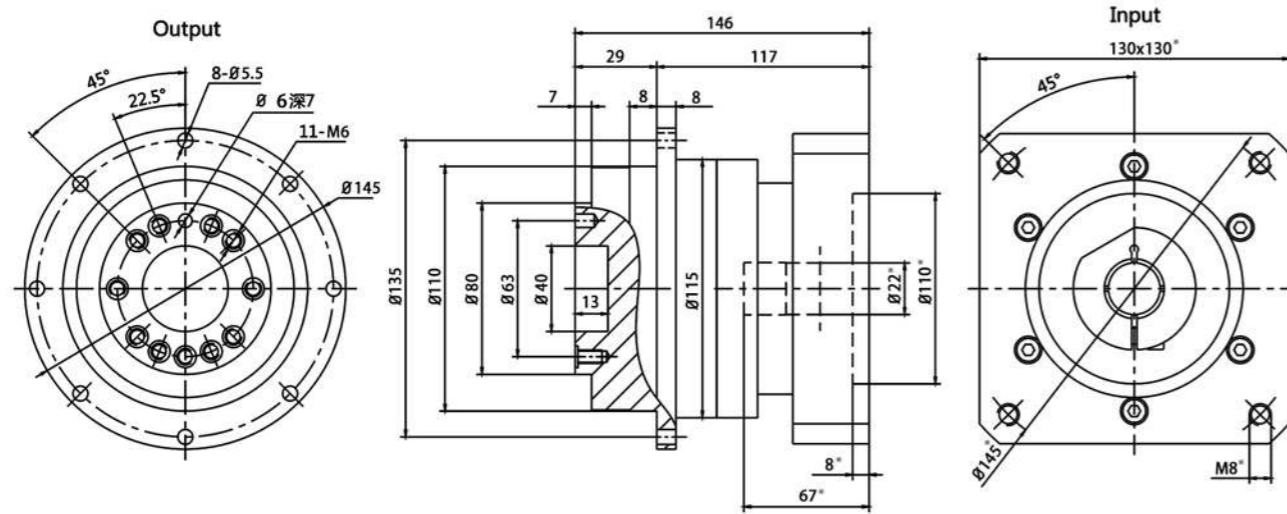
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 ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

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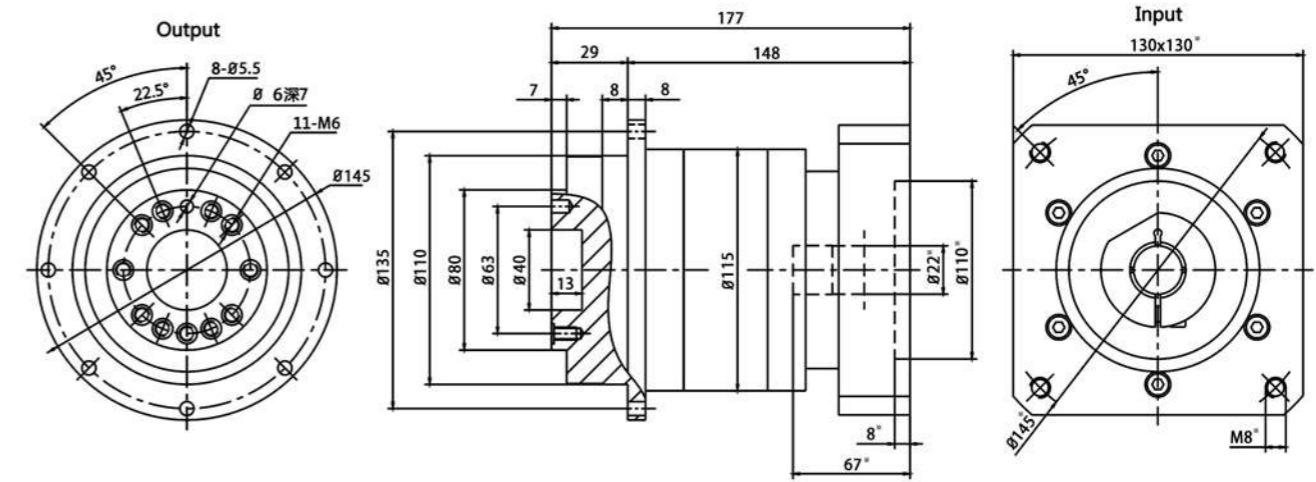
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LFF110-L1



LFF110-L2



LFF110-L1						
速比	Ratio		4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	270	330	300	230
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000			
扭转刚性	Torsional Rigidity	Nm/arcmin	82			
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	430			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4800			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	$\leq 65$ (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10 ~ +90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	2.74	2.71	2.62	2.57
精密背隙 P1	Precision Backlash P1	arcmin	$\leq 3$			
标准背隙 P2	Standard Backlash P2	arcmin	$\leq 5$			
效率 $\eta$	Efficiency $\eta$	%	$\geq 95\%$			

LFF110-L2									
速比	Ratio		20	25	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	270	330	300	270	330	300	230
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque						
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000						
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000						
扭转刚性	Torsional Rigidity	Nm/arcmin	82						
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	430						
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4800						
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)						
噪音值	Noise	dB	$\leq 65$ (输入转速=3000rpm、空载、距离1M②)						
使用温度	Operating Temp	°C	-10 ~ +90						
防护等级	Degree of Reducer Protection		IP65						
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils						
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	2.71	2.71	2.62	2.57	2.57	0.44	0.44
精密背隙 P1	Precision Backlash P1	arcmin	$\leq 5$						
标准背隙 P2	Standard Backlash P2	arcmin	$\leq 8$						
效率 $\eta$	Efficiency $\eta$	%	$\geq 92\%$						

① Half-life under continuous operation mode.  
 ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

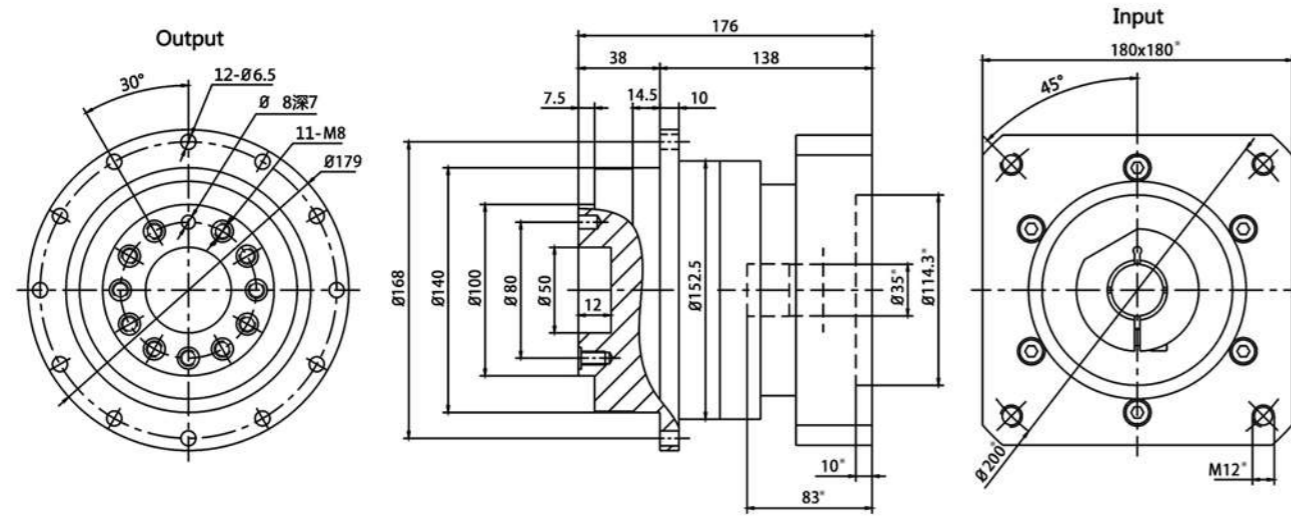
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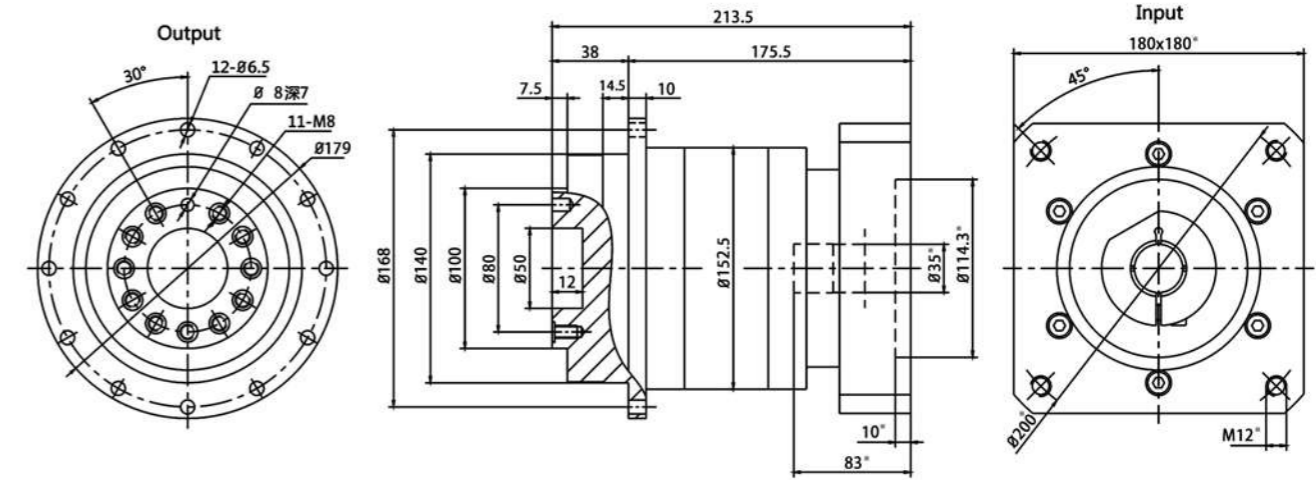
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LFF140-L1



LFF140-L2



LFF140-L1						
速比	Ratio		4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	560	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000			
扭转刚性	Torsional Rigidity	Nm/arcmin	151			
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	1300			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	6200			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	≤67 (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10 ~ +90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.54	7.42	7.14	7.03
精密背隙 P1	Precision Backlash P1	arcmin	≤3			
标准背隙 P2	Standard Backlash P2	arcmin	≤5			
效率 $\eta$	Efficiency $\eta$	%	≥95%			

LFF140-L2									
速比	Ratio		20	25	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	560	650	550	560	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque						
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000						
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000						
扭转刚性	Torsional Rigidity	Nm/arcmin	151						
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	1300						
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	6200						
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)						
噪音值	Noise	dB	≤67 (输入转速=3000rpm、空载、距离1M②)						
使用温度	Operating Temp	°C	-10 ~ +90						
防护等级	Degree of Reducer Protection		IP65						
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils						
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.42	7.42	7.14	7.03	7.03	2.57	2.57
精密背隙 P1	Precision Backlash P1	arcmin	≤5						
标准背隙 P2	Standard Backlash P2	arcmin	≤8						
效率 $\eta$	Efficiency $\eta$	%	≥92%						

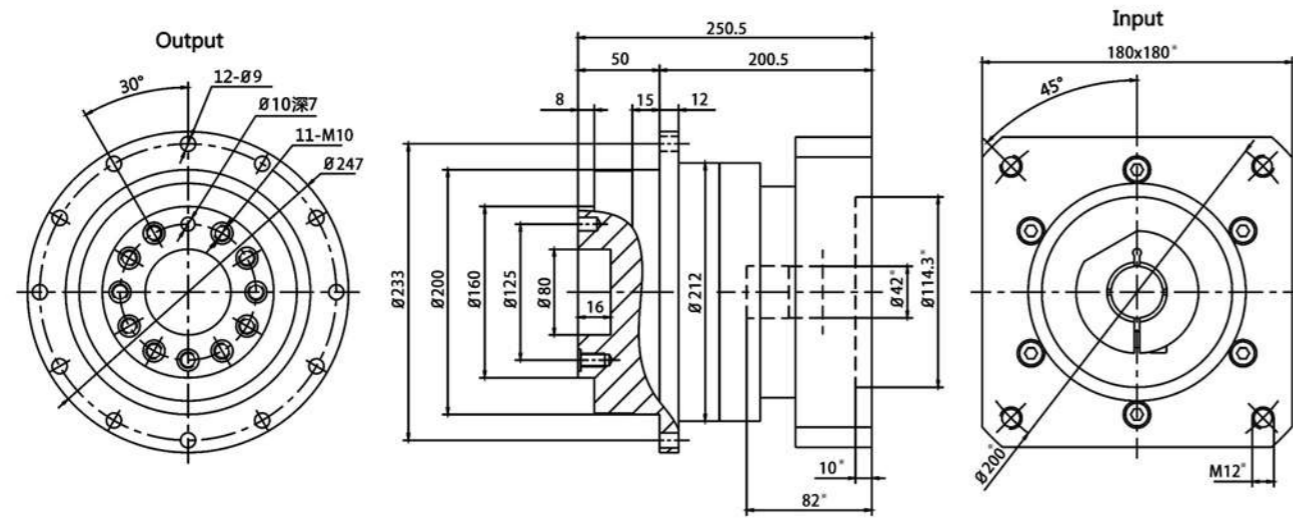
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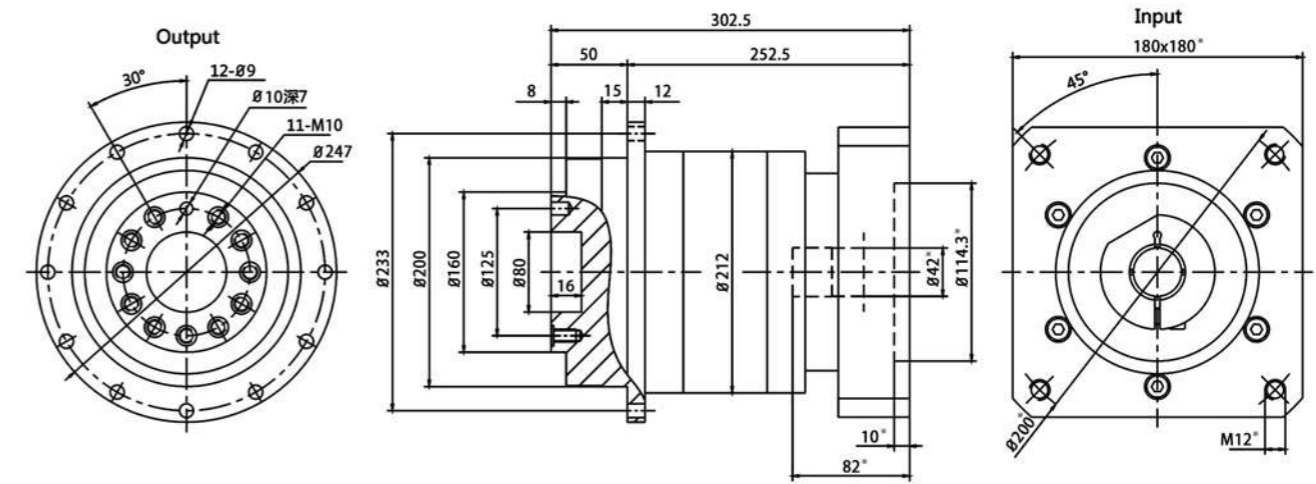
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LFF200-L1



LFF200-L2



LFF200-L1						
速比	Ratio		4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	1100	1200	1100	900
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000			
扭转刚性	Torsional Rigidity	Nm/arcmin	440			
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	3064			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	5450			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10 ~ +90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	23.67	23.29	22.48	22.51
精密背隙 P1	Precision Backlash P1	arcmin	≤3			
标准背隙 P2	Standard Backlash P2	arcmin	≤5			
效率 $\eta$	Efficiency $\eta$	%	≥95%			

LFF200-L2									
速比	Ratio		20	25	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	1100	1200	1100	1100	1200	1100	900
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque						
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000						
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000						
扭转刚性	Torsional Rigidity	Nm/arcmin	440						
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	3064						
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	5450						
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)						
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)						
使用温度	Operating Temp	°C	-10 ~ +90						
防护等级	Degree of Reducer Protection		IP65						
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils						
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	23.29	23.29	22.48	22.51	22.51	7.03	7.03
精密背隙 P1	Precision Backlash P1	arcmin	≤5						
标准背隙 P2	Standard Backlash P2	arcmin	≤8						
效率 $\eta$	Efficiency $\eta$	%	≥92%						

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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# LFD Series

## 产品详情

### 产品特点

高性能，用途广，高刚性，高效率，低噪音，低背隙

### 产品介绍

- 1.优化精选油封：减小摩擦，增加传动效率，IP65防护等级，保证至90度的可持续运转
- 2.圆锥滚子轴承：实现最大承载能力
- 3.斜齿：提高传动效率，低噪音，高精度
- 4.满滚针：提高径向负载能力，体积小
- 5.框架设计：增加扭转力矩，优化动力传输
- 6.特种铝材输入端面：减轻自重
- 7.特性：输出轴圆锥滚子轴承设计，轴式输出，输出更有力，减速机本体圆形设计，匹配电机更加灵活便捷

### Product features

High performance, wide application, high rigidity, high efficiency, low noise, low backlash

### Product introduction

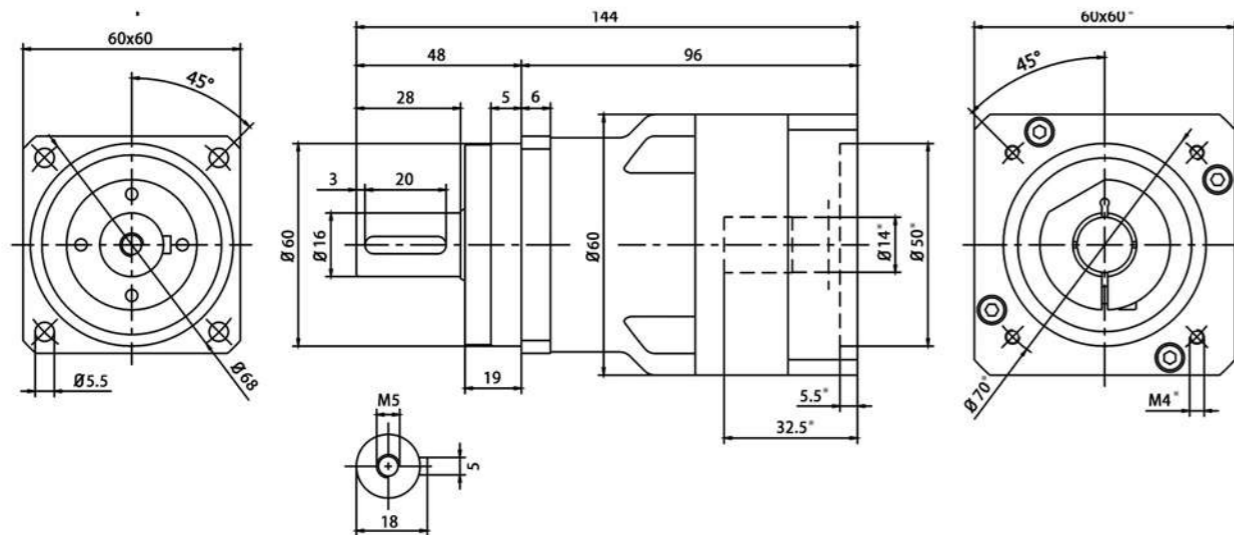
- 1.Optimize selected oil seals: reduce friction, increase transmission efficiency, IP65 protection level, ensure sustainable operation up to 90 degrees
- 2.Deep groove ball bearings: to achieve greater carrying capacity
- 3.Helical gear: improve transmission efficiency, low noise, high precision
- 4.Full needle roller: improve radial load capacity, small size
- 5.Frame design: increase torsion moment and optimize power transmission
- 6.Special aluminum input end face: reduce weight
- 7.Features: The output shaft with tapered roller bearing design, shaft output, the output is more powerful, the circular design of the reducer body makes it more flexible and convenient to match the motor

该型号采用圆锥滚子轴承，具有高刚性、高扭矩、高精度等特点，可应用于大型龙门机床设备。

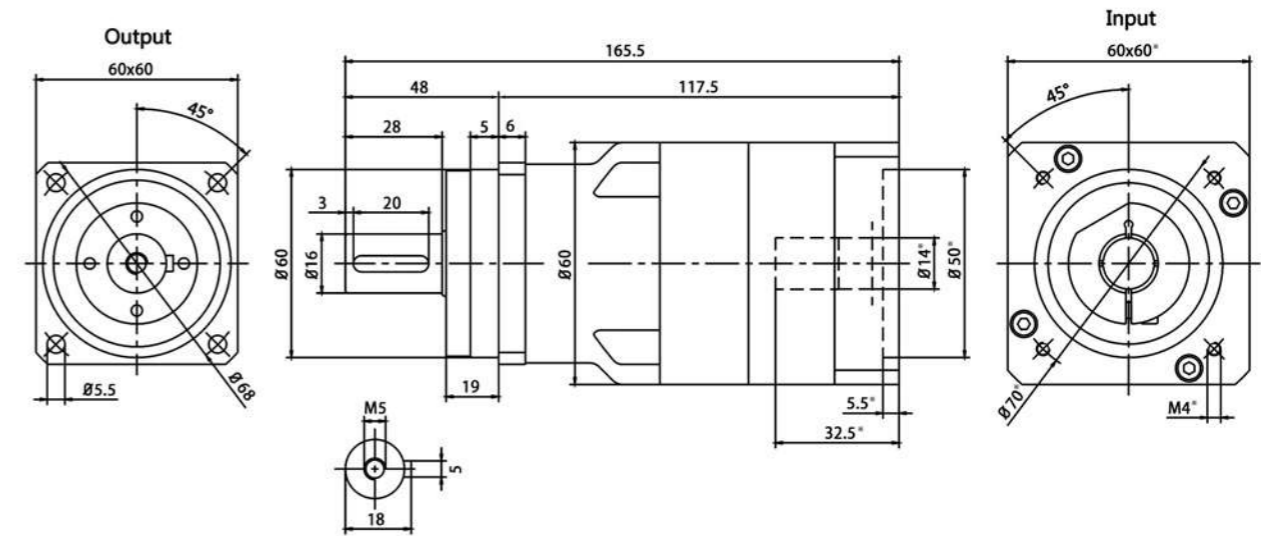
This model adopts tapered roller bearing, which has the characteristics of high rigidity, high torque and high precision. It can be used in large gantry machine tools.



LFD060-L1



LFD060-L2



LFD060-L1								
速比	Ratio		3	4	5	7	10	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	18	27	27	27	18	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque					
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000					
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000					
扭转刚性	Torsional Rigidity	Nm/arcmin	6					
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	2800					
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	2400					
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)					
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)					
使用温度	Operating Temp	°C	-10~+90					
防护等级	Degree of Reducer Protection		IP65					
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils					
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.16	0.14	0.13	0.13	0.13	
精密背隙 P1	Precision Backlash P1	arcmin	≤3					
标准背隙 P2	Standard Backlash P2	arcmin	≤5					
效率 $\eta$	Efficiency $\eta$	%	≥95%					

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

※Dimension can be customized according to the motor, if necessary, please contact us!  
带※尺寸可根据客户电机实际尺寸定制。如有需要，请联系我们！

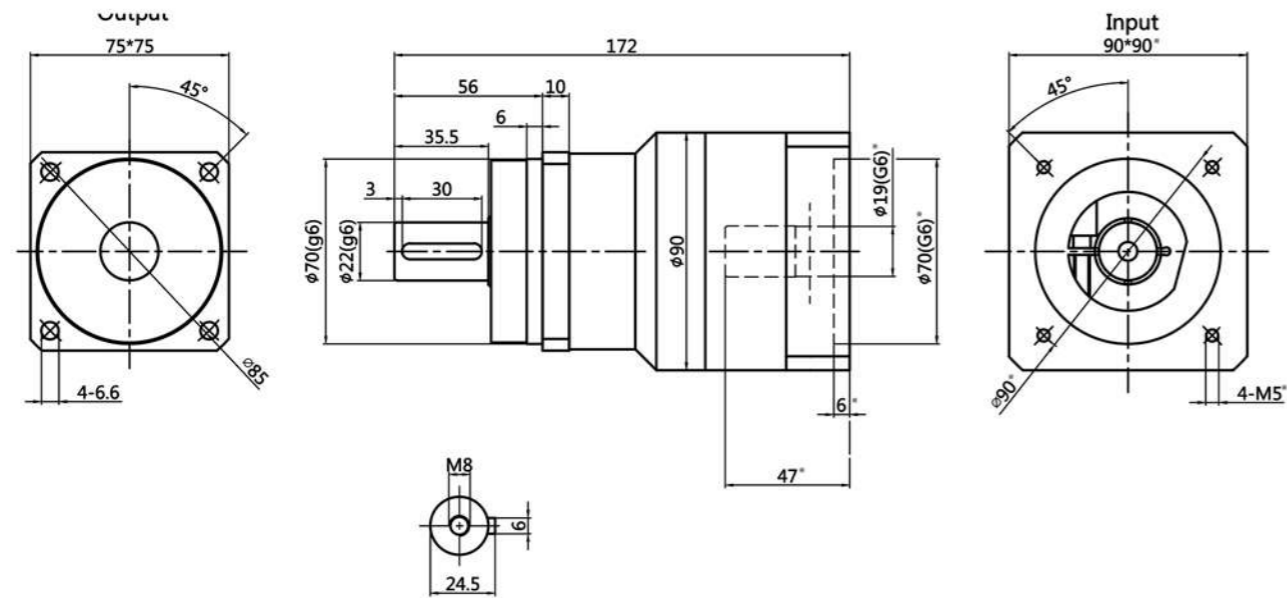
LFD060-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	18	27	27	27	27	27	27	27	18
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	6								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	2800								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	2400								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10~+90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

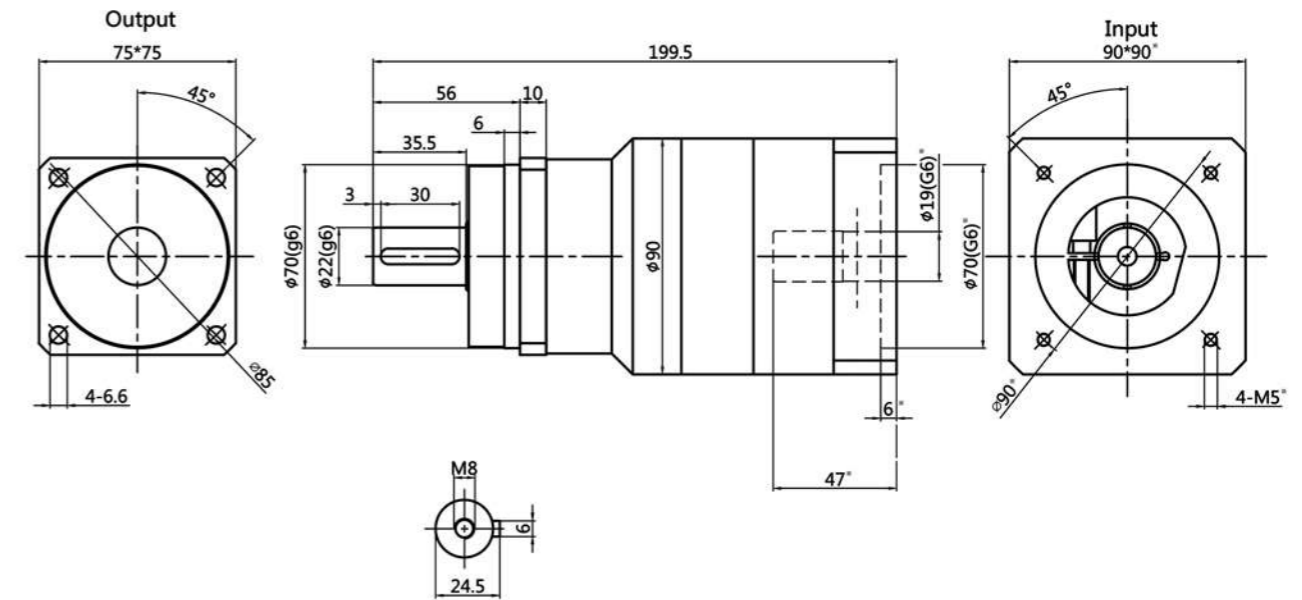
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LFD075-L1



LFD075-L2



LFD075-L1								
速比	Ratio		3	4	5	7	10	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	50	75	75	75	50	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque					
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000					
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000					
扭转刚性	Torsional Rigidity	Nm/arcmin	10					
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	4200					
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	3350					
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)					
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)					
使用温度	Operating Temp	°C	-10 ~ +90					
防护等级	Degree of Reducer Protection		IP65					
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils					
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.61	0.48	0.47	0.45	0.44	
精密背隙 P1	Precision Backlash P1	arcmin	≤3					
标准背隙 P2	Standard Backlash P2	arcmin	≤5					
效率 $\eta$	Efficiency $\eta$	%	≥95%					

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

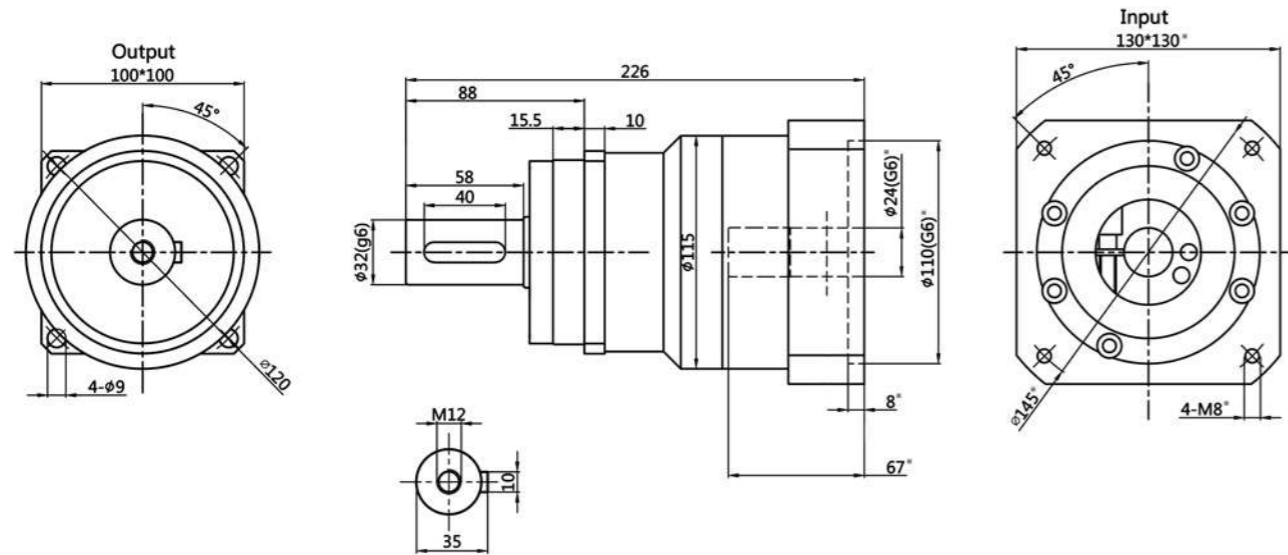
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LFD075-L2												
速比	Ratio		15	20	25	30	35	40	50	70	100	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	50	75	75	75	75	75	75	75	50	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque									
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000									
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000									
扭转刚性	Torsional Rigidity	Nm/arcmin	10									
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	4200									
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	3350									
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)									
噪音值	Noise	dB	≤60 (输入转速=3000rpm、空载、距离1M②)									
使用温度	Operating Temp	°C	-10 ~ +90									
防护等级	Degree of Reducer Protection		IP65									
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils									
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.47	0.47	0.47	0.44	0.45	0.44	0.44	0.13	0.13	
精密背隙 P1	Precision Backlash P1	arcmin	≤5									
标准背隙 P2	Standard Backlash P2	arcmin	≤8									
效率 $\eta$	Efficiency $\eta$	%	≥92%									

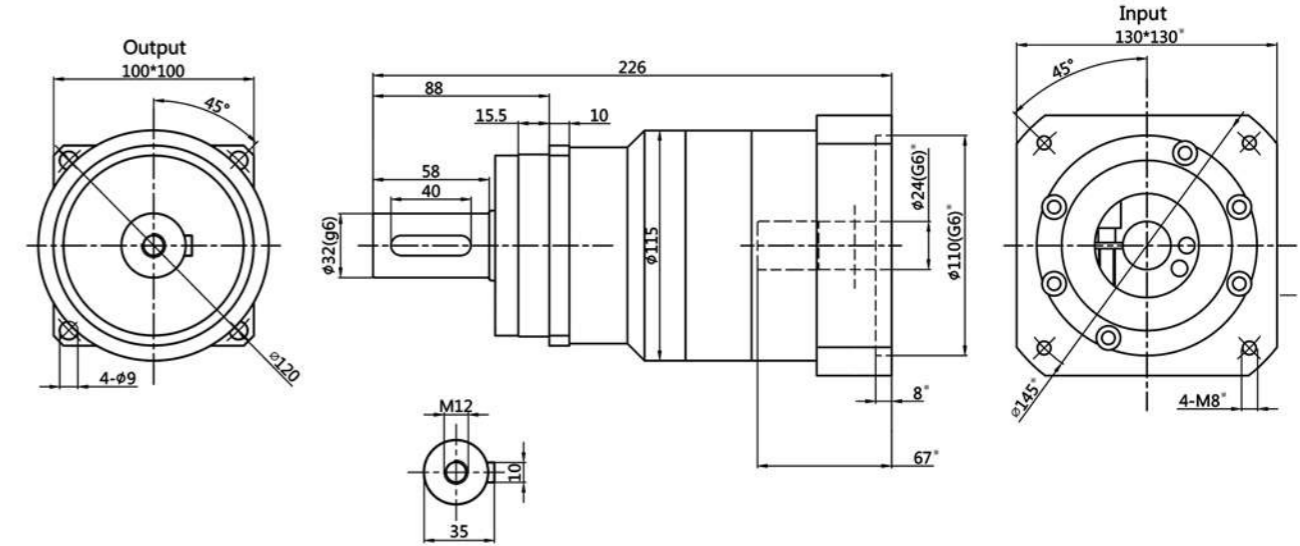
① Half-life under continuous operation mode.  
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LFD100-L1



LFD100-L2



LFD100-L1								
速比	Ratio		3	4	5	7	10	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	120	180	180	180	120	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque					
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000					
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000					
扭转刚性	Torsional Rigidity	Nm/arcmin	25					
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	6500					
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	5650					
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)					
噪音值	Noise	dB	≤65 (输入转速=3000rpm、空载、距离1M②)					
使用温度	Operating Temp	°C	-10 ~ +90					
防护等级	Degree of Reducer Protection		IP65					
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils					
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	3.25	2.74	2.71	2.62	2.57	
精密背隙 P1	Precision Backlash P1	arcmin	≤3					
标准背隙 P2	Standard Backlash P2	arcmin	≤5					
效率 $\eta$	Efficiency $\eta$	%	≥95%					

- ① Half-life under continuous operation mode.
- ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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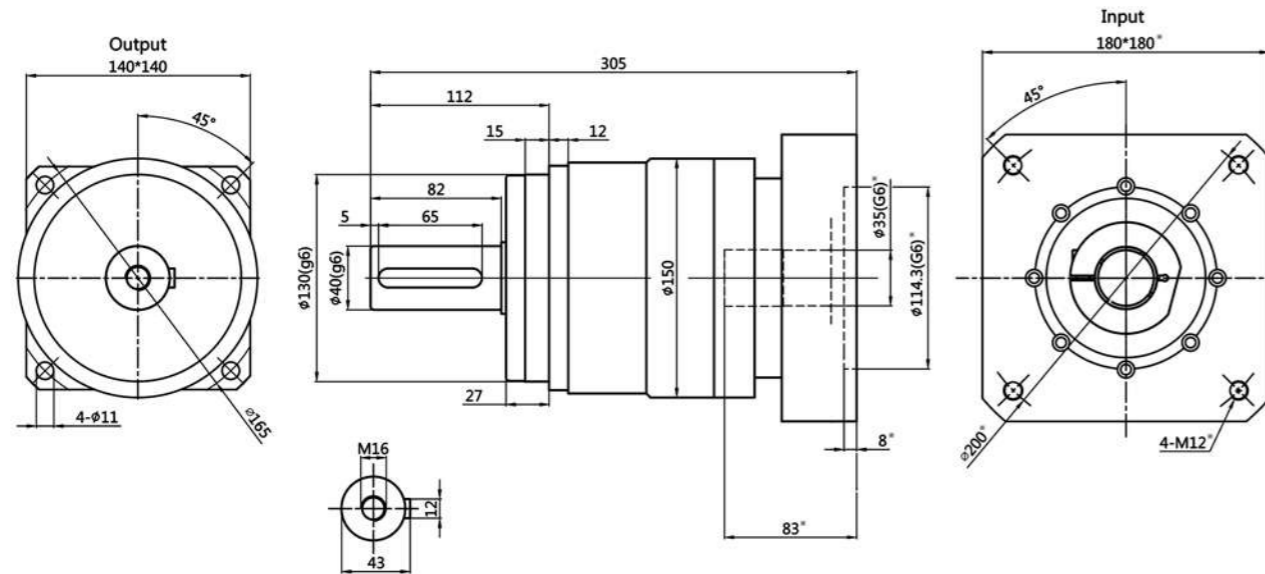
LFD100-L2												
速比	Ratio		15	20	25	30	35	40	50	70	100	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	120	180	180	180	180	180	180	180	120	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque									
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000									
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000									
扭转刚性	Torsional Rigidity	Nm/arcmin	25									
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	6500									
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	5650									
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)									
噪音值	Noise	dB	≤65 (输入转速=3000rpm、空载、距离1M②)									
使用温度	Operating Temp	°C	-10 ~ +90									
防护等级	Degree of Reducer Protection		IP65									
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils									
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	2.71	2.71	2.71	2.57	2.62	2.57	2.57	0.44	0.44	
精密背隙 P1	Precision Backlash P1	arcmin	≤5									
标准背隙 P2	Standard Backlash P2	arcmin	≤8									
效率 $\eta$	Efficiency $\eta$	%	≥92%									

- ① Half-life under continuous operation mode.
- ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

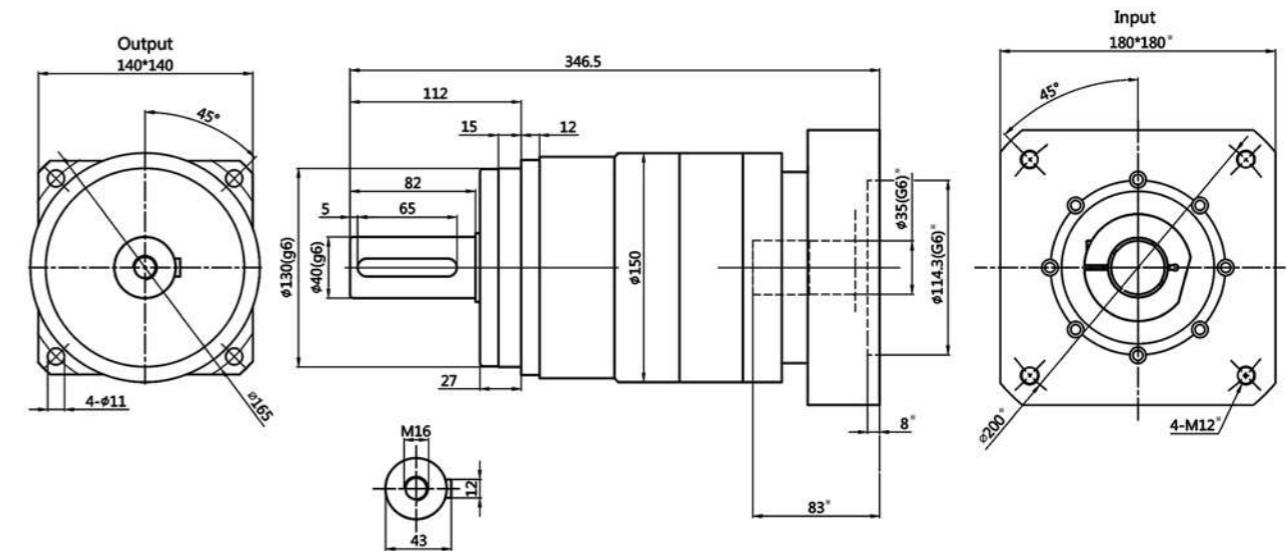
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LFD140-L1



LFD140-L2



LFD140-L1						
速比	Ratio		3	4	5	7 10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	240	360	360	360 240
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	2000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	4000			
扭转刚性	Torsional Rigidity	Nm/arcmin	50			
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	10000			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	9000			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	≤67 (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10 ~ +90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	9.21	7.54	7.42	7.14 7.03
精密背隙 P1	Precision Backlash P1	arcmin	≤3			
标准背隙 P2	Standard Backlash P2	arcmin	≤5			
效率 $\eta$	Efficiency $\eta$	%	≥95%			

LFD140-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	240	360	360	340	360	360	360	360	240
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	2000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	4000								
扭转刚性	Torsional Rigidity	Nm/arcmin	50								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	10000								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	9000								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤67 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.42	7.42	7.42	7.03	7.14	7.03	7.03	2.57	2.57
精密背隙 P1	Precision Backlash P1	arcmin	≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤8								
效率 $\eta$	Efficiency $\eta$	%	≥92%								

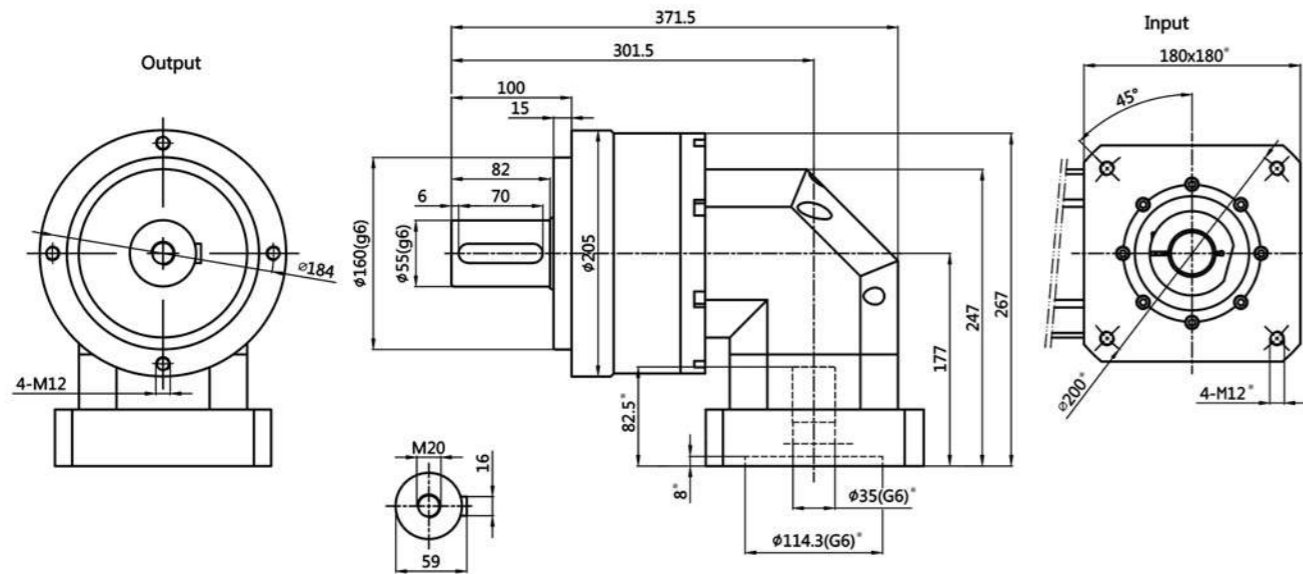
① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

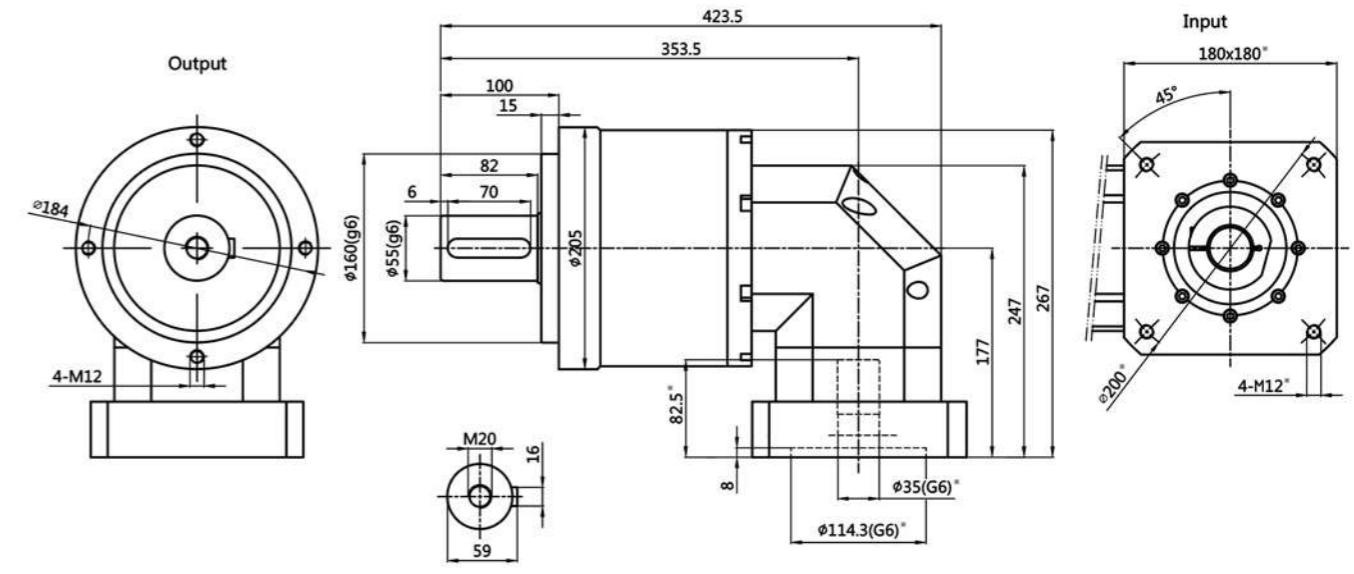
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### LFD180-L1



### LFD180-L2



LFD180-L1								
速比	Ratio		3	4	5	7	10	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	600	1000	1000	1000	650	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque					
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	1500					
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	3500					
扭转刚性	Torsional Rigidity	Nm/arcmin	175					
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	18500					
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	16000					
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)					
噪音值	Noise	dB	≤65 (输入转速=3000rpm、空载、距离1M②)					
使用温度	Operating Temp	°C	-10 ~ +90					
防护等级	Degree of Reducer Protection		IP65					
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils					
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	54.2	39.44	33.38	27.49	47.00	
精密背隙 P1	Precision Backlash P1	arcmin	≤3					
标准背隙 P2	Standard Backlash P2	arcmin	≤5					
效率 $\eta$	Efficiency $\eta$	%	≥95%					

LFD180-L2												
速比	Ratio		15	20	25	30	35	40	50	70	100	
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	980	1350	1400	1350	1400	1350	1400	1400	980	
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque									
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	1500									
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	3500									
扭转刚性	Torsional Rigidity	Nm/arcmin	175									
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	18500									
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	16000									
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)									
噪音值	Noise	dB	≤65 (输入转速=3000rpm、空载、距离1M②)									
使用温度	Operating Temp	°C	-10 ~ +90									
防护等级	Degree of Reducer Protection		IP65									
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils									
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	34.5	31.5	30.8	30.8	28.3	28.3	28.3	26.37	30.36	
精密背隙 P1	Precision Backlash P1	arcmin	≤5									
标准背隙 P2	Standard Backlash P2	arcmin	≤8									
效率 $\eta$	Efficiency $\eta$	%	≥92%									

① Half-life under continuous operation mode.  
 ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

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 ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

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# LFAR Series

## 产品详情

### 产品特点

高性能，用途广，高刚性，高效率，低噪音，低背隙

### 产品介绍

- 1.优化精选油封：减小摩擦，增加传动效率，IP65防护等级，保证至90度的可持续运转
- 2.圆锥滚子轴承：实现最大承载能力
- 3.斜齿：提高传动效率，低噪音，高精度
- 4.满滚针：提高径向负载能力，体积小
- 5.框架设计：增加扭转力矩，优化动力传输
- 6.特种铝材输入端面：减轻自重

### Product features

High performance, wide application, high rigidity, high efficiency, low noise, low backlash

### Product introduction

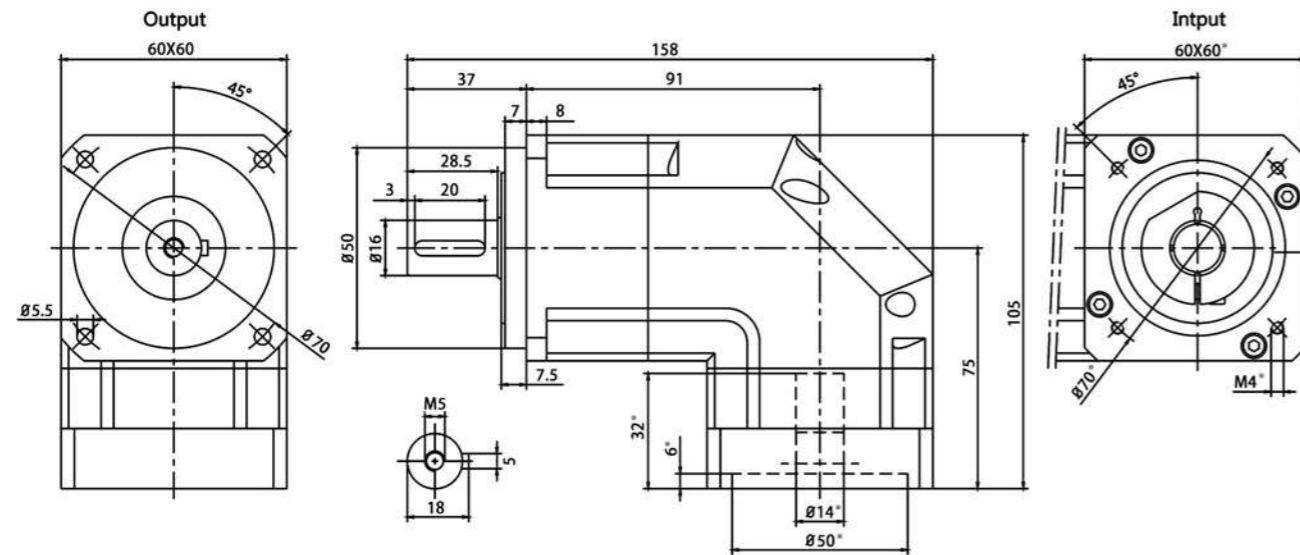
- 1.Optimize selected oil seals: reduce friction, increase transmission efficiency, IP65 protection level, ensure sustainable operation up to 90 degrees
- 2.Deep groove ball bearings: to achieve greater carrying capacity
- 3.Helical gear: improve transmission efficiency, low noise, high precision
- 4.Full needle roller: improve radial load capacity, small size
- 5.Frame design: increase torsion moment and optimize power transmission
- 6.Special aluminum input end face: reduce weight

该型号具有高刚性、低噪音、高扭矩、便于安装等特点，可应用于频繁往复运动和加减速运动。

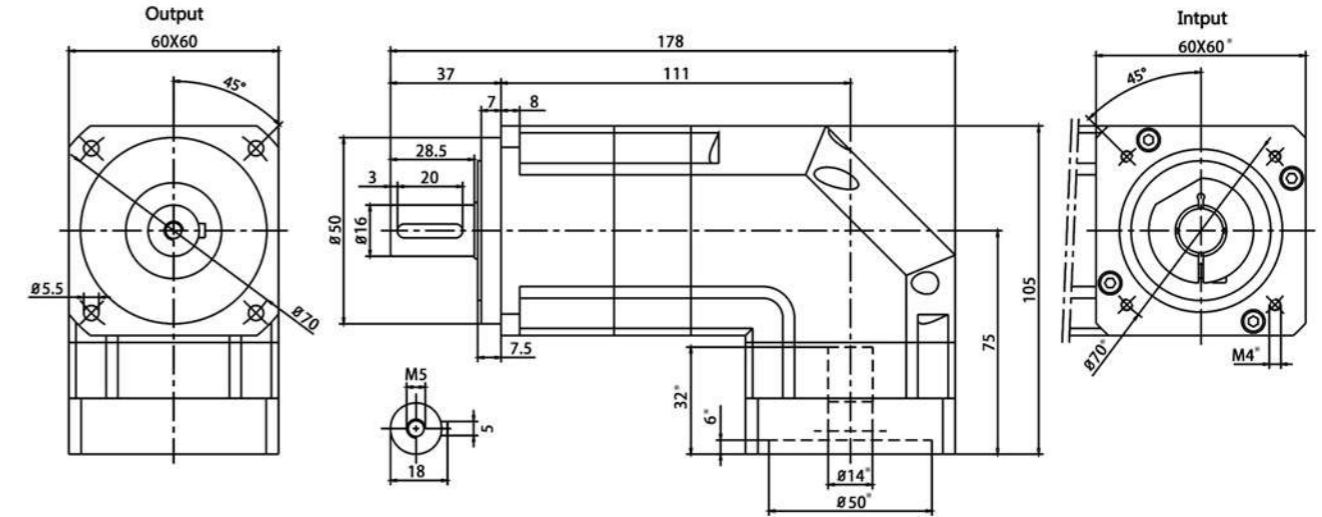
This model has the characteristics of high rigidity, low noise, high torque and easy installation, which can be used in frequent reciprocating motion and acceleration and deceleration motion.



LFAR060-L1



LFAR060-L2



LFAR060-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	55	50	60	50	40
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000				
扭转刚性	Torsional Rigidity	Nm/arcmin	7				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	1530				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	630				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.16	0.14	0.13	0.13	0.13
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFAR060-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	55	50	60	55	50	50	60	50	40
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000								
扭转刚性	Torsional Rigidity	Nm/arcmin	7								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	1530								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	630								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

① Half-life under continuous operation mode.  
 ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

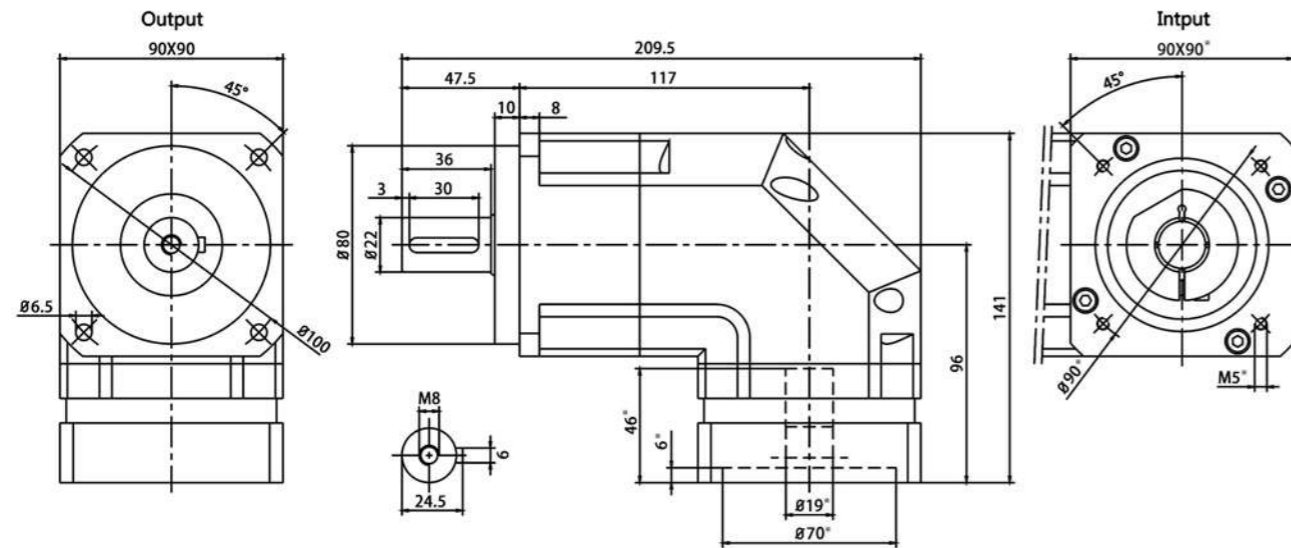
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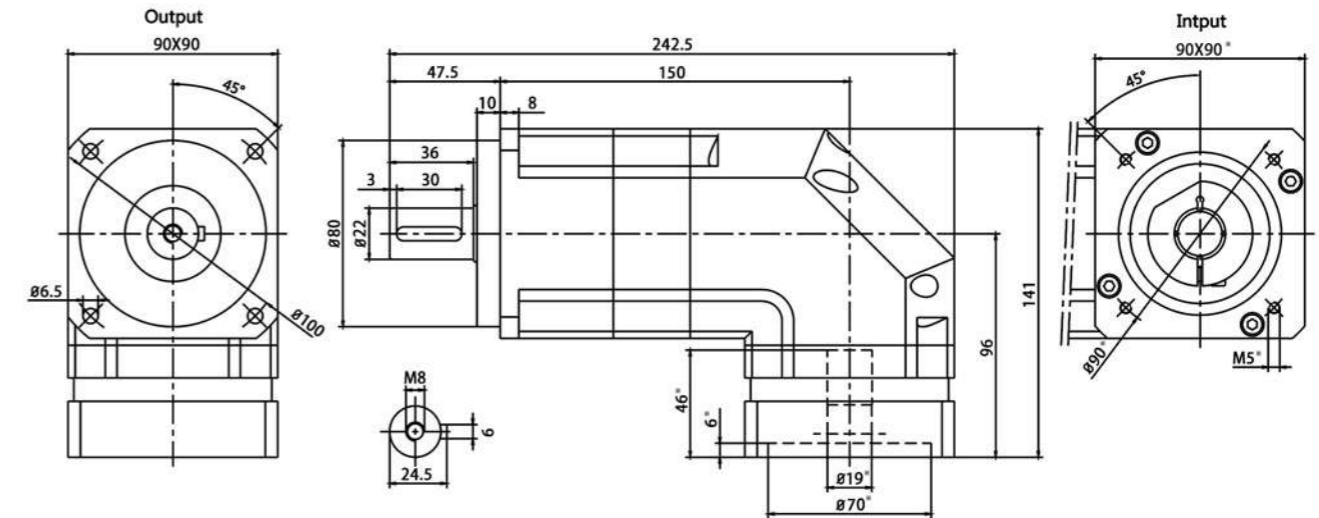
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LFAR090-L1



LFAR090-L2



LFAR090-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	130	140	160	140	100
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000				
扭转刚性	Torsional Rigidity	Nm/arcmin	14				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	3250				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	1300				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.61	0.48	0.47	0.45	0.44
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFAR090-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	130	140	160	150	140	140	160	140	100
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000								
扭转刚性	Torsional Rigidity	Nm/arcmin	14								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	3250								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	1300								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.47	0.47	0.47	0.44	0.45	0.44	0.44	0.13	0.13
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

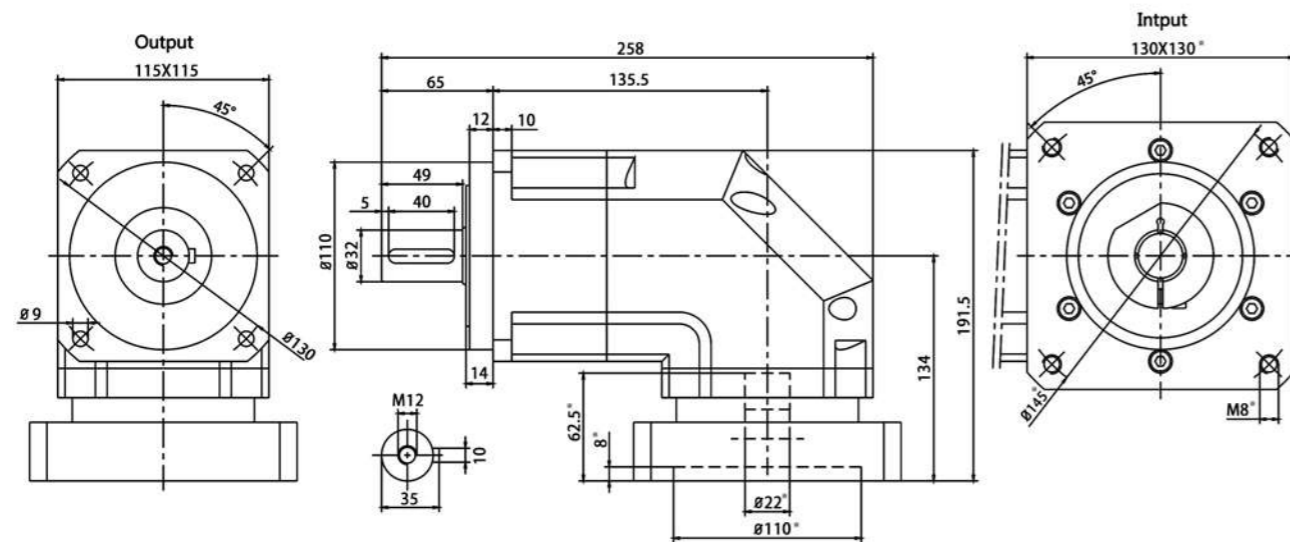
① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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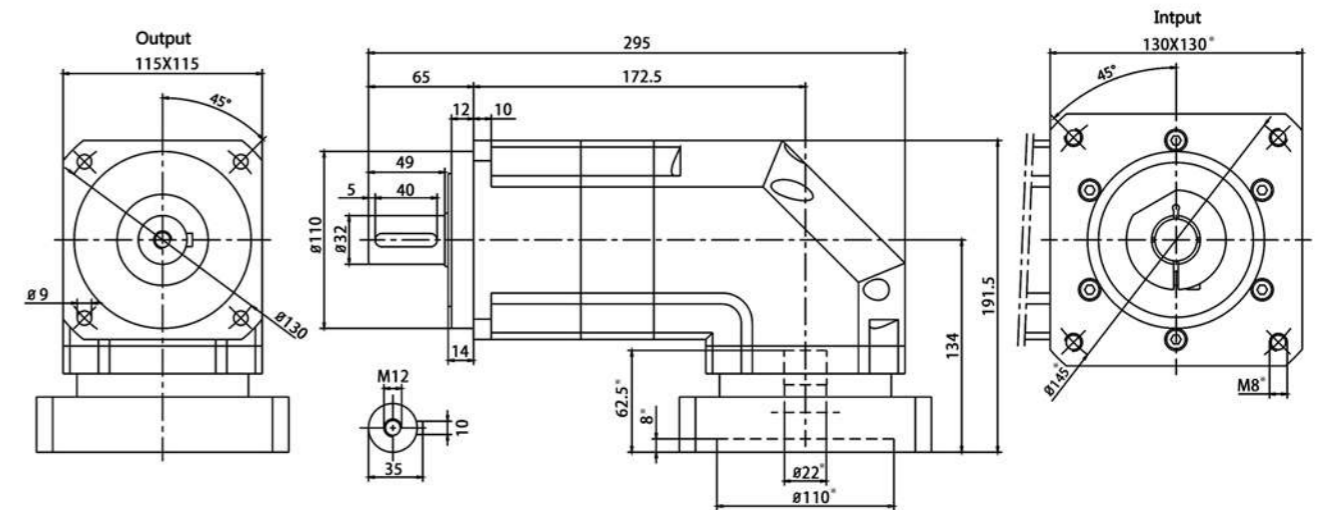
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LFAR115-L1



LFAR115-L2



LFAR115-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	208	290	330	300	230
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000				
扭转刚性	Torsional Rigidity	Nm/arcmin	25				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	6700				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	3000				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤72 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	3.25	2.74	2.71	2.62	2.57
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFAR115-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	208	290	330	310	300	290	330	300	230
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000								
扭转刚性	Torsional Rigidity	Nm/arcmin	25								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	6700								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	3000								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤72 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	2.71	2.71	2.71	2.57	2.62	2.57	2.57	0.44	0.44
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

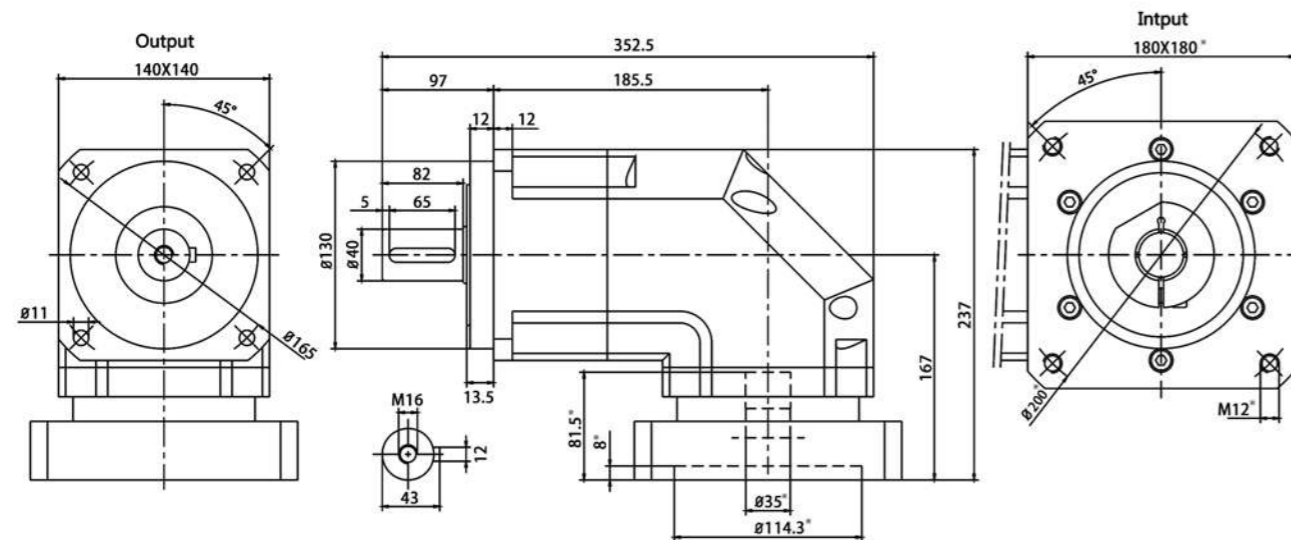
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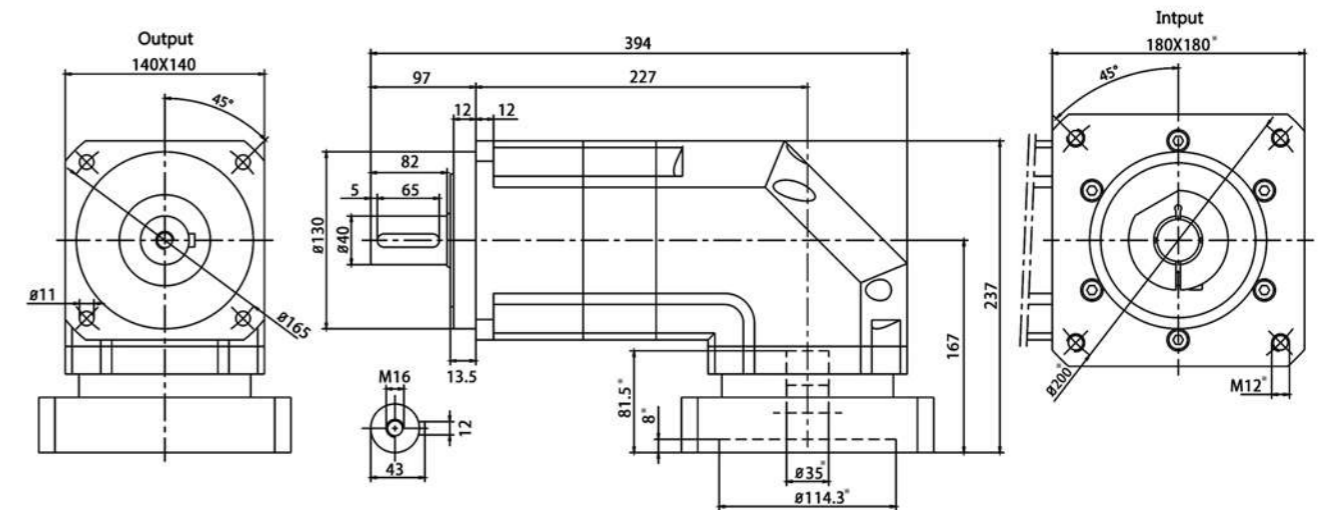
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LFAR140-L1



LFAR140-L2



LFAR140-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000				
扭转刚性	Torsional Rigidity	Nm/arcmin	50				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	9.21	7.54	7.42	7.14	7.03
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFAR140-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	600	550	542	650	660	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	50								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.42	7.42	7.42	7.03	7.14	7.03	7.03	2.57	2.57
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

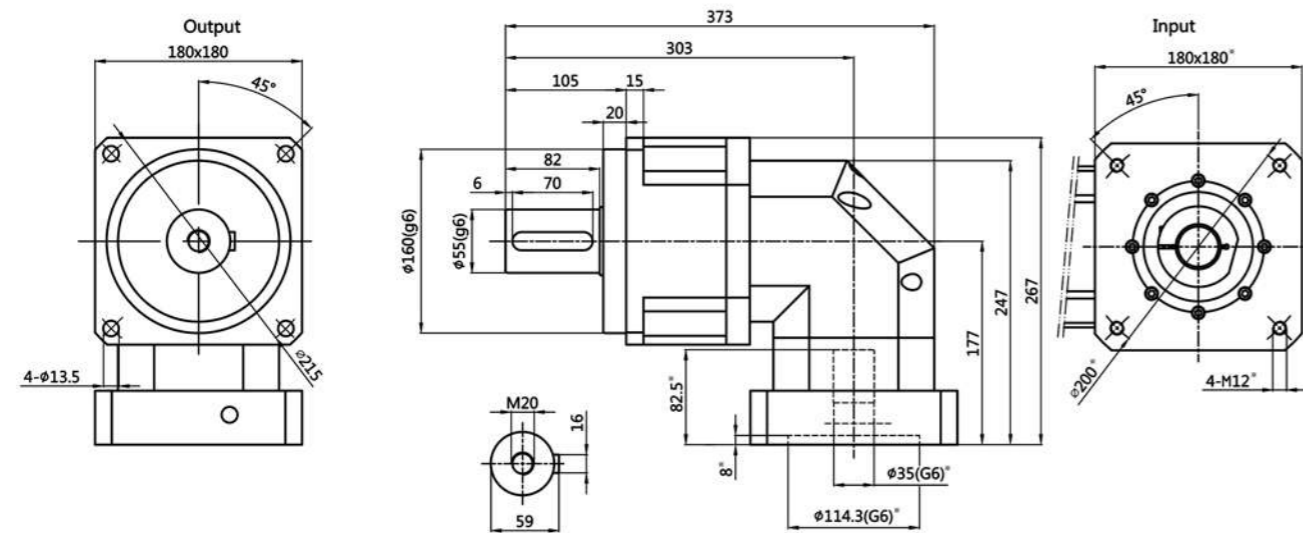
① Half-life under continuous operation mode.  
 ② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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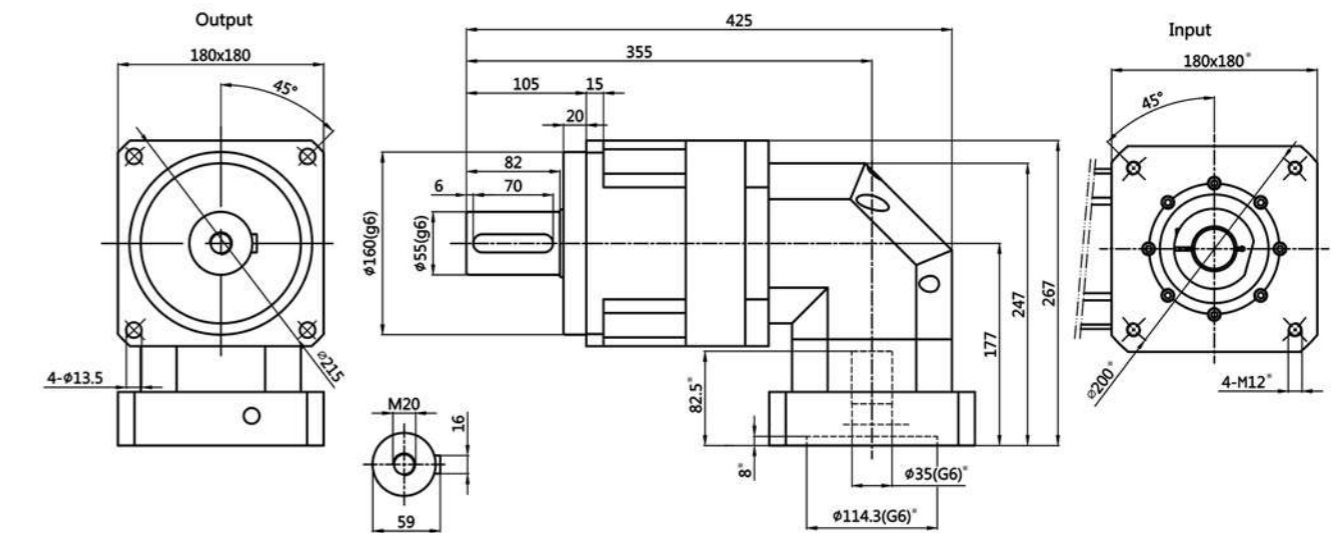
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LFAR180-L1



LFAR180-L2



LFAR180-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000				
扭转刚性	Torsional Rigidity	Nm/arcmin	50				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	9.21	7.54	7.42	7.14	7.03
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFAR180-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	600	550	542	650	660	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	50								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.42	7.42	7.42	7.03	7.14	7.03	7.03	2.57	2.57
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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# LFBR Series

## 产品详情

### 产品特点

高性能，用途广，高刚性，高效率，低噪音，低背隙

### 产品介绍

- 1.优化精选油封：减小摩擦，增加传动效率，IP65防护等级，保证至90度的可持续运转
- 2.深沟球轴承：实现更大承载能力
- 3.一体化外壳：更高精度，更强抗拉刚度，更高抗扭刚度
- 4.斜齿：提高传动效率，低噪音，精度高
- 5.满滚针：提高径向负载能力，体积小
- 6.框架设计：增加扭转力矩，优化动力传输
- 7.特种铝材输入端面：减轻自重

### Product features

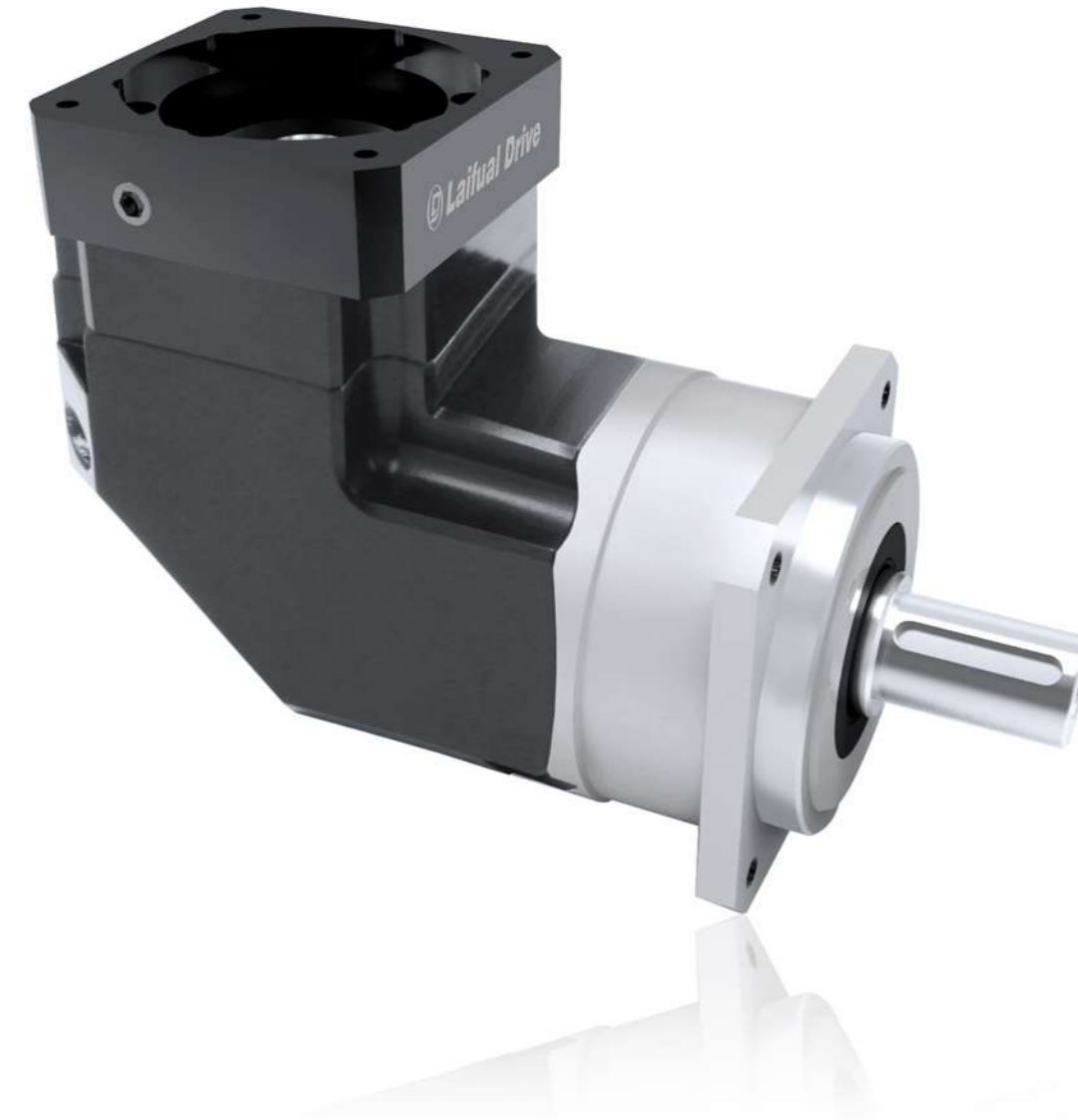
High performance, wide application, high rigidity, high efficiency, low noise, low backlash

### Product introduction

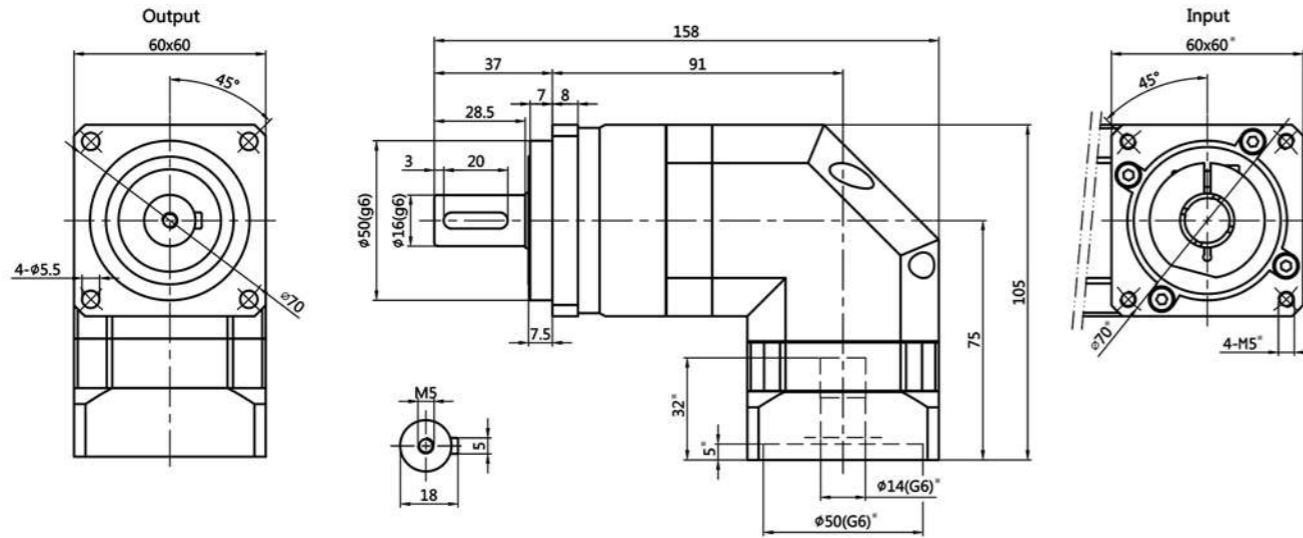
- 1.Optimize selected oil seals: reduce friction, increase transmission efficiency, IP65 protection level, ensure sustainable operation up to 90 degrees
- 2.Deep groove ball bearings: to achieve greater carrying capacity
- 3.Integrated shell: higher precision, stronger tensile stiffness, higher torsional stiffness
- 4.Helical gear: improve transmission efficiency, low noise, high precision
- 5.Full needle roller: improve radial load capacity, small size
- 6.Frame design: increase torsion moment and optimize power transmission
- 7.Special aluminum input end face: reduce weight

该型号具有高精度、低噪音、高扭矩、便于安装等特点，可应用于频繁往复运动和加减速运动。

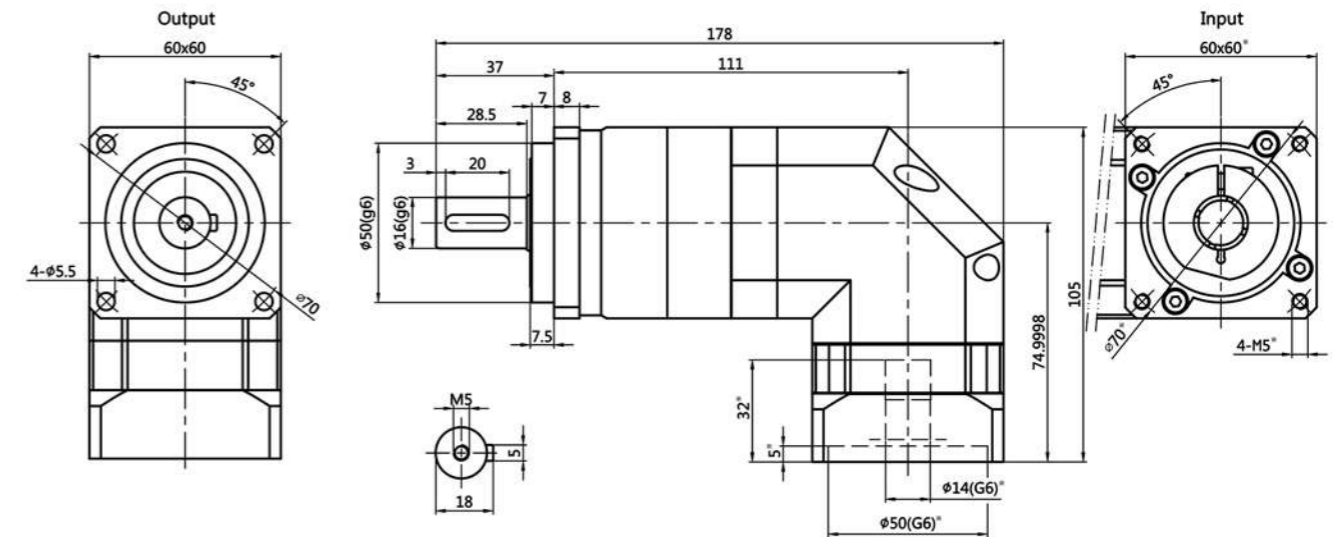
This model has the characteristics of high precision, low noise, high torque and easy installation, which can be used in frequent reciprocating motion and acceleration and deceleration motion.



LFBR060-L1



LFBR060-L2



LFAR060-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	55	50	60	50	40
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000				
扭转刚性	Torsional Rigidity	Nm/arcmin	7				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	1530				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	630				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.16	0.14	0.13	0.13	0.13
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFAR060-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	55	50	60	55	50	50	60	50	40
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000								
扭转刚性	Torsional Rigidity	Nm/arcmin	7								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	1530								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	630								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

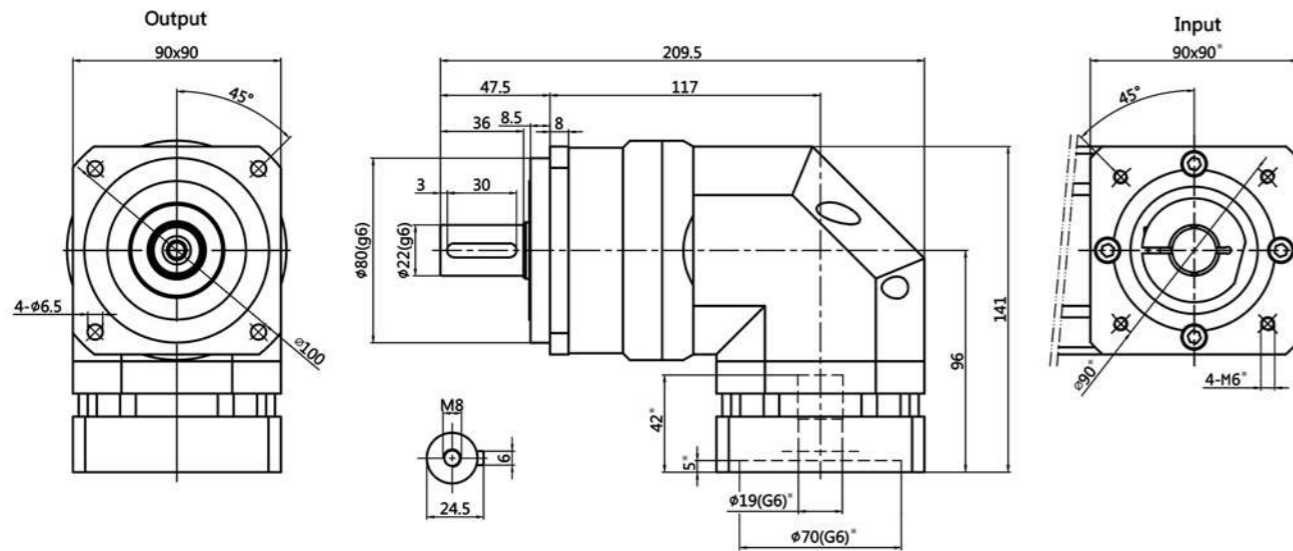
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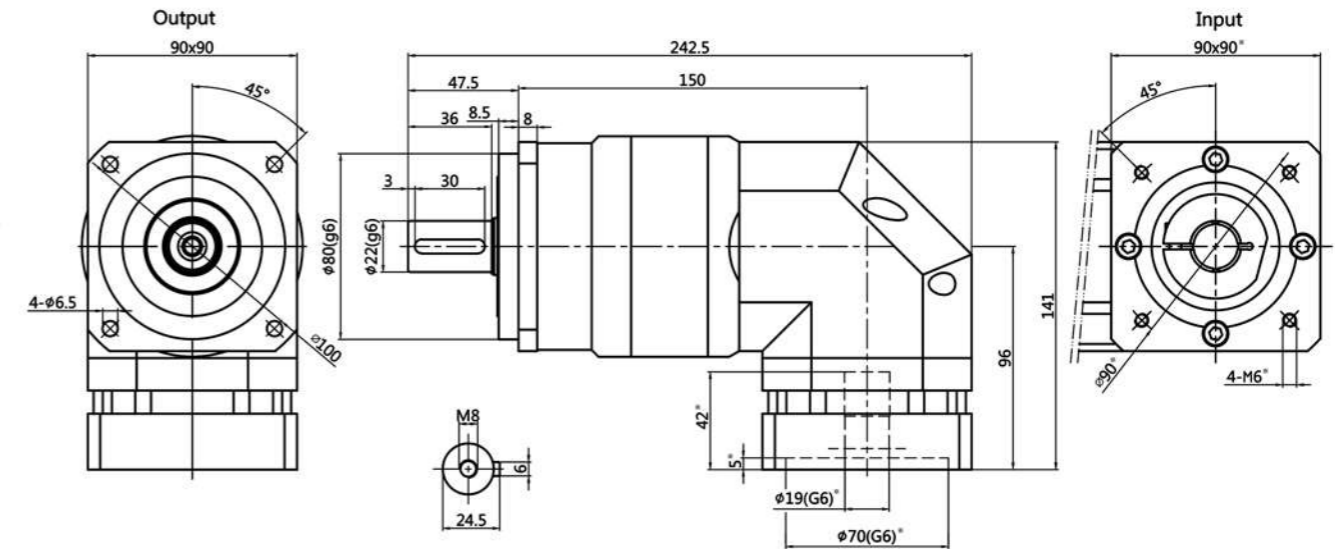
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LFBR090-L1



LFBR090-L2



LFAR090-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	130	140	160	140	100
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000				
扭转刚性	Torsional Rigidity	Nm/arcmin	14				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	3250				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	1300				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.61	0.48	0.47	0.45	0.44
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFAR090-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	130	140	160	150	140	140	160	140	100
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000								
扭转刚性	Torsional Rigidity	Nm/arcmin	14								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	3250								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	1300								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.47	0.47	0.47	0.44	0.45	0.44	0.44	0.13	0.13
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

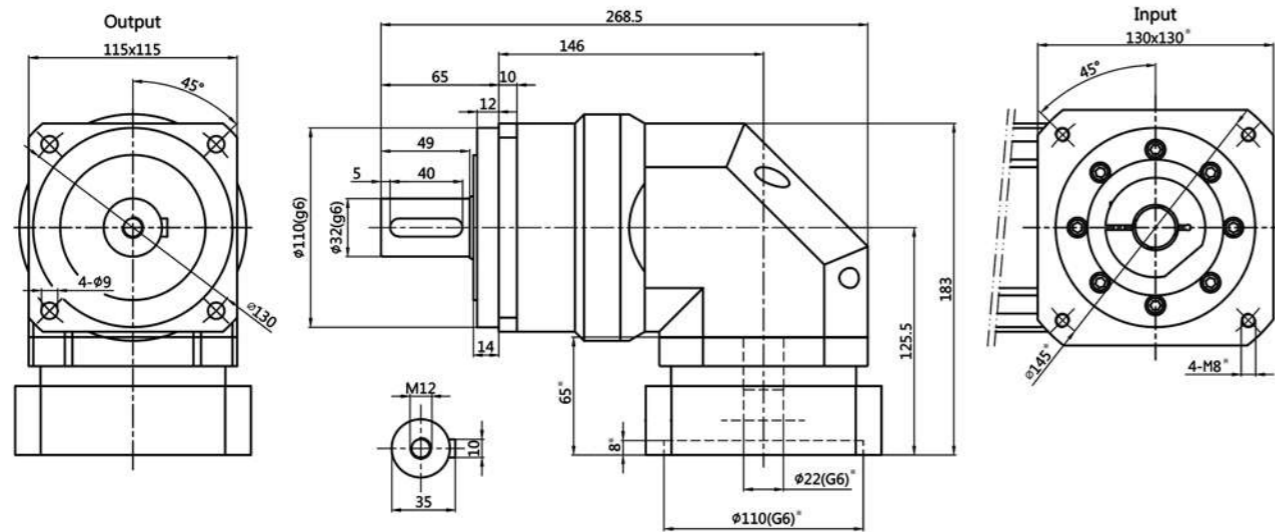
① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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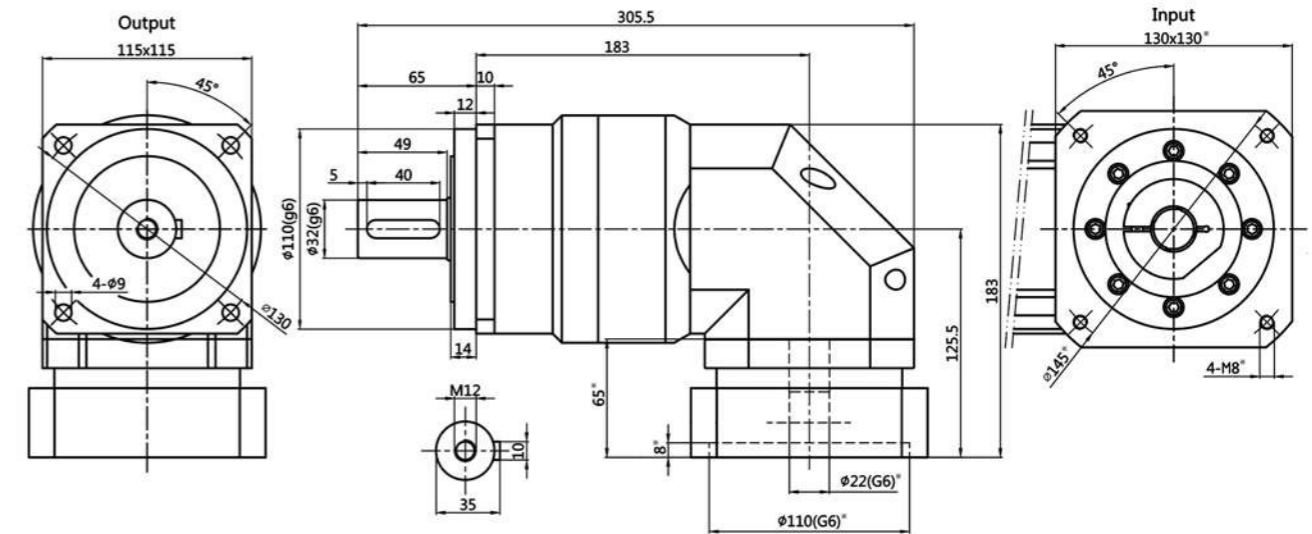
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LFBR115-L1



LFBR115-L2



LFAR115-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	208	290	330	300	230
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000				
扭转刚性	Torsional Rigidity	Nm/arcmin	25				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	6700				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	3000				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤72 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	3.25	2.74	2.71	2.62	2.57
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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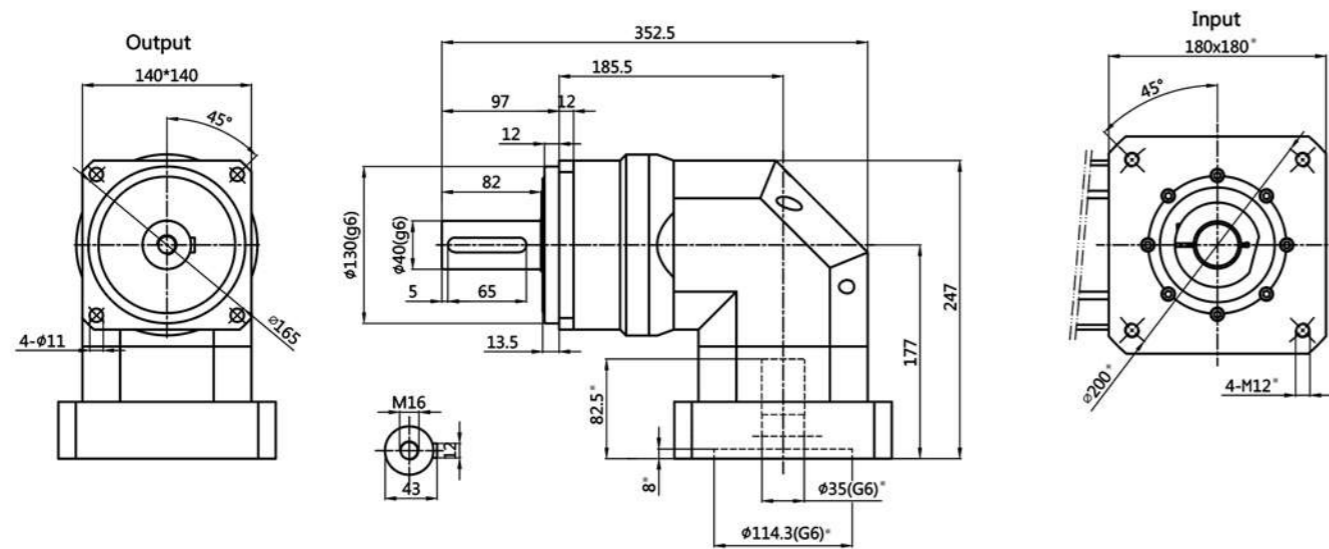
LFAR115-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	208	290	330	310	300	290	330	300	230
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000								
扭转刚性	Torsional Rigidity	Nm/arcmin	25								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	6700								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	3000								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤72 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	2.71	2.71	2.71	2.57	2.62	2.57	2.57	0.44	0.44
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

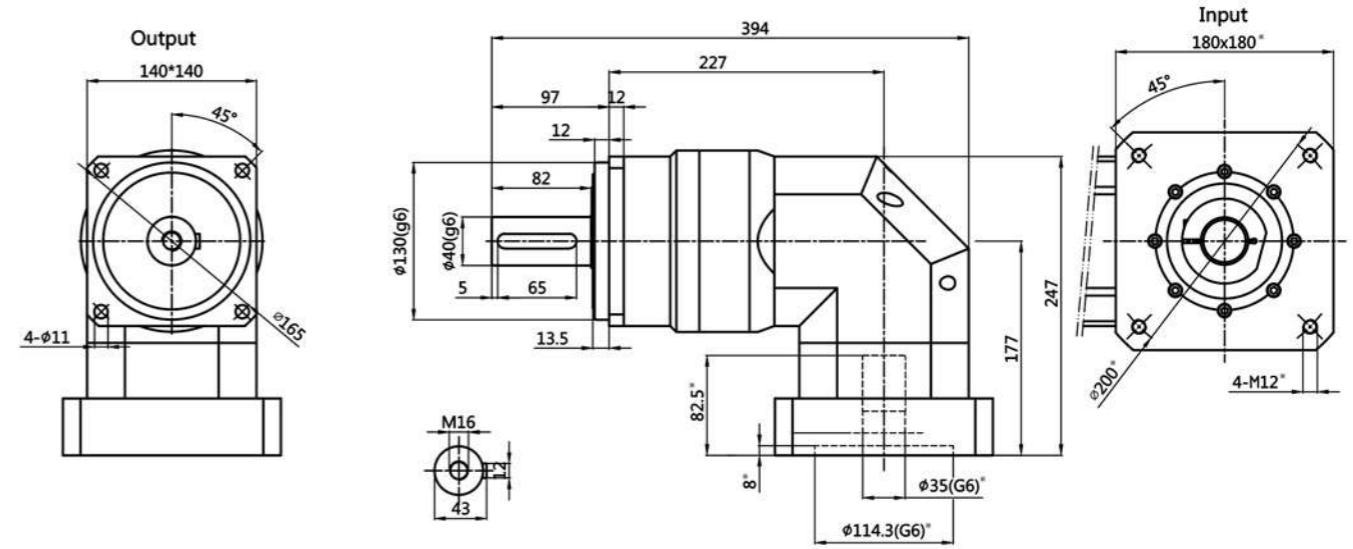
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LFBR140-L1



LFBR140-L2



LFAR140-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000				
扭转刚性	Torsional Rigidity	Nm/arcmin	50				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	9.21	7.54	7.42	7.14	7.03
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFAR140-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	600	550	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	50								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.42	7.42	7.42	7.03	7.14	7.03	7.03	2.57	2.57
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

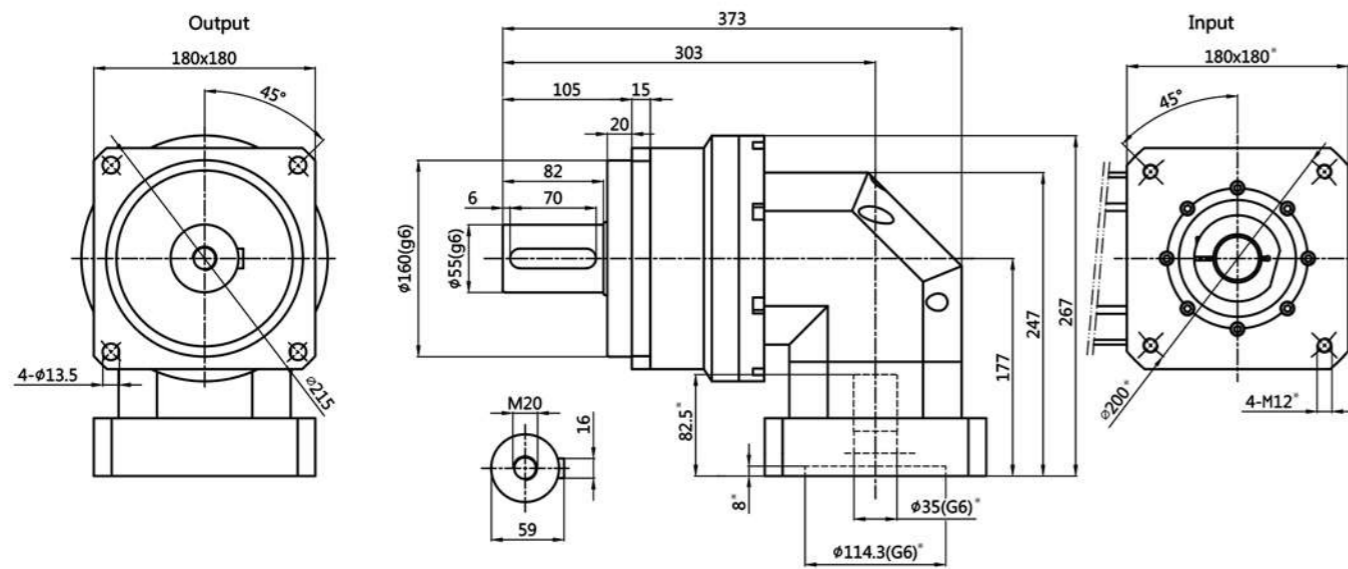
① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

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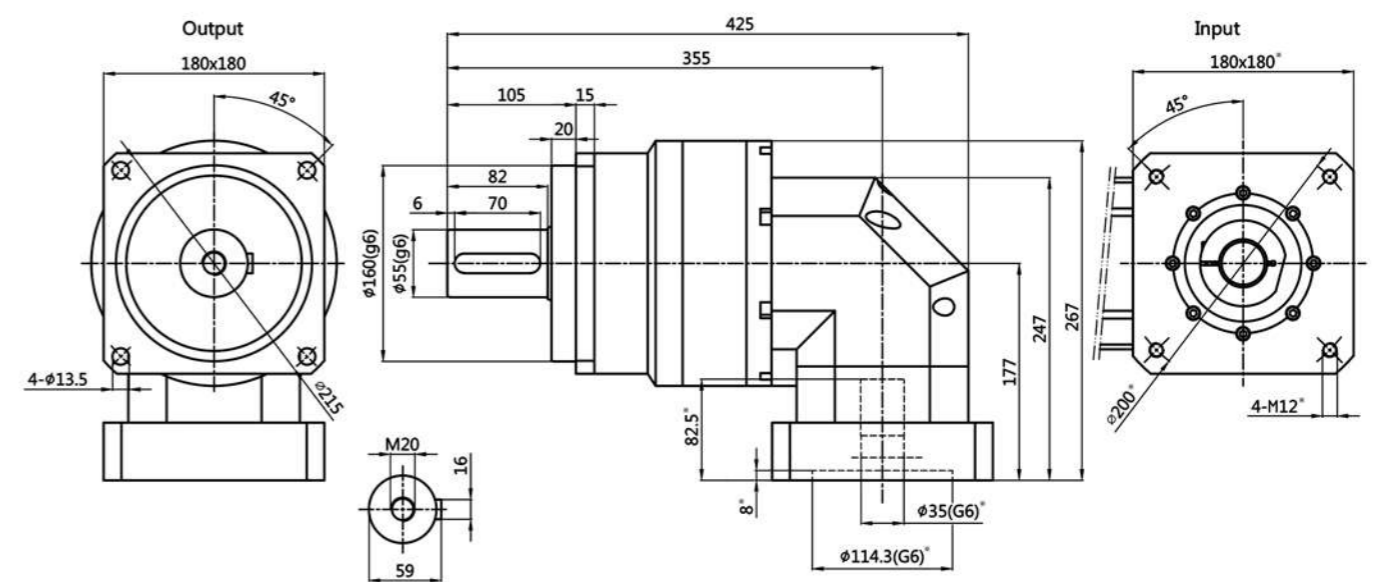
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LFBR180-L1



LFBR180-L2



LFAR180-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000				
扭转刚性	Torsional Rigidity	Nm/arcmin	50				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	9.21	7.54	7.42	7.14	7.03
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFAR180-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	600	550	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	50								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.42	7.42	7.42	7.03	7.14	7.03	7.03	2.57	2.57
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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# LFER Series

## 产品详情

### 产品特点

高性能，用途广，高刚性，高效率，低噪音，低背隙

### 产品介绍

- 1.优化精选油封：减小摩擦，增加传动效率，IP65防护等级，保证至90度的可持续运转
- 2.深沟球轴承：实现更大承载能力
- 3.一体化外壳：更高精度，更强抗拉刚度，更高抗扭刚度
- 4.斜齿：提高传动效率，低噪音，精度高
- 5.满滚针：提高径向负载能力，体积小
- 6.框架设计：增加扭转力矩，优化动力传输
- 7.特种铝材输入端面：减轻自重

### Product features

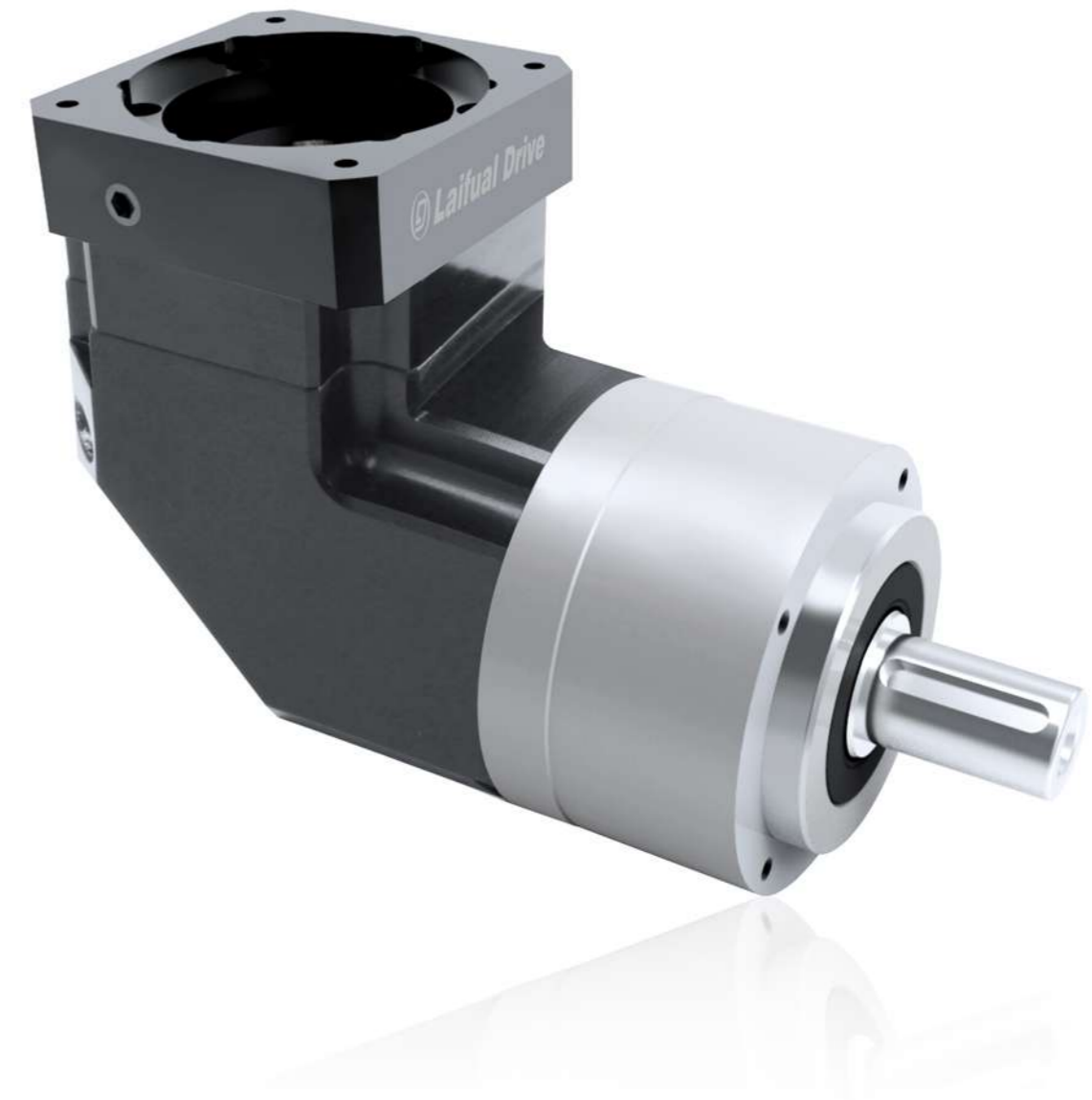
High performance, wide application, high rigidity, high efficiency, low noise, low backlash

### Product introduction

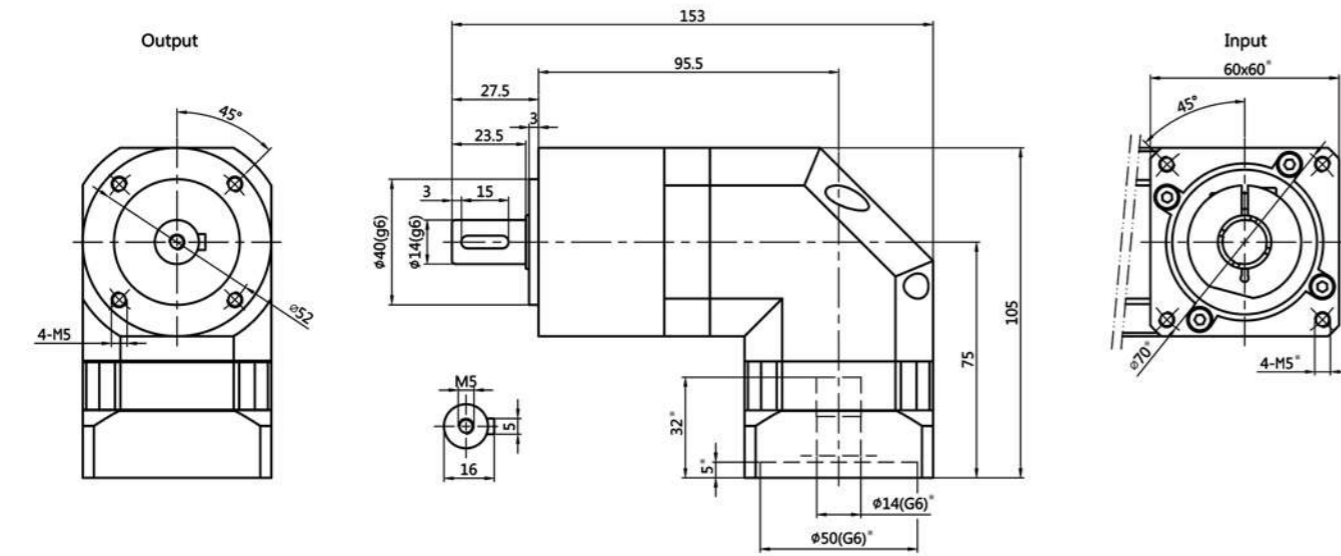
- 1.Optimize selected oil seals: reduce friction, increase transmission efficiency, IP65 protection level, ensure sustainable operation up to 90 degrees
- 2.Deep groove ball bearings: to achieve greater carrying capacity
- 3.Integrated shell: higher precision, stronger tensile stiffness, higher torsional stiffness
- 4.Helical gear: improve transmission efficiency, low noise, high precision
- 5.Full needle roller: improve radial load capacity, small size
- 6.Frame design: increase torsion moment and optimize power transmission
- 7.Special aluminum input end face: reduce weight

该型号具有高精度、低噪音、高扭矩、等特点，可应用于频繁往复运动和加减速运动。

This model has the characteristics of high precision, low noise, high torque, high speed, etc. it can be used in frequent reciprocating motion and acceleration and deceleration motion.



LFER060-L1

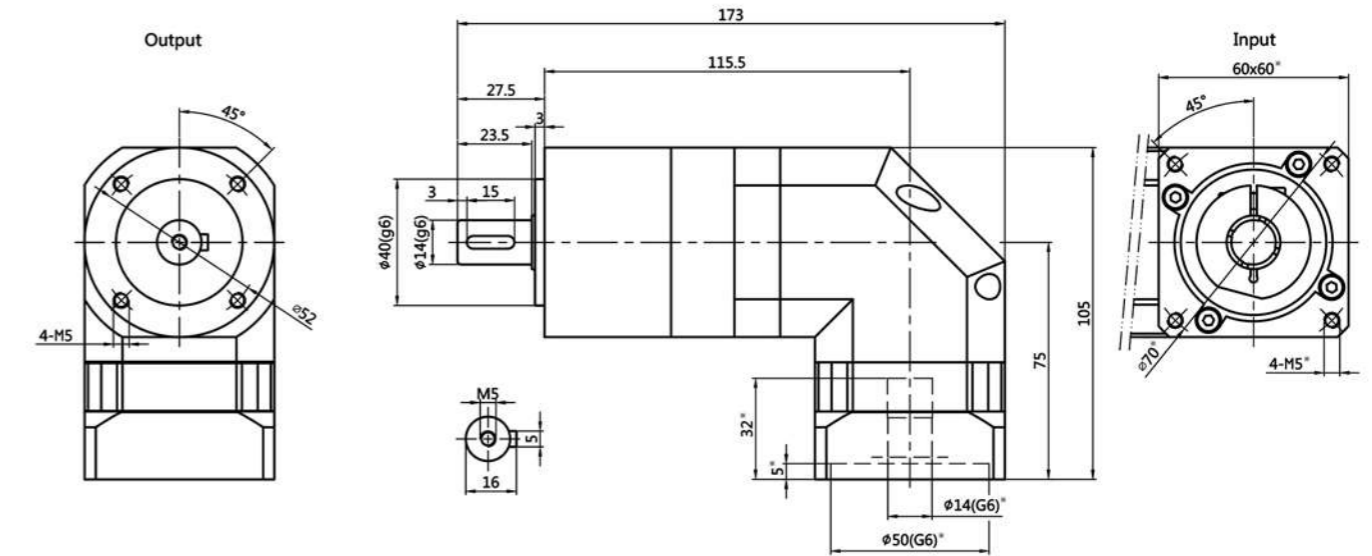


LFER060-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	35	40	45	40	30
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000				
扭转刚性	Torsional Rigidity	Nm/arcmin	5				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	1300				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	550				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.16	0.14	0.13	0.13	0.13
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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LFER060-L2



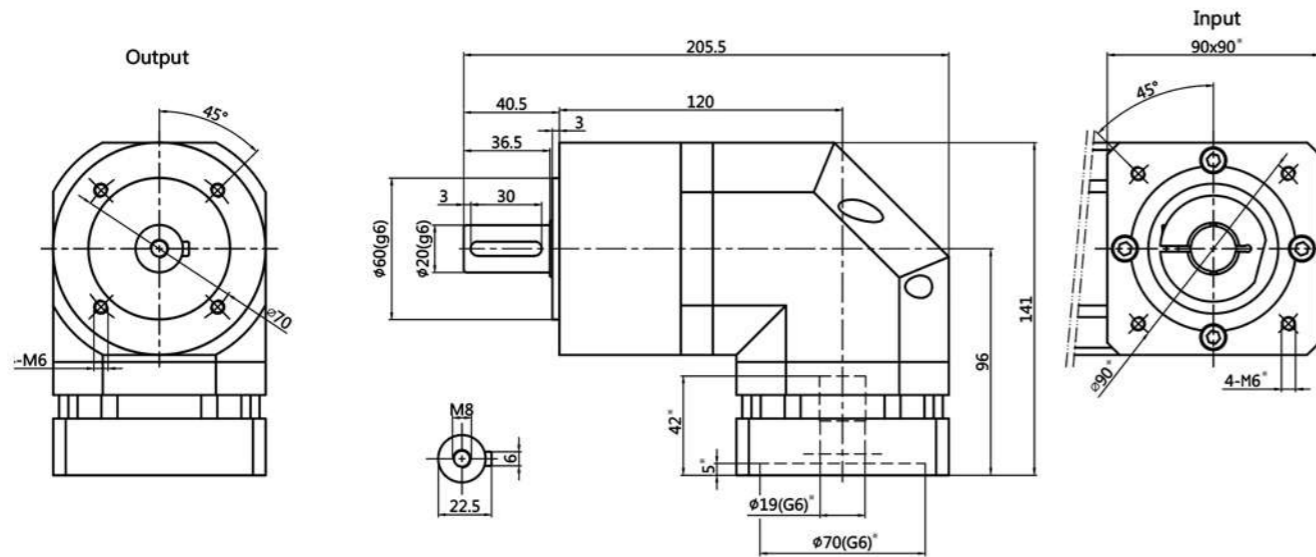
LFER060-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	35	45	45	40	40	40	45	40	30
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	5000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	10000								
扭转刚性	Torsional Rigidity	Nm/arcmin	5								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	1300								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	550								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

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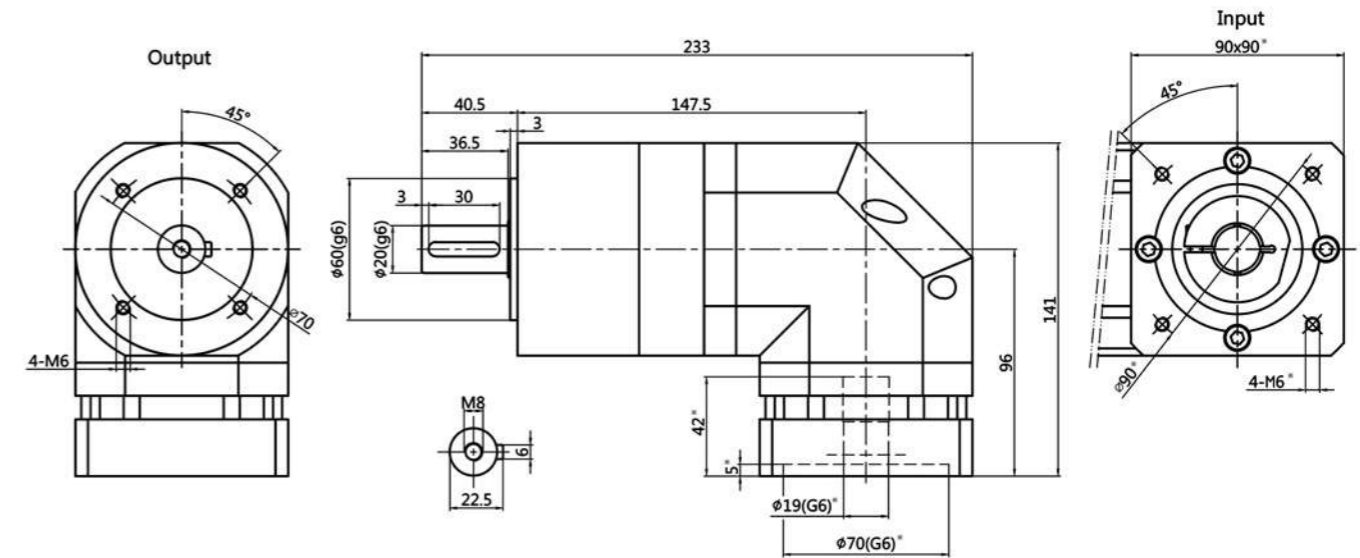
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LFER090-L1



LFER090-L2



LFER090-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	100	110	125	110	80
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000				
扭转刚性	Torsional Rigidity	Nm/arcmin	11				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	2800				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	1000				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.61	0.48	0.47	0.45	0.44
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFER090-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	100	110	125	110	125	110	125	110	80
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000								
扭转刚性	Torsional Rigidity	Nm/arcmin	11								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	2800								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	1000								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.47	0.47	0.47	0.44	0.45	0.44	0.44	0.13	0.13
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

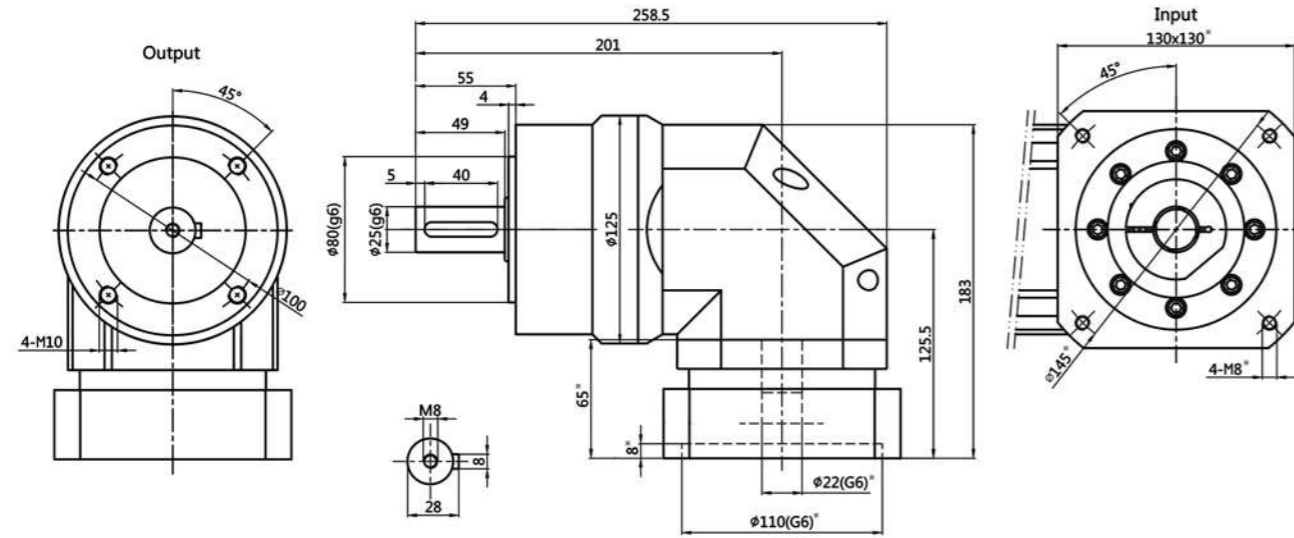
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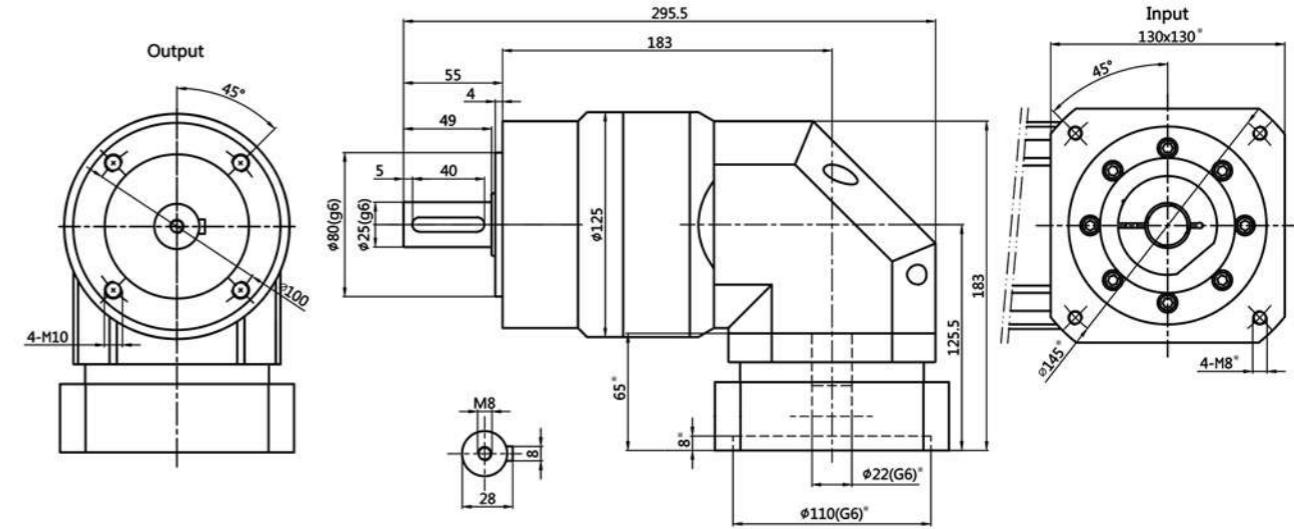
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LFER115-L1



LFER115-L2



LFER115-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	170	220	250	200	180
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000				
扭转刚性	Torsional Rigidity	Nm/arcmin	18				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	5200				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	2300				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤72 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	3.25	2.74	2.71	2.62	2.57
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFER115-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	170	220	250	220	200	220	250	200	180
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000								
扭转刚性	Torsional Rigidity	Nm/arcmin	18								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	5200								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	2300								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤72 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	2.71	2.71	2.71	2.57	2.62	2.57	2.57	0.44	0.44
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

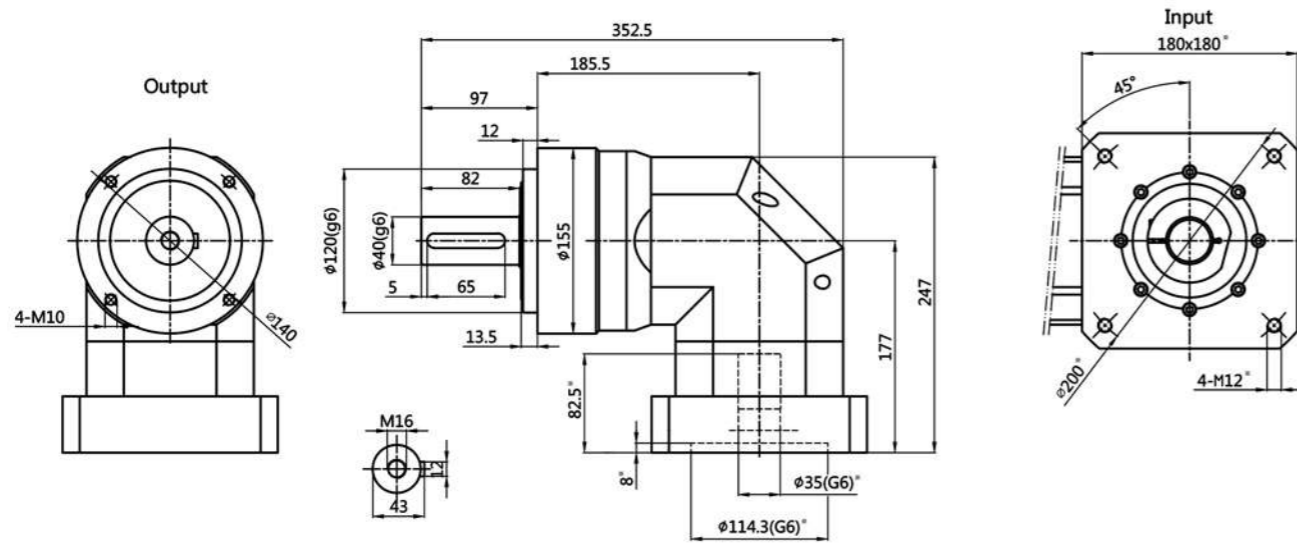
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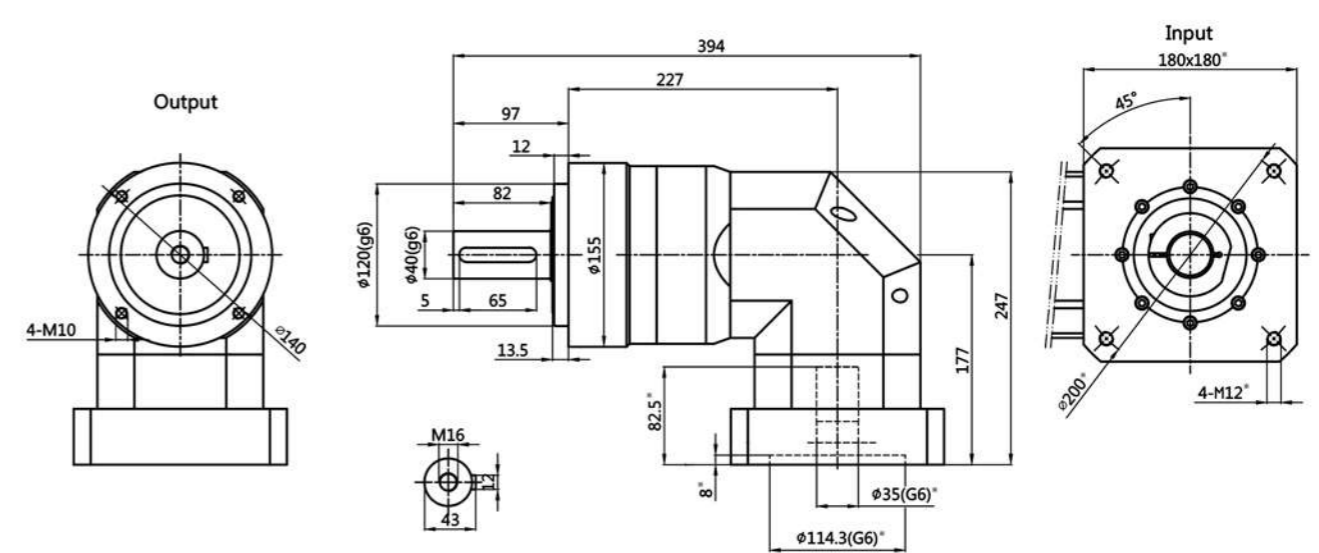
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LFER155-L1



LFER155-L2



LFER155-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000				
扭转刚性	Torsional Rigidity	Nm/arcmin	50				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	9.21	7.54	7.42	7.14	7.03
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFER155-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	600	550	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	50								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.42	7.42	7.42	7.03	7.14	7.03	7.03	2.57	2.57
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

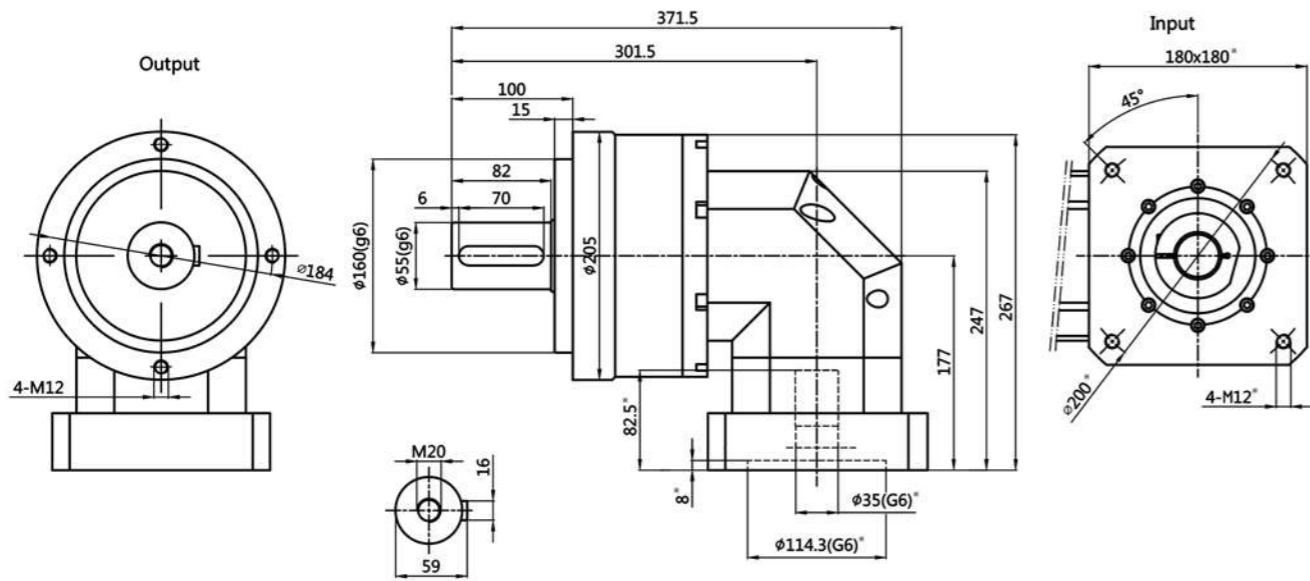
① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

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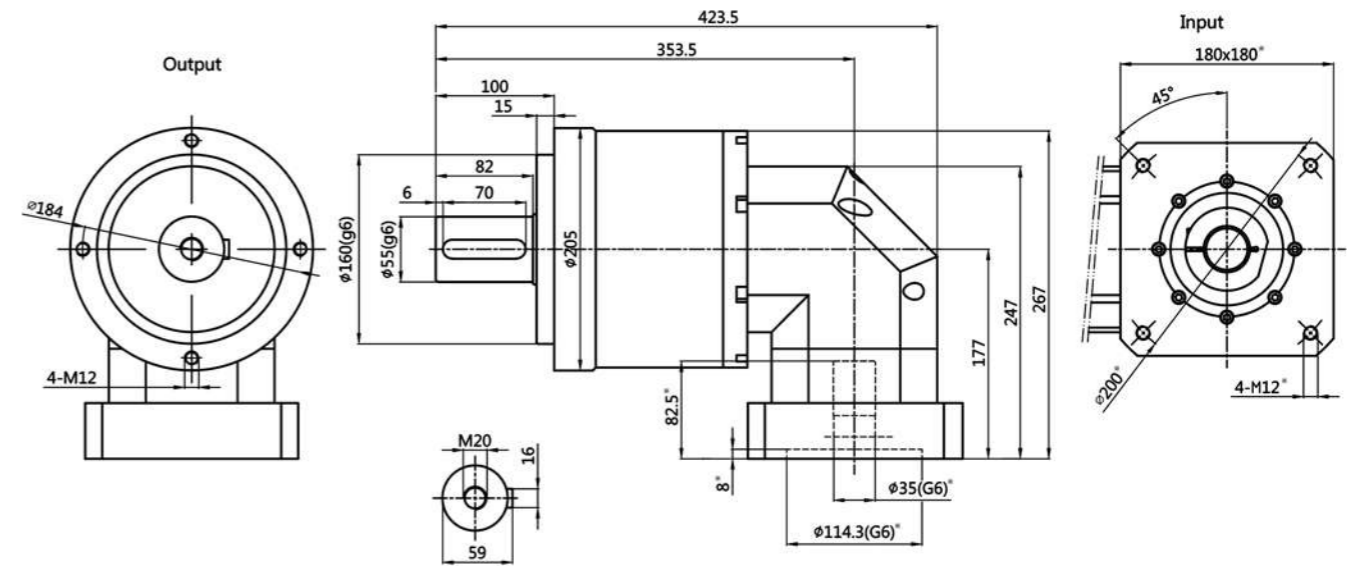
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LFER205-L1



LFER205-L2



LFER205-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	588	1050	1200	1100	900
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000				
扭转刚性	Torsional Rigidity	Nm/arcmin	50				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	$\leq 75$ (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	$^{\circ}C$	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	9.21	7.54	7.42	7.14	7.03
标准背隙 P2	Standard Backlash P2	arcmin	$\leq 8$				
效率 $\eta$	Efficiency $\eta$	%	$\geq 93\%$				

LFER205-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	588	1050	1200	1100	1100	1050	1200	1100	900
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	50								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	$\leq 75$ (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	$^{\circ}C$	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.42	7.42	7.42	7.03	7.14	7.03	7.03	2.57	2.57
标准背隙 P2	Standard Backlash P2	arcmin	$\leq 10$								
效率 $\eta$	Efficiency $\eta$	%	$\geq 90\%$								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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# LFFR Series

## 产品详情

### 产品特点

高性能，用途广，高刚性，高效率，低噪音，低背隙

### 产品介绍

- 1.优化精选油封：减小摩擦，增加传动效率，IP65防护等级，保证至90度的可持续运转
- 2.圆锥滚子轴承：实现最大大承载能力
- 3.一体化外壳：更高精度，更强抗拉刚度，更高抗扭刚度
- 4.斜齿：提高传动效率，低噪音，精度高
- 5.满滚针：提高径向负载能力，体积小
- 6.框架设计：增加扭转力矩，优化动力传输
- 7.特种铝材输入端面：减轻自重

### Product features

High performance, wide application, high rigidity, high efficiency, low noise, low backlash

### Product introduction

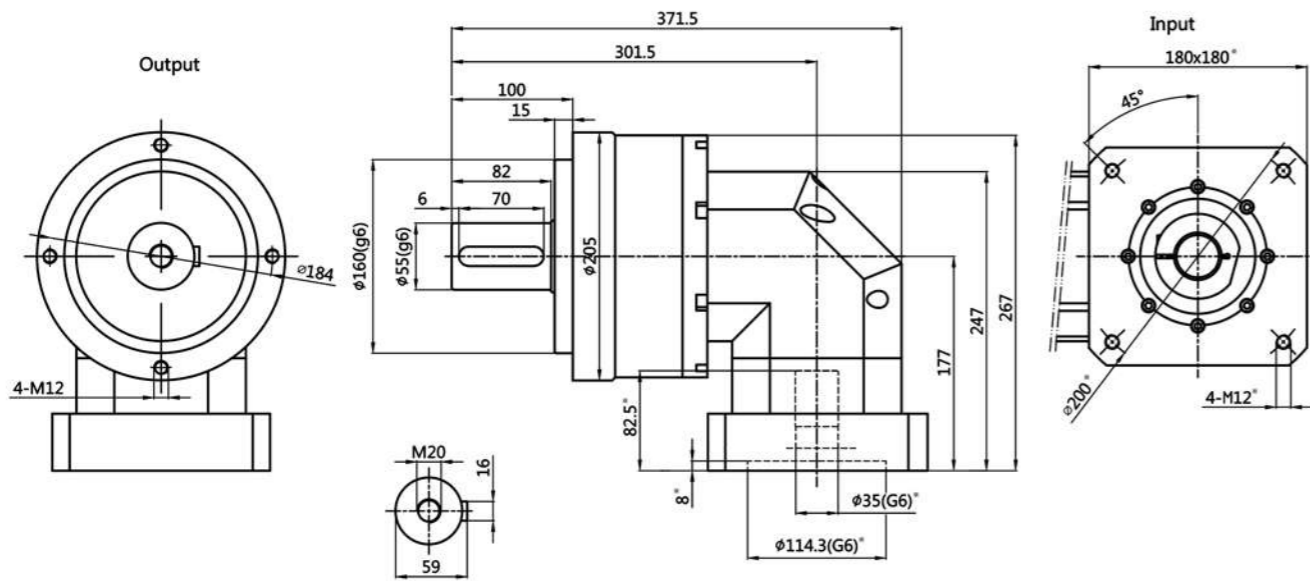
- 1.Optimize selected oil seals: reduce friction, increase transmission efficiency, IP65 protection level, ensure sustainable operation up to 90 degrees
- 2.Deep groove ball bearings: to achieve greater carrying capacity
- 3.Integrated shell: higher precision, stronger tensile stiffness, higher torsional stiffness
- 4.Helical gear: improve transmission efficiency, low noise, high precision
- 5.Full needle roller: improve radial load capacity, small size
- 6.Frame design: increase torsion moment and optimize power transmission
- 7.Special aluminum input end face: reduce weight

该型号具有高精度、低噪音、高扭矩、平稳性好等特点，可应用于加速度大的设备。

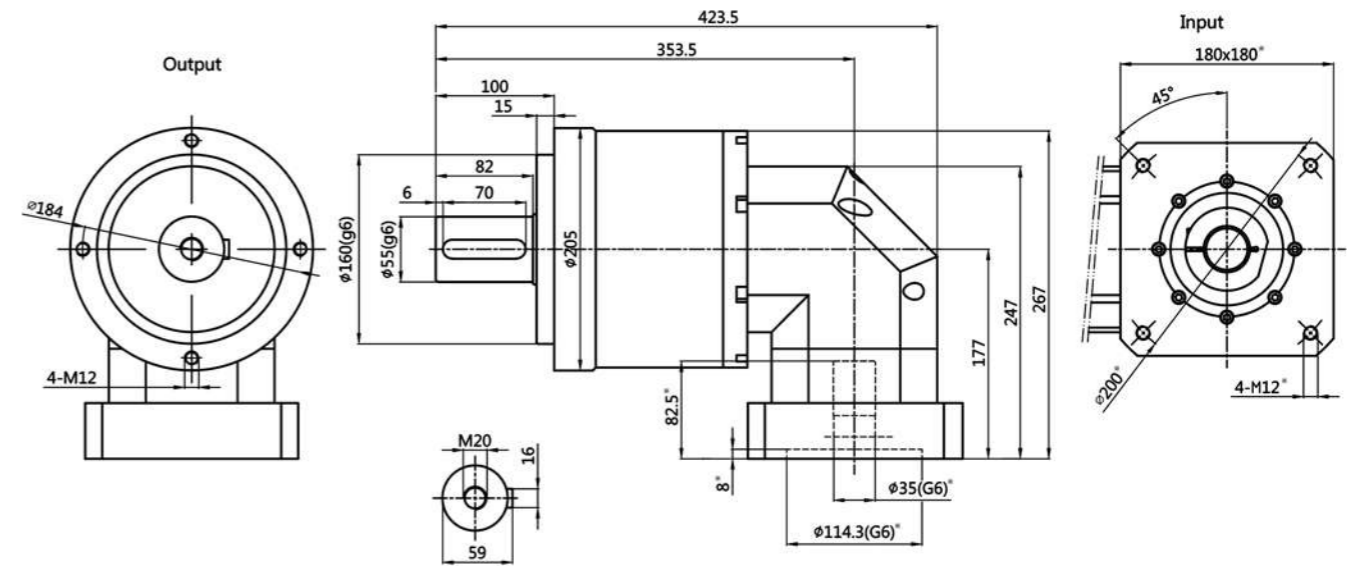
This model has the characteristics of high precision, low noise, high torque and good stability, which can be applied to the equipment with large acceleration.



LFFR060-L1



LFFR060-L2



LFFR060-L1							
速比	Ratio		3	4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque				
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000				
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000				
扭转刚性	Torsional Rigidity	Nm/arcmin	50				
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400				
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700				
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)				
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)				
使用温度	Operating Temp	°C	-10 ~ +90				
防护等级	Degree of Reducer Protection		IP65				
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils				
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	9.21	7.54	7.42	7.14	7.03
标准背隙 P2	Standard Backlash P2	arcmin	≤8				
效率 $\eta$	Efficiency $\eta$	%	≥93%				

LFFR060-L2											
速比	Ratio		15	20	25	30	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	342	542	650	600	550	542	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque								
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000								
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000								
扭转刚性	Torsional Rigidity	Nm/arcmin	50								
容许径向力 $F_{2rB}$	Max. Radial Load $F_{2rB}$	N	9400								
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4700								
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)								
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)								
使用温度	Operating Temp	°C	-10 ~ +90								
防护等级	Degree of Reducer Protection		IP65								
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils								
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.42	7.42	7.42	7.03	7.14	7.03	7.03	2.57	2.57
标准背隙 P2	Standard Backlash P2	arcmin	≤10								
效率 $\eta$	Efficiency $\eta$	%	≥90%								

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

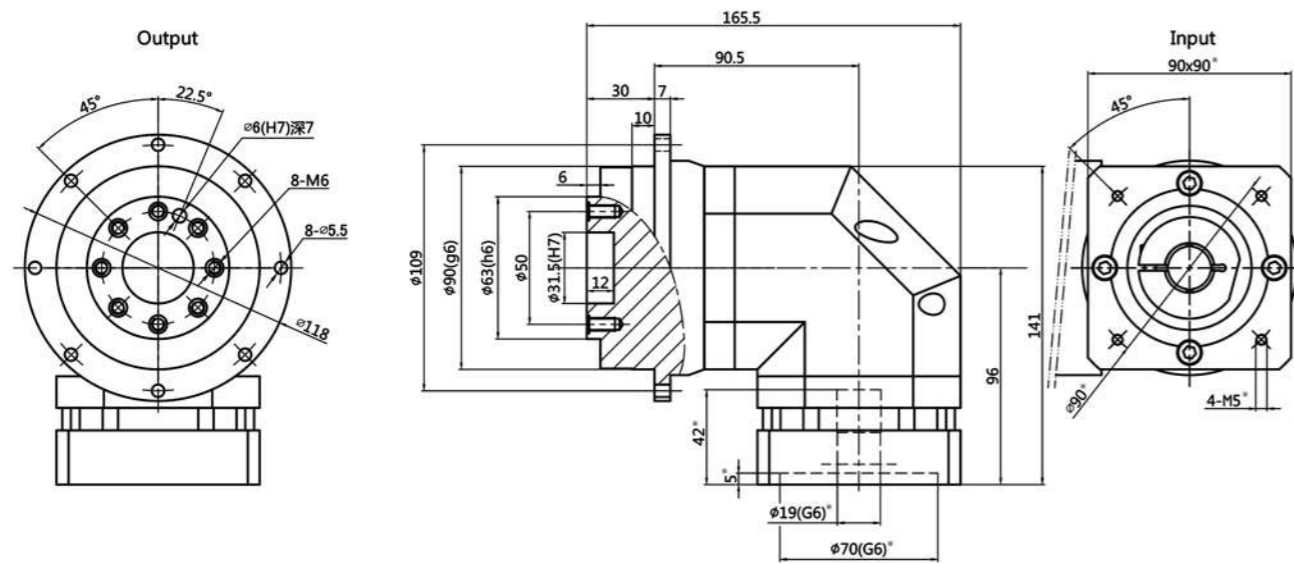
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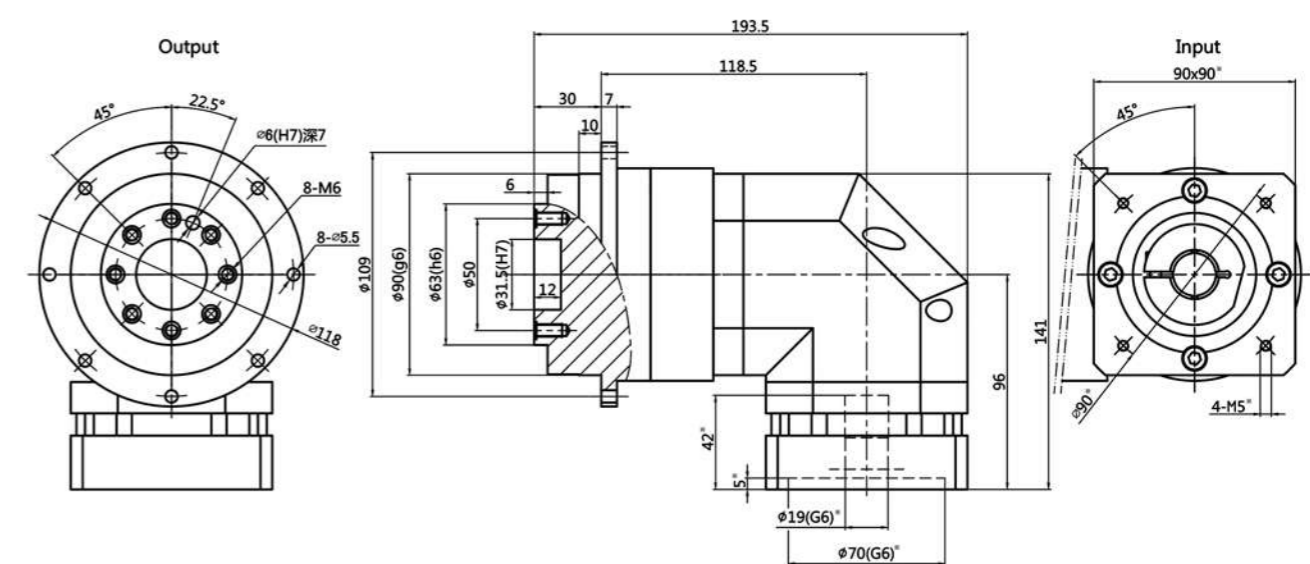
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LFFR090-L1



LFFR090-L2



LFFR090-L1						
速比	Ratio		4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	130	160	140	100
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000			
扭转刚性	Torsional Rigidity	Nm/arcmin	31			
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	235			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	2310			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10 ~ +90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.48	0.47	0.45	0.44
标准背隙 P2	Standard Backlash P2	arcmin	≤8			
效率 $\eta$	Efficiency $\eta$	%	≥93%			

LFFR090-L2									
速比	Ratio		20	25	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	130	160	140	130	160	140	100
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque						
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000						
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000						
扭转刚性	Torsional Rigidity	Nm/arcmin	31						
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	235						
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	2310						
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)						
噪音值	Noise	dB	≤70 (输入转速=3000rpm、空载、距离1M②)						
使用温度	Operating Temp	°C	-10 ~ +90						
防护等级	Degree of Reducer Protection		IP65						
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils						
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	0.47	0.47	0.47	0.44	0.44	0.13	0.13
标准背隙 P2	Standard Backlash P2	arcmin	≤10						
效率 $\eta$	Efficiency $\eta$	%	≥90%						

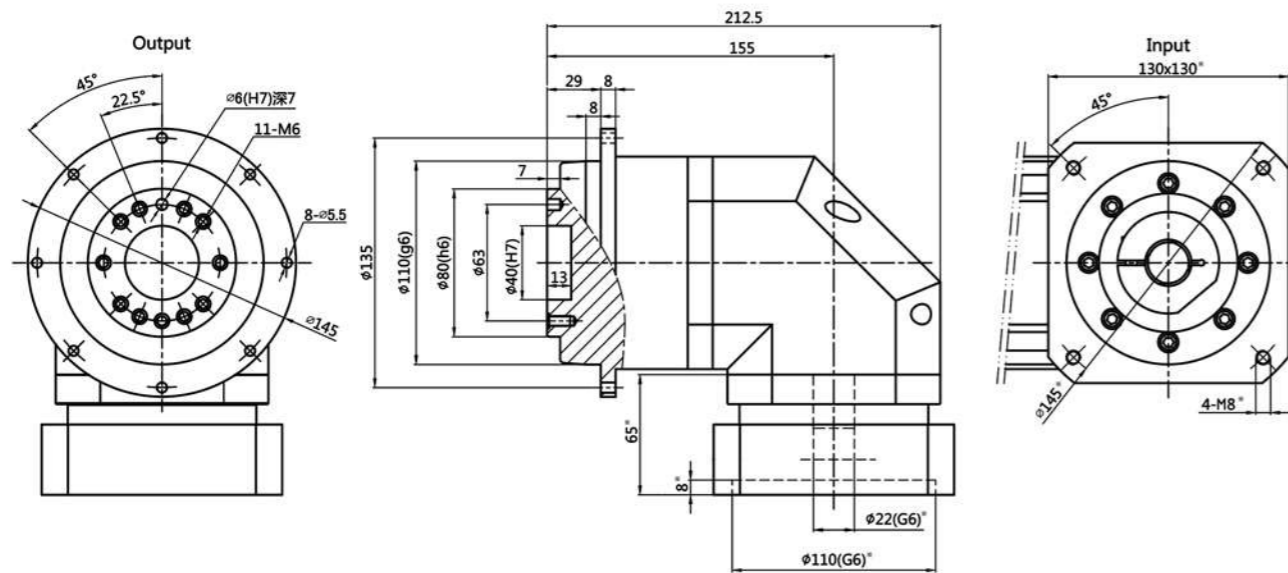
① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

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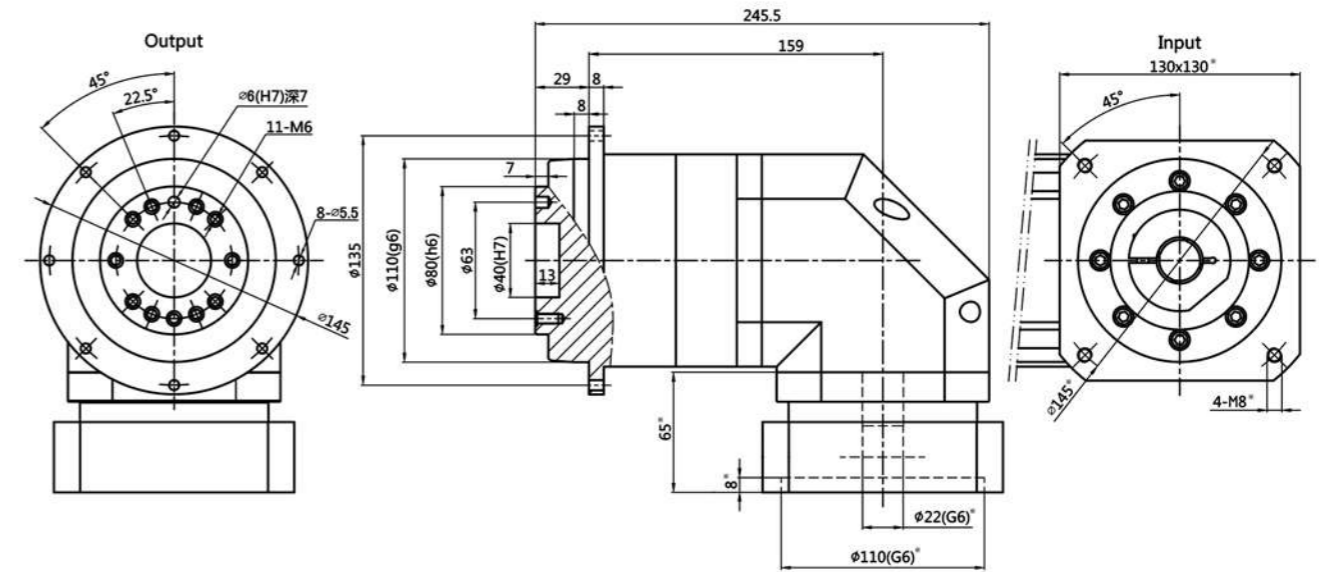
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LFFR110-L1



LFFR110-L2



LFFR110-L1						
速比	Ratio		4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	270	330	300	230
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000			
扭转刚性	Torsional Rigidity	Nm/arcmin	82			
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	430			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4800			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	≤72 (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10 ~ +90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	2.74	2.71	2.62	2.57
标准背隙 P2	Standard Backlash P2	arcmin	≤8			
效率 $\eta$	Efficiency $\eta$	%	≥93%			

LFFR110-L2									
速比	Ratio		20	25	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	270	330	300	270	330	300	230
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque						
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	4000						
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	8000						
扭转刚性	Torsional Rigidity	Nm/arcmin	82						
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	430						
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	4800						
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)						
噪音值	Noise	dB	≤72 (输入转速=3000rpm、空载、距离1M②)						
使用温度	Operating Temp	°C	-10 ~ +90						
防护等级	Degree of Reducer Protection		IP65						
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils						
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	2.71	2.71	2.62	2.57	2.57	0.44	0.44
标准背隙 P2	Standard Backlash P2	arcmin	≤10						
效率 $\eta$	Efficiency $\eta$	%	≥90%						

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away position.

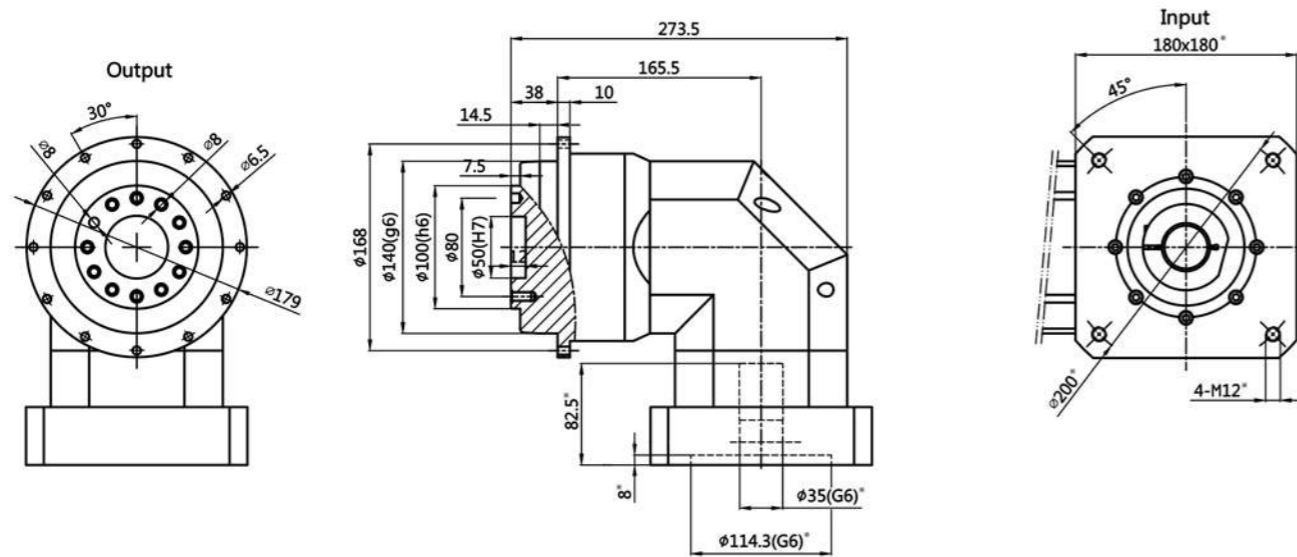
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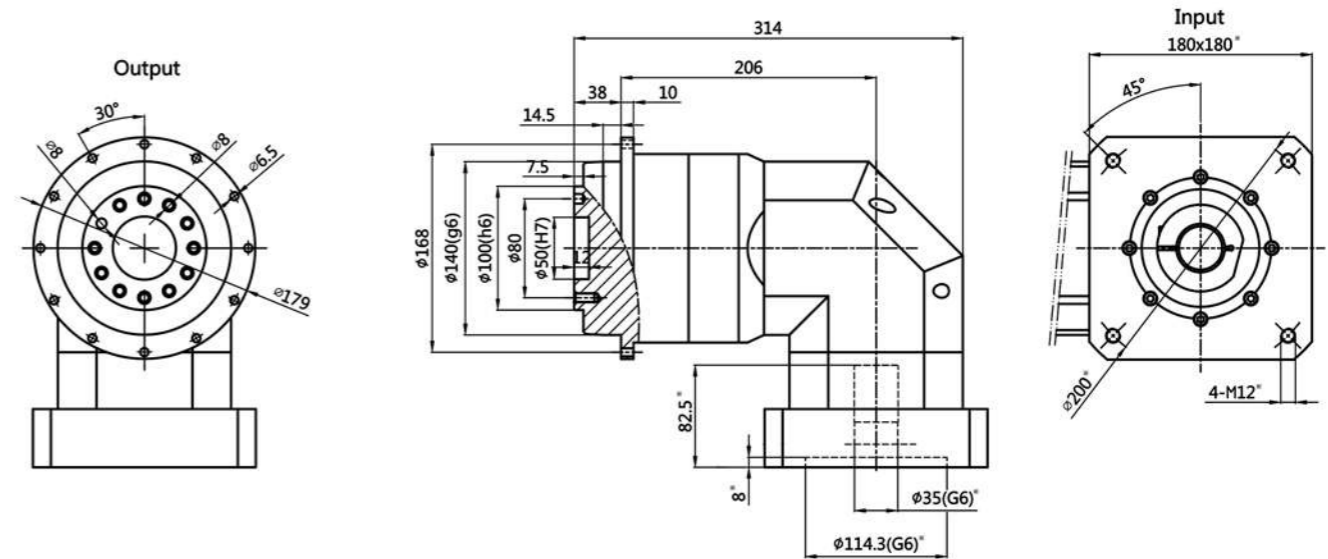
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LFFR140-L1



LFFR140-L2



LFFR140-L1						
速比	Ratio		4	5	7	10
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	560	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque			
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000			
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000			
扭转刚性	Torsional Rigidity	Nm/arcmin	151			
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	1300			
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	6200			
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)			
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)			
使用温度	Operating Temp	°C	-10 ~ +90			
防护等级	Degree of Reducer Protection		IP65			
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils			
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.54	7.42	7.14	7.03
标准背隙 P2	Standard Backlash P2	arcmin	≤8			
效率 $\eta$	Efficiency $\eta$	%	≥93%			

LFFR140-L2									
速比	Ratio		20	25	35	40	50	70	100
额定输出扭矩 $T_{2N}$	Nominal Output Torque $T_{2N}$	Nm	560	650	550	560	650	550	450
急停扭矩 $T_{2NOT}$	Emergency Stop Torque $T_{2NOT}$	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque						
额定输入转速 $n_{1N}$	Nominal Input Speed $n_{1N}$	rpm	3000						
最大输入转速 $n_{1B}$	Max. Input Speed $n_{1B}$	rpm	6000						
扭转刚性	Torsional Rigidity	Nm/arcmin	151						
最大弯曲力矩 $M_{2KB}$	Max. Bending moment $M_{2KB}$	Nm	1300						
容许轴向力 $F_{2aB}$	Max. Axial Load $F_{2aB}$	N	6200						
使用寿命	Service Life	hr	20000 (连续运转寿命减半①)						
噪音值	Noise	dB	≤75 (输入转速=3000rpm、空载、距离1M②)						
使用温度	Operating Temp	°C	-10 ~ +90						
防护等级	Degree of Reducer Protection		IP65						
润滑	Lubrication		合成润滑油脂 (终身润滑) Synthetic lubrication oils						
转动惯量 $J_1$	Mass Moments of Inertia $J_1$	kg·cm <sup>2</sup>	7.42	7.42	7.14	7.03	7.03	2.57	2.57
标准背隙 P2	Standard Backlash P2	arcmin	≤10						
效率 $\eta$	Efficiency $\eta$	%	≥90%						

① Half-life under continuous operation mode.  
② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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② Reducer under no-load mode, input speed is 3000, the value which Noise Measurement machine get at one meter away postion.

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## 使用注意事项 Precautions For Use

- 1 合理选用减速机，超功率选型将导致减速机损坏。  
Select the reasonable reducer, damage of reducer may happen if chosen a reducer beyond the right power.
- 2 安装减速机时，请勿使用铁锤敲击减速机本体，避免影响运转精度。  
During the set up of reducer, please do not use the hammer hitting the reducer body, in case of impacting the accuracy during running.
- 3 减速机运转状态下不可将手或其他异物置于旋转轴上，小心人体受伤。  
Under the running status of reducer, do not put the hands or other objects on the rotarying shaft, in case of injury.
- 4 运转过程中出现异响、异常震动，请终止运行并联系我们，我们会给予解决方案。  
Any uncommon sound / noise or uncommon vibration, please stop the reducer running and contact us, we will provide the best solution.
- 5 不要擅自拆解减速机，再组装时无法保证性能如初。  
Do not disassemble the reducer, no guarantee on performance after reassembling.
- 6 启动减速机时应逐步启动，不要立即将负载提至最高，应逐步增加。  
Start the reducer step by step, do not lift the loader to the upper limit.
- 7 避免将减速机置于极端恶劣环境之下，如有可能，尽量给予减速机防护措施，以延长使用寿命。  
To extend the life of reducer, please do not put the reducer in bad environment.

表 I 夹套螺丝锁紧扭力

Table I Motor Lock Sleeve Screw Tightening Torque

减速机规格 Reducer Specifications	螺丝规格 Screw Size	六角头规格 Hexagon Head Size	扭力值 (12.9级螺丝) Strength 12.9 Tightening Torque	
		mm	Nm	In-lbs
---	M4	3	4.9	44
060 Series	M5	4	9.8	87
090 Series	M6	5	17	151
120/140 Series	M8	6	41	364
180 Series	M10	8	80	709
220 Series	M12	10	139	1232

表 II 马达螺丝锁紧扭力

Table II Motor Mounting Screw Tightening Torque

螺丝规格 Screw Size	六角头规格 Hexagon Head Size	扭力值 (12.9级螺丝) Strength 12.9 Tightening Torque	
	mm	Nm	In-lbs
M3	2.5	2.1	19
M4	3	4.9	44
M5	4	9.8	87
M6	5	17	151
M8	6	41	364
M10	8	80	709
M12	10	139	1232
M16	14	343	3038

## 安装说明 Mounting Instruction

**1**



核对马达与减速机型号是否正确，并将安装面擦拭干净。  
Double-check the motor and reducer size, Clean the mounting surface.

**2**



取下马达轴键。  
Remove motor key.

**3**



将螺堵取出，转动马达夹套，直到夹套螺丝对准侧螺栓孔。  
Remove plug screw, turn the motor lock sleeve until the sleeve screw is aligned to the side bolt hole.

**4**



检查输入孔尺寸，并将输入孔擦拭干净。如有必要，请装上轴套。  
Inspect and clean input hole size, insert shaft sleeve if necessary.

**5**



直立装入马达，按①~④顺序将螺丝锁上。  
Insert the motor vertically and tighten the mounting screws in the order of ①-④.

**6**



参照表 I 扭力值，用扭力扳手将马达夹套螺丝锁紧。  
Refer to Table I Torque and tighten the motor lock sleeve screw with a torque wrench.

**7**



参照表 II 扭力值，按①~④顺序，用扭力扳手将螺丝锁紧。  
Refer to the torque in Table II and use the torque wrench to tighten the mounting screws in the order of ① ~ ④.

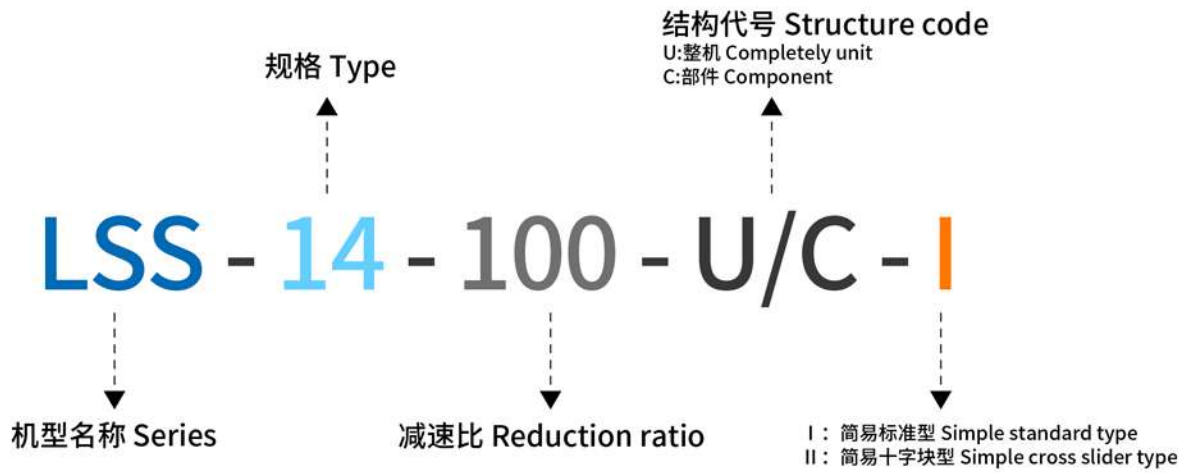
**8**



锁回螺堵。  
Tighten back the plug screw.



## 来福谐波系列减速器



LSS - I - M



LSS - I



LSD - I



LHT - I



LFS - I



LFS 一体机



LHD-III



LHT-III



LHT - V



LHT - II



LHT - IV



LHD - I

## Laifual Harmonic gearbox

### LSS系列 Series

规格 Size: 14~32 | 速比 Ratio: 50~160  
特点: 易于操作的组合化产品, 每个型号都有用于支撑外部负载, 具有高刚性的交叉滚子轴承  
应用领域: 工业机器人, 服务机器人, 金属机床, 医疗机械, 测定、分析、试验设备, 能源相关, 造纸设备  
Main features: A combination product which is easy to operate. Each model has a cross-roller bearing that with high rigidity to support external loads  
Application: Industrial robot, Service robot, Metal machine tools, Medical devices, Analysis, Test equipment, Energy related equipment, Paper making equipment

### LSN系列 Series

规格 Size: 14~32 | 速比 Ratio: 50~160  
特点: 轻量型产品, 在不改变性能的前提下, 相比标准品, 重量减少了30%  
应用领域: 工业机器人, 服务机器人, 金属机床, 医疗机械, 测定、分析、试验设备, 能源相关, 造纸设备  
Main features: A light weight product. Compare with standard product that with the same performance, LSN series is 30% lighter  
Application: Industrial robot, Service robot, Metal machine tools, Medical devices, Analysis, Test equipment, Energy related equipment, Paper making equipment

### LSG系列 Series

规格 Size: 14~32 | 速比 Ratio: 50~160  
特点: 高转矩用, 转矩容量比标准产品提升30%, 使用寿命提高40%, 追求高负载容量, 高可靠性  
应用领域: 工业机器人, 服务机器人, 金属机床, 医疗机械, 测定、分析、试验设备, 能源相关, 造纸设备  
Main features: High torque. Compare with standard products, LSG series' torque capacity is 30% higher. And the service life is increased by 43%, with high load capacity and high reliability  
Application: Industrial robot, Service robot, Metal machine tools, Medical devices, Analysis, Test equipment, Energy related equipment, Paper making equipment

### LHN系列 Series

规格 Size: 14~40 | 速比 Ratio: 50~160  
特点: 轻量型产品, 相比标准品, 重量减少20%  
应用领域: 工业机器人, 服务机器人, 医疗机械设备, 自动化及特种设备, 印刷电路制造设备  
Main features: Light weight product, 20% lighter than standard products  
Application: Industrial robot, Service robot, Medical devices, Automation and special equipment, Printed circuit manufacturing equipment

### LHD系列

规格 Size: 14~20 | 速比 Ratio: 50~100  
特点: LHD系列柔轮为翻边型超短筒结构, 既可采用刚轮端固定, 柔轮端输出的连接方式使用; 也可采用柔轮端固定, 刚轮端输出的连接方式使用。在不改变产品性能状态下, LHD-I轴向长度缩短了50%, LHD-III轴向长度缩短了15%  
应用领域: 工业机器人, 人形机器人, 半导体制造设备, FPD制造设备, 宇宙用设备  
Main features: LHD series' flexspline with flanging ultra short tube structure. Which can be used when circular spline fixed, and the flexspline as end output. It can also used to fix the flexspline, and the circular spline as end output. The axial length of LHD-I is shortened by 50%, LHD-III is shortened by 15%, without changing product performance  
Application: Industrial robot, Humanoid robot, Semiconductor manufacturing equipment, FPD manufacturing equipment, Space equipment

### LFS一体机系列 Integrated Series

规格 Size: 11~14 | 速比 Ratio: 50~100  
特点: LFS一体机研发了与高性能小型电机组合而成的减速机, 相同齿轮条件下, 拥有最高的输入特性  
应用领域: 工业机器人, 服务机器人, 医疗机械设备, 自动化及特种设备  
Main features: Combined harmonic drive with the high-performance small motor, with the highest input characteristics under the same gear conditions  
Application: Industrial robot, Service robot, Medical devices, Automation and special equipment

### LFS系列 Series

规格 Size: 11~14 | 速比 Ratio: 50~100  
特点: LFS运用小型号实现轻量型组件化产品, 超扁平, 采用交叉滚子轴承  
应用领域: 工业机器人, 服务机器人, 医疗机械设备, 自动化及特种设备  
Main features: A combination product that with light weight, ultra-flat. Using cross-roller bearing  
Application: Industrial robot, Service robot, Medical devices, Automation and special equipment

### LHG系列 Series

规格 Size: 14~40 | 速比 Ratio: 50~160  
特点: 高转矩用, 转矩容量比标准产品提升30%, 使用寿命提高43%, 追求高负载容量, 高可靠性  
应用领域: 工业机器人, 服务机器人, 医疗机械设备, 自动化及特种设备, 印刷电路制造设备  
Main features: High torque. Compare with standard products, LHG series' torque capacity is 30% higher. And the service life is increased by 43%, with high load capacity and high reliability  
Application: Industrial robot, Service robot, Medical devices, Automation and special equipment, Printed circuit manufacturing equipment

### LHT系列 Series

规格 Size: 14~40 | 速比 Ratio: 50~160  
特点: 大口径中空孔扁平形状, 易于操作的组合化产品  
应用领域: 工业机器人, 服务机器人, 医疗机械设备, 自动化及特种设备, 印刷电路制造设备  
Main features: A combination product that with large diameter hollow hole, flat shape, which is easy to operate  
Application: Industrial robot, Service robot, Medical devices, Automation and special equipment, Printed circuit manufacturing equipment

### LSD系列 Series

规格 Size: 14~20 | 速比 Ratio: 50~100  
特点: 根据市场化需求而研发的小型化产品, LSD系列相比转矩容量相同的LSS系列, 更为紧凑, 薄壁结构, 在不改变性能的状态下, 追求小型号, 并把“小而美”发挥的淋漓尽致  
应用领域: 工业机器人, 服务机器人, 金属机床, 印刷电路制造设备, 木材、轻金属、塑料机床  
Main features: This miniaturized product was developed according to the marketing demand. Compare with LSS series that with the same torque capacity, LSD series is more compact and thin-walled, smaller size  
Application: Industrial robot, Service robot, Metal machine tools, Printed circuit manufacturing equipment, Wood, light metal, plastic machine tools





