GEAR格尔

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ONE-STOP DRIVE TECHNOLOGY
SOLUTIONS EXPERTS

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GEAR格尔

精密行星减速机产品手册

浙江格尔减速机有限公司

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公司简介 Company Profile

浙江格尔减速机有限公司位于浙江省温州市平阳县万全镇宋桥工业园，建筑面积60000多平米，占地30余亩。公司拥有各类CNC数控加工设备以及桁架机械手，进口磨齿机，滚齿机，车齿机等。检测设备有：各类齿轮检测仪若干台，进口三坐标，各类自动化检具等，设备总投资近亿元。公司的加工和检测设备能满足国内卡脖子零件加工技术精密度要求。产品广泛应用于新能源汽车制造，关节机器人，自动化设备，冶金矿山、啤酒饮料、印染纺织、起重运输、筑路机械、计量计控、石油化工、仓储物流、木工机械、环保设备、印刷包装、粮油面粉、制药皮革、立体停车等众多领域。产品远销国内各大城市，并配套出口欧洲，北美，东南亚、中东等国家。公司通过ISO9000质量管理体系认证、14000环境管理体系认证、职业健康安全认证，CE认证等。

格尔公司旗下拥有格尔（GEAR和GEARMITER)两大品牌，是一家集精密传动设备研究开发、智能驱动系统，智能传动系统，智能控制系统以及工控一体化设计开发，智能高精度制造和销售解决方案为一体的知名传动技术解决有限公司，荣获国家高新技术企业、省专精特新，浙江省科技型企业、温州市信息化示范单位。公司技术研发中心被认定为浙江省省级企业技术中心，现拥有十几项国家发明专利，若干项实用新型专利。

格尔公司主要研究开发：TB/AB/TD伺服精密行星减速机，gearmiter无刷电机减速机一体机，ABR/KT高精转角减速机，人形机器人关节，R/F/K/S四大系列减速机，H/B重载荷齿轮箱，P系列重载荷行星减速机，非标定制减速机等等。公司本着“一站式传动技术解决方案专家”的理念。为客户不断创新和改进产品提供了各式各样的解决方案.为国家工业4.0技术发展作出卓越的贡献。

Zhejiang Gear Speed Reducer Co., Ltd. is located in Songqiao Industrial Park, Wanquan Town, Pingyang County, Wenzhou City, Zhejiang Province. The site covers over 60,000 square meters and spans over 30 acres.GEAR company has a wide range of CNC machining equipment, including truss manipulators, imported gear grinding machines, gear hobbing machines, and gear turning machines,etc. Testing equipment includes various gear testers, imported three-coordinate measuring machine, and various automated inspection fixtures. The total investment in these equipments is nearly 100 million yuan.GEAR company's processing and testing equipments can meet the domestic precision requirements of bottleneck parts processing technology.GEAR products are widely used in new energy vehicle manufacturing, articulated robots, automation equipment, metallurgy and mining, beer and beverages, printing and dyeing textiles, lifting and transportation, road construction machinery, metering and control, petrochemical industry, warehousing and logistics, woodworking machinery, environmental protection equipment, printing and packaging, grain-oil and flour, pharmaceutical leather, multi-level parking and many other fields.Our products are sold to major cities in China and exported to Europe, North America, Southeast Asia, the Middle East and other countries. Our company has passed ISO9000 quality management system certification, 14000 environmental management system certification, occupational health and safety certification, CE certification, etc.

GEAR owns two major brands, GEAR and GEARMITER. It is a well-known transmission technology solution company integrating research and development of precision transmission equipment, intelligent drive systems, intelligent transmission systems, intelligent control systems and industrial control integrated design and development, intelligent high-precision manufacturing and sales solutions.It has been awarded as a National High-tech Enterprise, a Provincial Specialized and New Enterprise, a Zhejiang Science and Technology Enterprise, and a Wenzhou Information Demonstration Unit. GEAR company's technology research and development center has been recognized as a provincial enterprise technology center in Zhejiang Province. It currently owns more than a dozen national invention patents and several utility model patents.

GEAR primarily researches and develops: TB/AB/TD servo precision planetary reducers, Gearmiter brushless motor reducer all-in-ones, ABR/KT high-precision angular reducers, humanoid robot joints, four series of reducers (R/F/K/S), H/B heavy-duty gearboxes, P series heavy-duty planetary reducers, and custom-made reducers. Adhering to the philosophy of "one-stop transmission technology solution expert," the company provides a wide range of solutions for continuous innovation and product improvement, making significant contributions to the development of China's Industry 4.0 technology.

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格尔荣誉
GEAR Honor

每一份荣誉，都源于一份真挚的信赖。核心科技，专利护航，自主研发。这不仅仅是一面墙，更是格尔创新精神的结晶与科技实力的象征！

Every honor stems from sincere trust. Core technology, patent protection, independent research and development. This is more than just a wall, it embodies Gear's innovative spirit and technological prowess.

行政中心
Administrative Center

行政办公室是公司的综合管理部门，是承上启下、沟通内外、协调左右的关键枢纽。我们以“管理、服务、协调”为宗旨，为公司各项业务的开展提供坚实的后勤保障与运营支持。

The administrative office is the comprehensive management department of the company, serving as a bridge between the top and the bottom, facilitating communication between the inside and the outside,the key hub for coordinating the left and right With the motto of "Management, Service, and Coordination, " we provide solid logistical and operational support for the company's various business operations.



匠心工位
Craftsmanship workstation

飞速运转的流水线旁，这里需要的是沉静下来的匠心。我们的资深技师正运用其多年的经验和敏锐的感知，进行产品最终的精密调试，他们指尖的每一次微调，都是对“合格”之上，“完美”之境的执着探索。

Next to the fast-moving assembly line, what is needed here is calm craftsmanship.
Our senior technicians are using their years of experience and keen perception to carry out the final precision debugging of the products. Every fine adjustment with their fingertips is a persistent exploration of the realm of "perfection" that goes beyond "qualified".



GEAR格尔

发展历程 Development History

2005年
成立浙江欧迈特减速机有限公司

主营四大系列减速机，工业齿轮箱

2005, extablish Zhejiang Omiter Speed Reducer CO.,LTD

Mainly produce GR/S/K/F helical gear reducer, industrial gearbox.

2013年
浙江格尔减速机有限公司成立

2014年
通过ISO9001认证,
温州科技型企业认证

2013 Zhejiang GEAR speed reducer CO., LTD is extablished.

2014 Passed ISO9001 certification, Wenzhou Science and Technology Enterprise Certification.

2016年
获得省级高新技术企业认证

2016 Obtained Provincial High-tech Enterprise Certification

2022年
研发精密行星系列减速机

浙江格尔减速机有限公司和浙江欧迈特减速机械有限公司合并

2022,Research and development of precision planetary series reducers

Zhejiang Omiter Speed Reducer CO.,LTD merged into Zhejiang Gear Speed Reducer CO.,LTD

2024年
新工厂竣工并投入使用
获得浙江省专精特新中小企业荣誉

The new factory has completed and put into operation.

Awarded the Zhejiang Province Specialized, Advanced, and Innovative Small and Medium Enterprise Award.

Future ~



①



③



②

1：德国蔡司三坐标检测仪
2：瑞士莱斯豪尔REISHAUER磨齿机
3：日本精密滚齿设备
4：日本津上精密加工生产线
5：日本马扎克Mazak金属箱体加工生产线
6：南二车齿机和日本津上高精密加工中心
7：秦川机床QCMT&T的数控成形砂轮磨齿机



⑥



④



⑤

生产合作伙伴 Production Partner

1：German Zeiss three-coordinate measuring machine
2：Swiss REISHAUER gear grinding machine
3：Japanese precision gear hobbing machine
4：Japan Tsugami precision processing production line
5：Japan Mazak metal housing processing production line
6：Naner gear turning machine and Japan Tsugami high-precision machining center
7：Qinchuan Machine QCMT&T's CNC profiled grinding wheel gear grinding machine



⑦

REISHAUER

Mazak

ZEISS

秦川机床

TSUGAMI



应用领域 Application Area

电力设备/煤炭机械/冶金设备/环保水处理/环保垃圾处理/水泥机械/港口起重/物流输送与分拣/舞台设备/纺织印染设备/塑料机械/包装机械/木工机械/自动化流水线设备/畜牧机械/粮油机械/化工搅拌设备/建筑机械/造纸机械/汽车生产线设备/焊接设备/陶瓷设备/玻璃设备/烟草设备/铸造机械/工程机械/锂电装备

Electric power equipment /Coal mechanical /Metallurgical equipment /Environmental protection water treatment /Disposal /Cement machinery /Port lifting /Logistics delivery and sorting /Stage /Textile printing and dyeing equipment /Plastic machinery /Packaging machinery /Woodworking machinery /Automated assembly line equipment /Livestock machinery / Grain and oil machinery /Chemical mixing equipment /Construction /Papermaking machinery /Automobile production line equipment /Welding equipment /Ceramic equipment /Glass equipment /Tobacco equipment /Casting machinery / Construction machinery /Lithium electric equipment

一站式传动技术解决方案专家
ONE-STOP DRIVE TECHNOLOGY SOLUTIONS EXPERTS

三一集团 SINOMA 中国中材 中联重科

鞍钢集团 ANSTEEL 中国一重 CFHI

CSR 中国南车 CHTC 上海电气 SHANGHAI ELECTRIC

JIER 济南二机床集团有限公司 JIER MACHINE-TOOL GROUP CO.,LTD CMIG Drawin 中民筑友 BAOSTEEL

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Series
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AB
Series
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TB
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TL
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TD
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TS
Series
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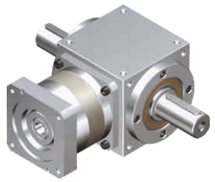
ABR
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减速机专业名词
Reducer Glossary
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减速机型号说明 Reducer Model Descrption

减速机规格
Reducer Specifications:
060、090、120、140、180、220

减速机系列号
Reducer Series:
AB、TB、TL、TD、TS、ABR、TBR、TLR、TDR

L1: 单段（3~10速比）
L1: 1–Stage（3~10Ratio）
L2: 双段（15~100速比）
L2: 2–Stage（15~100Ratio）

AB 060–L1–10–P2–马达

速比Ratio:3、4、5、7、10、15、20、25、30、35、40、50、70、100

背隙Backlash:
P1: 精密背隙
Precision Backlash
P2: 标准背隙
Standard Backlash

马达厂家、型号
Motor Designation
例e.g
panasonicMSMD042G1

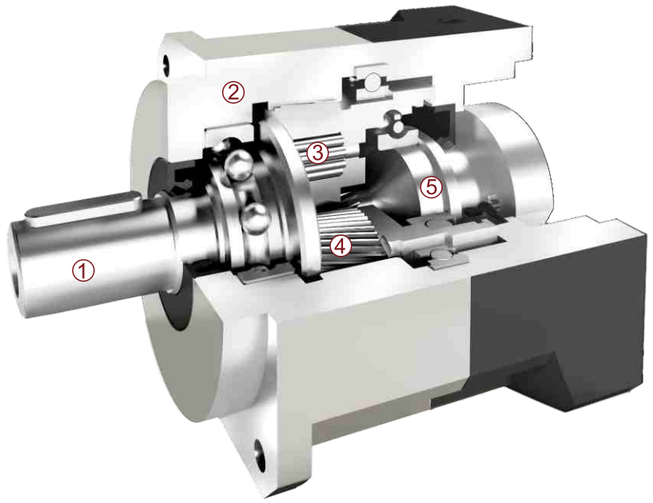
减速机内部构造 Reducer Internal Structure

①输出轴采用大尺寸、大跨距式双支撑轴承设计，更将行星臂架与之设为一体。输入轴承直接置于臂架内，确保减速机之高运转精度及最大扭转刚性

① The output shaft is made of large size, large span double bearing design, output shaft and planetary arm bracket as a whole. The input shaft is placed directly on the planet arm bracket to ensure that the reducer has high operating accuracy and maximum torsional rigidity.

④齿轮采用日本材料，切削加工后，经真空渗碳及热处理至58–62HRC，再经精滚处理，获得最佳齿形、齿向，确保了齿轮的高精度及良好的耐冲击韧性

④The gear is made of Japanese material. After the metal cutting process, the vacuum carburizing heat treatment to 58-62HRC. And then by the hobbing, Get the best tooth shape, tooth direction, to ensure that the gear of high precision and good impact toughness.



②壳体与内环齿轮采用一体式设计，调质加工后的插齿处理使其能达到高扭力、耐磨耗、高精度。更有表面镀镍防锈处理，使其抗腐蚀能力大大增强

② Shell and the inner ring gear used integrated design, quenching and tempering after the processing of the teeth so that it can achieve high torque, high precision, high wear resistance. Moreover surface nickel-plated anti-rust treatment, so that its corrosion resistance greatly enhanced.

③行星轮转动介面采用不含保持架之满滚针设计，增加接触面积以提高结构刚性及使用寿命

③ The planetary gear transmission employs full needle roller without retainer to increase the contact surface, which greatly upgrades structural rigidity and service life.

⑤输入轴采用太阳轮与轴一体式设计，以提高减速机之运转精度

⑤Input shaft and sun gear integrated structure, in order to improve the operation accuracy of the reducer.

减速机内部构造 Reducer Internal Structure

①输出轴采用大尺寸、大跨距式双支撑轴承设计，确保其最大扭转刚性。

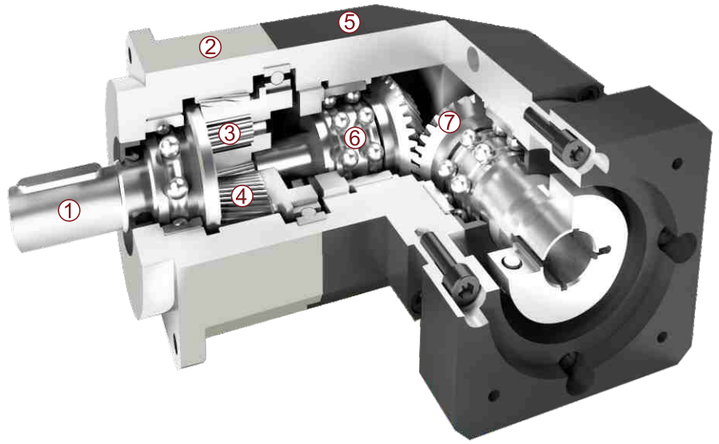
① The output shaft used large size, large span double support bearing design, to ensure its maximum torsional rigidity.

②壳体与内环齿轮采用特殊式设计，调质加工后的插齿处理使其能达到高扭力、耐磨耗、高精度。更有表面烤漆处理，使其抗腐蚀能力大大增强防氧化。

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③行星轮传动介面采用不含保持架之满滚针设计，增加接触面积以提高结构刚性及使用寿命

③ The planetary gear transmission employs full needle roller without retainer to increase the contact surface, which greatly upgrades structural rigidity and service life.



④齿轮采用日本材料，切削加工后，经真空渗碳及热处理至58–62HRC，再经精滚处理，获得最佳齿形、齿向，确保了齿轮的高精度及良好的耐冲击韧性

④The gear is made of Japanese material. After the metal cutting process, the vacuum carburizing heat treatment to 58-62HRC. And then by the hobbing, Get the best tooth shape, tooth direction, to ensure that the gear of high precision and good impact toughness.

⑦螺旋伞齿轮可达到高精准度啮合，确保接触齿面负载均一，致使减速机达到低背隙、低噪音

⑦Spiral bevel gears can achieve high accuracy of the meshing, to ensure uniform load on the gear contact surface, reducer can achieve low backlash, low noise.

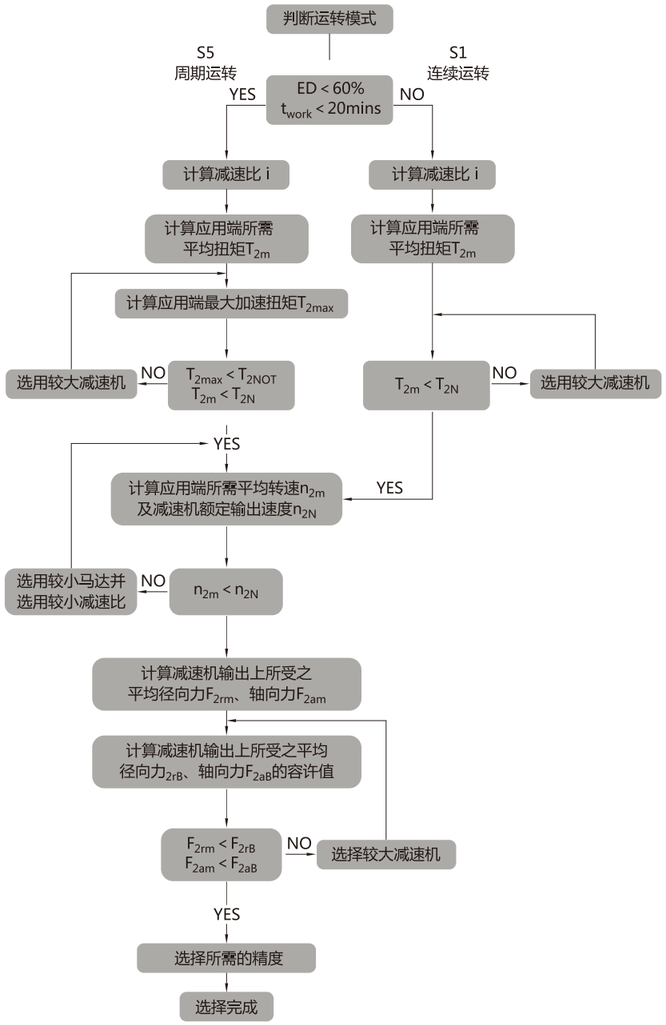
⑥采用双列球轴承设计，确保减速机之最大载荷力

⑥Double row ball bearing design, to ensure that the maximum load capacity of the reducer.

⑤转角壳体采用一体式设计，以提高减速机之运转精度

⑤Right angle shell with integrated design,in order to improve the operation accuracy of the reducer.

减速机的选用 Selection of the Optimum Reducer



S5周期运转建议事项

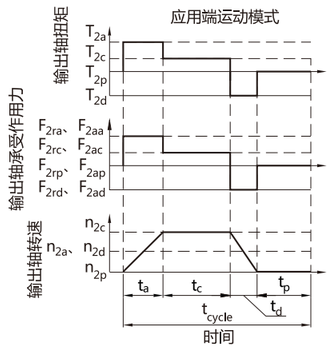
一般的应用惯量须符合以下公式：

$\frac{J_L}{i^2} \leq 4 \times J_m$

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

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

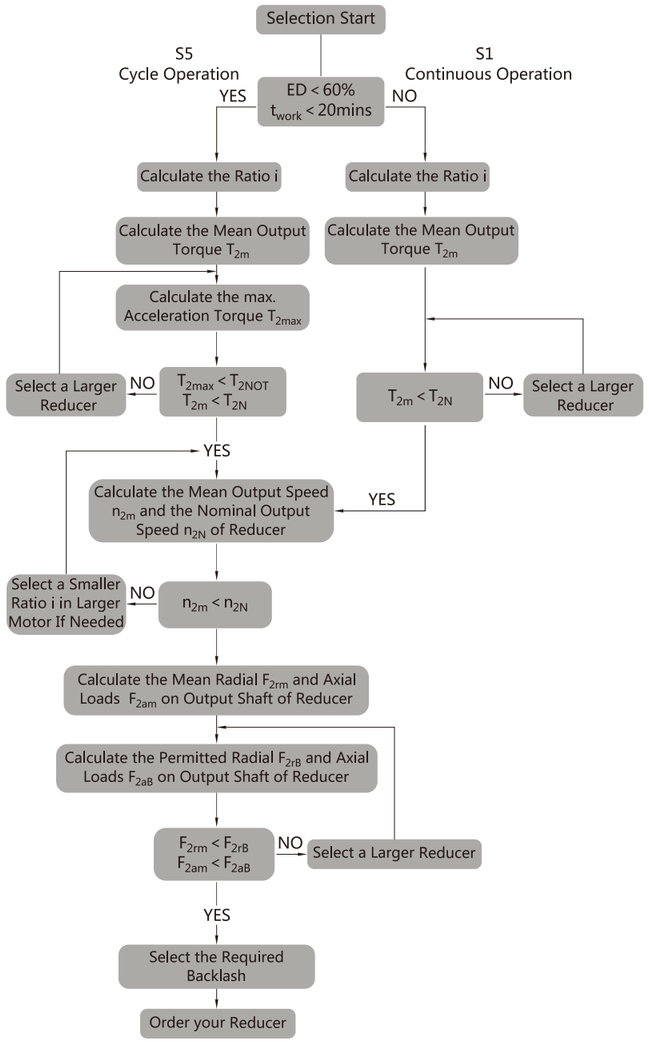
$n_{2m} = \frac{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}{t_a+t_c+t_d}$

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

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

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

减速机的选用 Selection of the Optimum Reducer



Recommended (for S5 Cycle Operation)

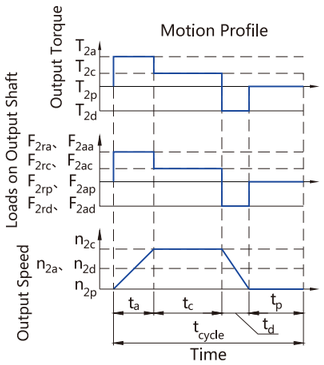
The general design is given for

$\frac{J_L}{i^2} \leq 4 \times J_m$

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 Spee

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

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

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

GM Series

- **低噪音：**基本采用行星斜齿设计，5级以上制造精度，实现减速机的顺畅、安静运转。
- **高精度：**背隙可达3弧分，定位准确（直齿除外）。
- **高刚性，高扭矩**：输出采用大尺寸，大跨距式双支撑轴承设计，大大提高了减速机刚性和扭矩。
- **高效率：**单段可达98%以上，双段可达95%以上。
- **免维护：**油脂磨耗低，可终身润滑。
- **不漏油：**采用高质量全合成油脂，防止温升引起油脂液化漏油。
- **宽广的调速范围与高调速精度：**具有良好的调速性能，配合专用的调速控制器，可以实现宽广的调速范围，调速平稳。
- **结构紧凑体积小：**电机轴与太阳轮合为一体，无需联轴器联接。
- **应用范围广：**适应于任何形式的传动解决方案。
- **节能效果好：**永磁无刷电机较其他普通电机节能15%-40%。

- **Low noise:** the design adopts planetary helical gears and the manufacturing precision is above level 5, which enables the smooth and quiet operation of the reducer.
- **High precision:** backlash up to 3 arc minutes, accurate positioning (except straight teeth).
- **High rigidity and high torque:** The output adopts large-size, large-span double-support bearing design, which greatly improves the rigidity and torque of the reducer.
- **High efficiency:** single stage can reach more than 98%, double stage can reach more than 95%.
- **Maintenance-free:** grease has low wear and can be lubricated for life.
- **No oil leakage:** Use high-quality fully synthetic grease to prevent grease liquefaction and leakage caused by temperature rise.
- **Wide speed regulation range and high speed regulation accuracy:** It has good speed regulation performance and can achieve a wide speed regulation range and stable speed regulation when used with a dedicated speed controller.
- **Compact structure and small size:** the motor shaft and the sun gear are integrated into one, and no coupling is required.
- **Wide range of applications:** suitable for any form of transmission solution.
- **Good energy-saving effect:** Permanent magnet brushless motor saves 15%-40% energy compared with ordinary motors.

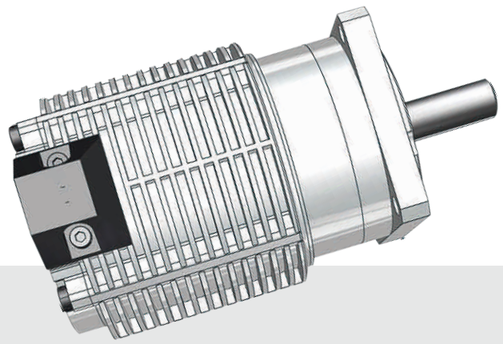
※如客户对减速机可靠性要求较高，须考虑必要的安全系数或来电咨询。
建议客户使用系数$f_B \geq 1.5$。

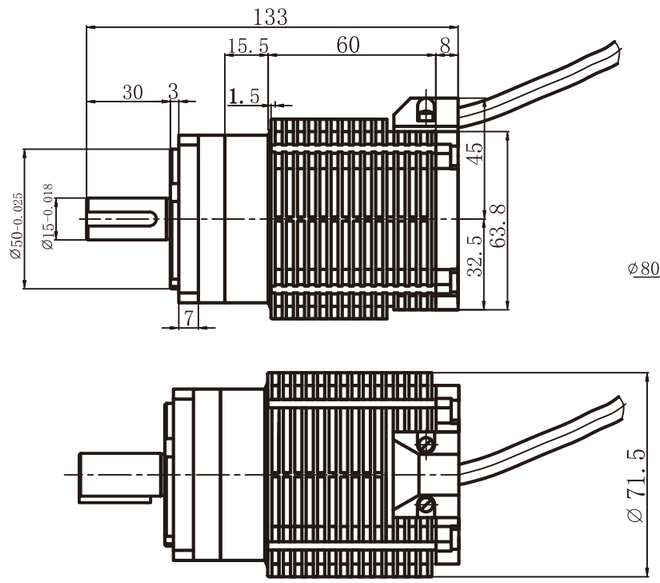
※If the customer has high requirements for the reliability of the gearbox, necessary safety factors or phone inquiries must be considered. Suggest customers to use a coefficient $f_B \geqslant 1.5$.

Gearmiter系列（简称GM系列）永磁无刷调速精密行星减速机
Gearmiter Series permanent magnet brushless speed regulating precision planetary reducer
Performance characteristics



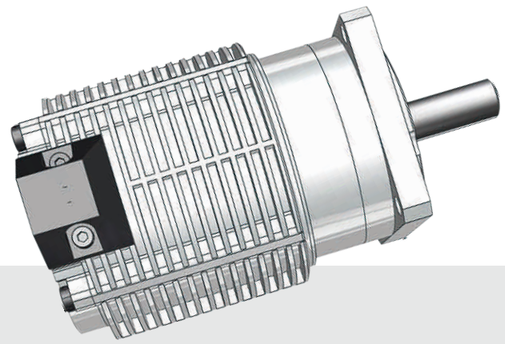
GMZ60-3N.M

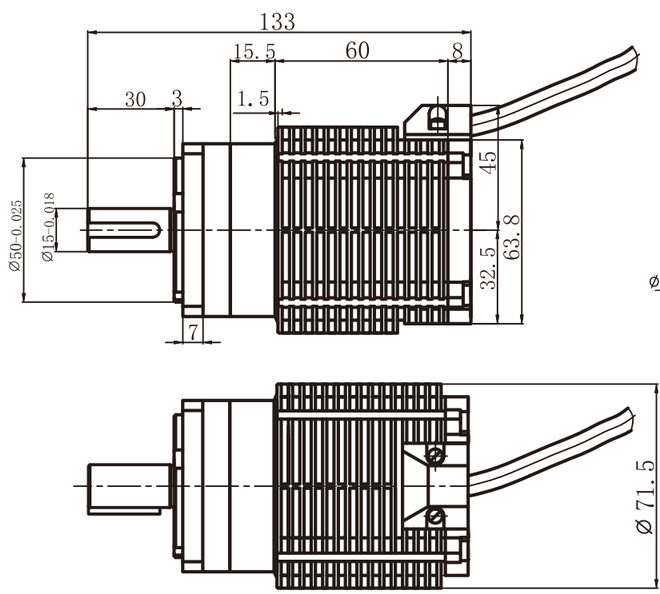




性能指标 Performance indicators	额定输出扭矩 Rated output torque	连续工作调速范围 (转/分) Continuous working speed regulation range	断续工作调速范围 Intermittent working speed regulation range	电机功率 Kw motor power	电机输入转速 (转/分) Motor input speed	背隙 (弧分) backlash arc minute	输出轴径向力.N output shaft radial force	输出轴轴向力.N output shaft axial force
型号 Model	3	0-180	180-240	0.06	0-2000		622	595
	噪音 noise	整机效率 % efficiency	使用环境温度℃ ambient temperature	使用寿命 h life time	润滑介质 lubrication medium	参考重量 kg weight	转动惯量 moment of inertia	备 注 remarks
GMZ60-3N.M	≤60	98%	−15 ~ +40℃	≥20000	全合成润滑脂	1.37	0.10	直齿单级

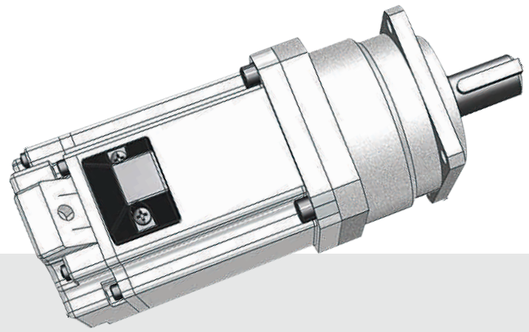
GMZ60-5N.M

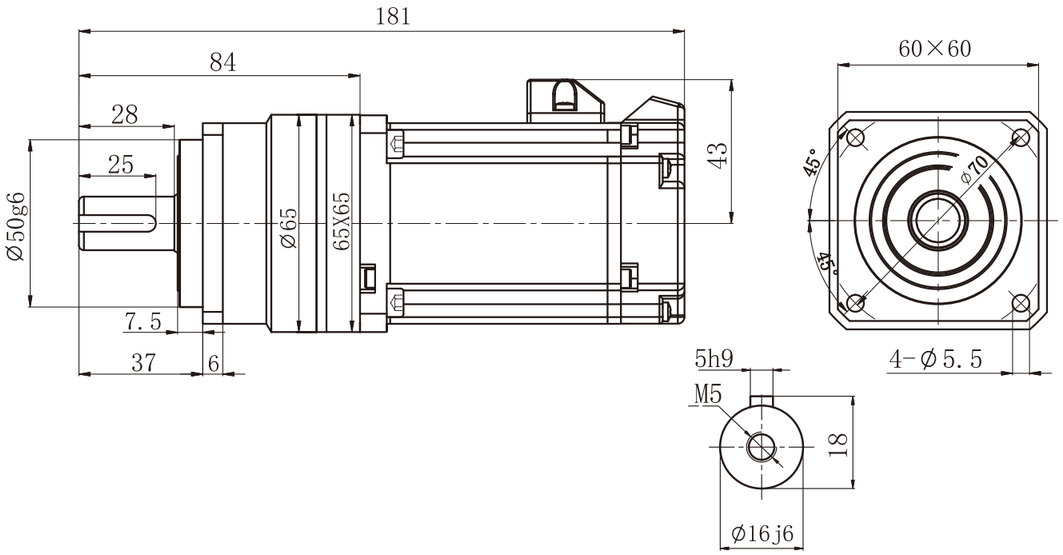




性能指标 Performance indicators	额定输出扭矩 Rated output torque	连续工作调速范围 (转/分) Continuous working speed regulation range	断续工作调速范围 Intermittent working speed regulation range	电机功率 Kw motor power	电机输入转速 (转/分) Motor input speed	背隙 (弧分) backlash arc minute	输出轴径向力.N output shaft radial force	输出轴轴向力.N output shaft axial force
型号 Model	5	0-180	180-240	0.1	0-2000		622	595
	噪音 noise	整机效率 % efficiency	使用环境温度℃ ambient temperature	使用寿命 h life time	润滑介质 lubrication medium	参考重量 kg weight	转动惯量 moment of inertia	备 注 remarks
GMZ60-5N.M	≤60	98%	−15 ~ +40℃	≥20000	全合成润滑脂	1.37	0.10	直齿单级

GM60-10N.M



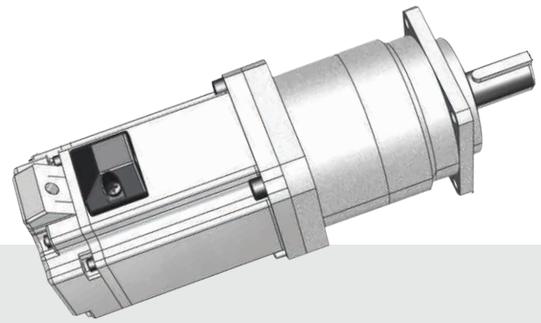


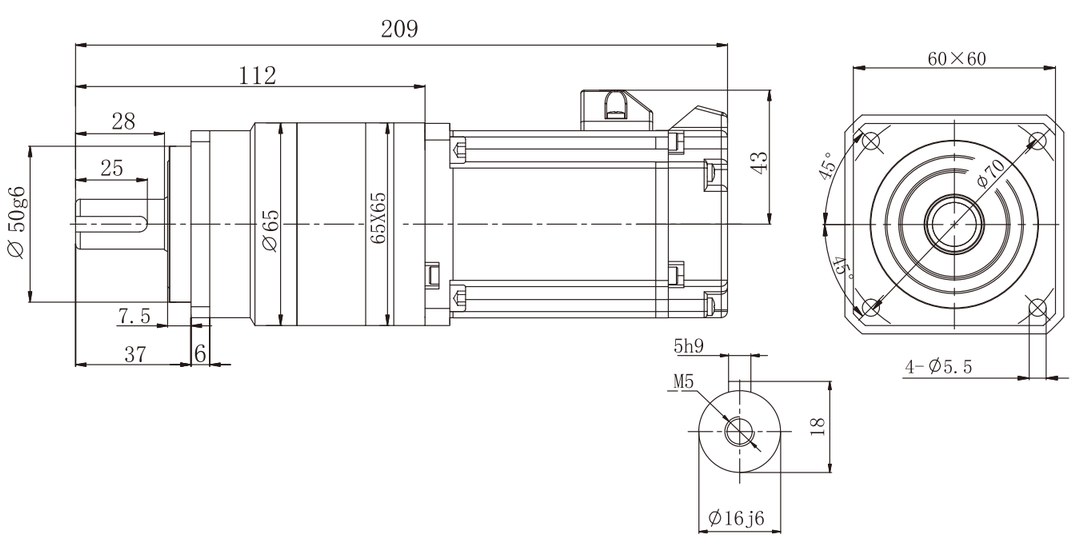
性能指标 Performance indicators	额定输出扭矩 Rated output torque	连续工作调速范围 (转/分) Continuous working speed regulation range	断续工作调速范围 Intermittent working speed regulation range	电机功率 Kw motor power	电机输入转速 (转/分) Motor input speed	背隙 (弧分) backlash arc minute	输出轴径向力.N output shaft radial force	输出轴轴向力.N output shaft axial force
型号 Model	10	0-180	180-240	0.2	0-2400	3-5	1530	630
GM60-10N.M	噪音 noise	整机效率 % efficiency	使用环境温度℃ ambient temperature	使用寿命 h life time	润滑介质 lubrication medium	参考重量 kg weight	转动惯量 moment of inertia	备 注 remarks
	≤60	98%	-15 ~ +40℃	≥20000	全合成润滑脂	2.0	0.13	斜齿单级

※如需带其他附件，请在型号后标注：+F（风扇）+BGM（编码器）

※if need other accessories, please indicate in the model:+F ----fan +BGM----encoder

GM60-20N.M



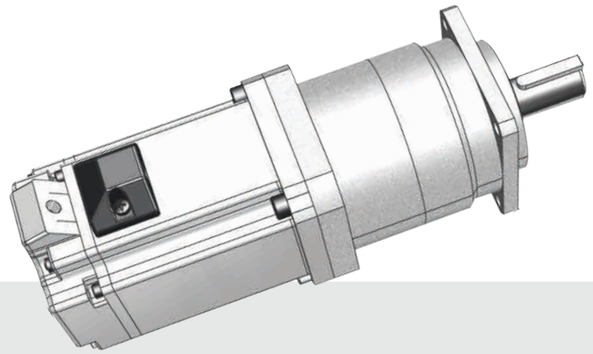


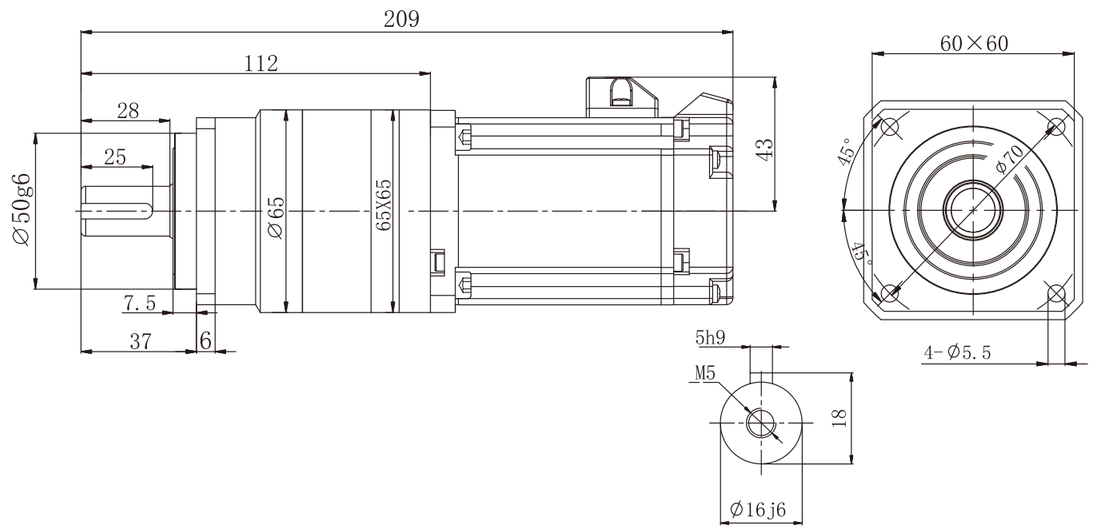
性能指标 Performance indicators	额定输出扭矩 Rated output torque	连续工作调速范围 (转/分) Continuous working speed regulation range	断续工作调速范围 Intermittent working speed regulation range	电机功率 Kw motor power	电机输入转速 (转/分) Motor input speed	背隙 (弧分) backlash arc minute	输出轴径向力.N output shaft radial force	输出轴轴向力.N output shaft axial force
型号 Model	20	0-50	50-70	0.1	0-2400	3-5	1530	630
GM60-20N.M	噪音 noise	整机效率 % efficiency	使用环境温度℃ ambient temperature	使用寿命 h life time	润滑介质 lubrication medium	参考重量 kg weight	转动惯量 moment of inertia	备 注 remarks
	≤60	95%	-15 ~ +40℃	≥20000	全合成润滑脂	2.53	0.13	斜齿二级

※如需带其他附件，请在型号后标注：+F（风扇）+BGM（编码器）

※if need other accessories, please indicate in the model:+F ----fan +BGM----encoder

GM60-40N.M



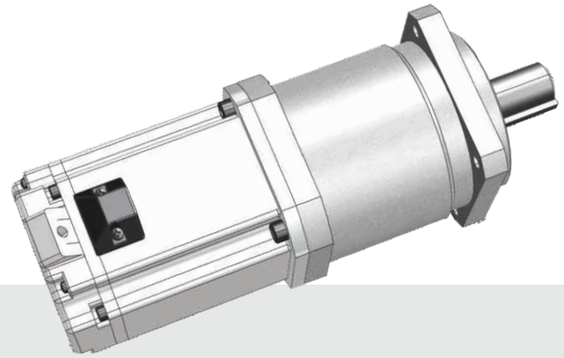


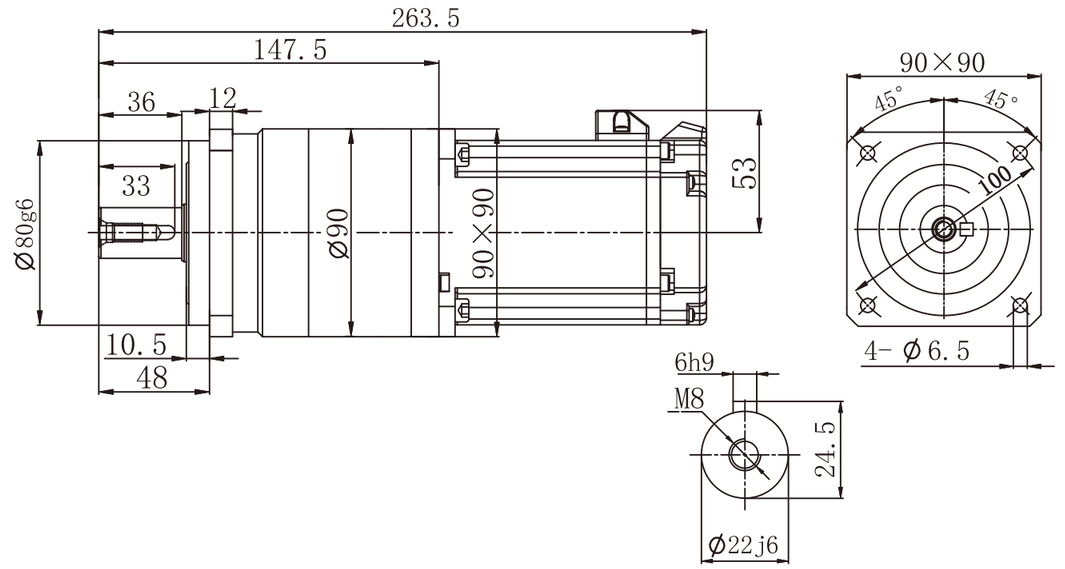
性能指标 Performance indicators	额定输出扭矩 Rated output torque	连续工作调速范围 (转/分) Continuous working speed regulation range	断续工作调速范围 Intermittent working speed regulation range	电机功率 Kw motor power	电机输入转速 (转/分) Motor input speed	背隙 (弧分) backlash arc minute	输出轴径向力.N output shaft radial force	输出轴轴向力.N output shaft axial force
型号 Model	40	0-50	50-70	0.2	0-2400	3-5	1530	630
GM60-40N.M	噪音 noise	整机效率 % efficiency	使用环境温度℃ ambient temperature	使用寿命 h life time	润滑介质 lubrication medium	参考重量 kg weight	转动惯量 moment of inertia	备 注 remarks
	≤60	95%	-15 ~ +40℃	≥20000	全合成润滑脂	2.63	0.13	斜齿二级

※如需带其他附件，请在型号后标注：+F（风扇）+BGM（编码器）

※if need other accessories, please indicate in the model:+F ----fan +BGM----encoder

GM90-120N.M



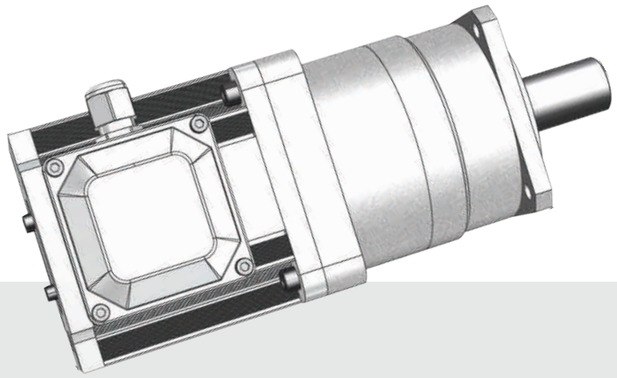


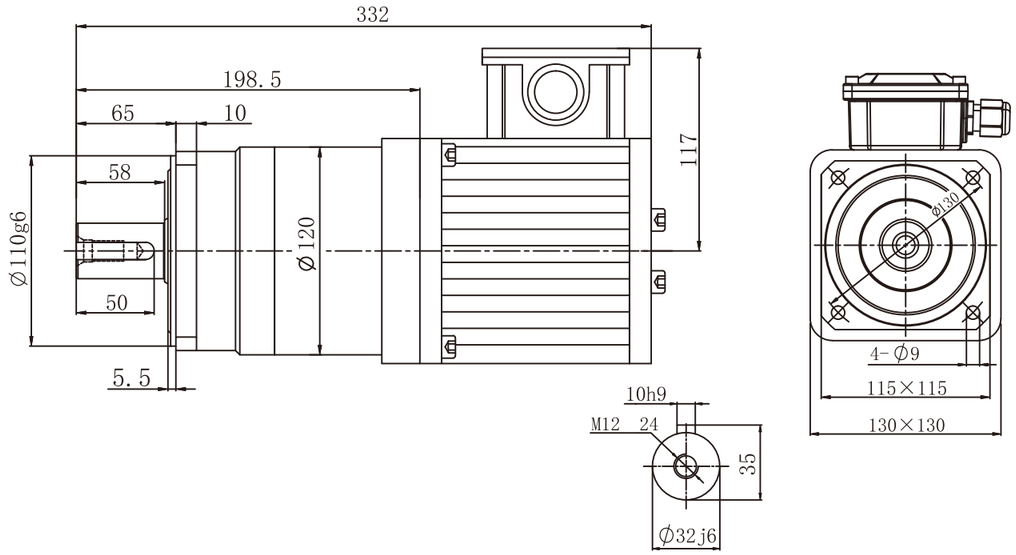
性能指标 Performance indicators	额定输出扭矩 Rated output torque	连续工作调速范围 (转/分) Continuous working speed regulation range	断续工作调速范围 Intermittent working speed regulation range	电机功率 Kw motor power	电机输入转速 (转/分) Motor input speed	背隙 (弧分) backlash arc minute	输出轴径向力.N output shaft radial force	输出轴轴向力.N output shaft axial force
型号 Model	120	0-50	50-70	0.6	0-2400	3-5	3250	1330
GM90-120N.M	噪音 noise	整机效率 % efficiency	使用环境温度℃ ambient temperature	使用寿命 h life time	润滑介质 lubrication medium	参考重量 kg weight	转动惯量 moment of inertia	备 注 remarks
	≤60	95%	-15 ~ +40℃	≥20000	全合成润滑脂	6.35	0.45	斜齿二级

※如需带其他附件，请在型号后标注：+F（风扇）+BGM（编码器）

※if need other accessories, please indicate in the model:+F ----fan +BGM----encoder

GM120-300N.M



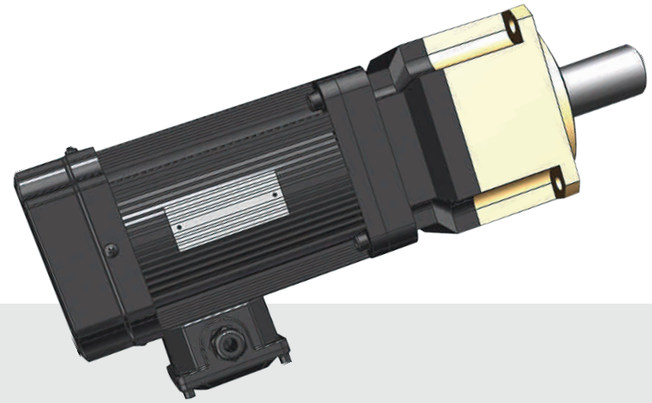


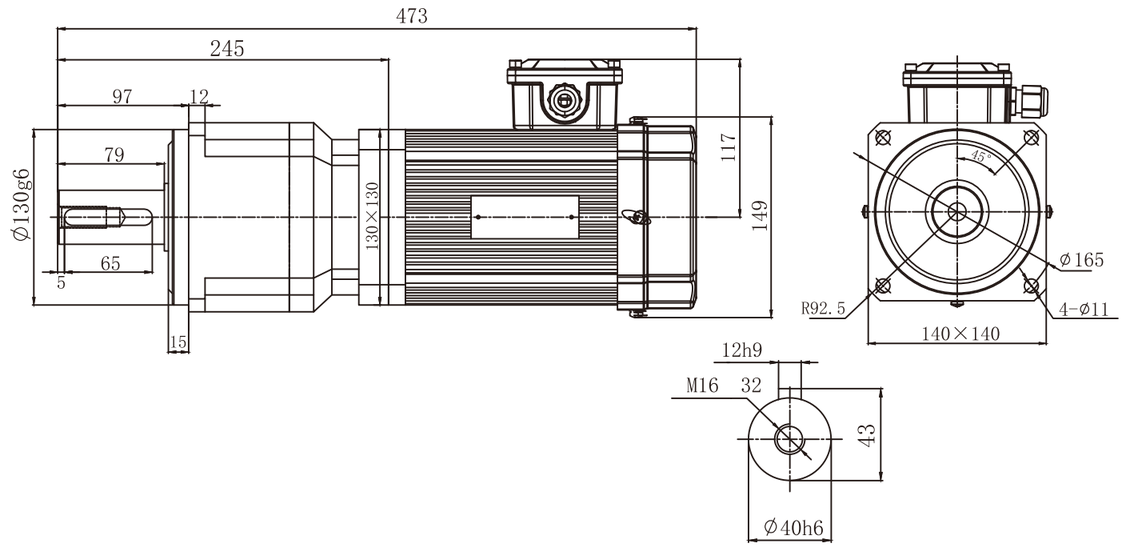
性能指标 Performance indicators	额定输出扭矩 Rated output torque	连续工作调速范围(转/分) Continuous working speed regulation range	断续工作调速范围 Intermittent working speed regulation range	电机功率 Kw motor power	电机输入转速(转/分) Motor input speed	背隙(弧分) backlash arc minute	输出轴径向力.N output shaft radial force	输出轴轴向力.N output shaft axial force
型号 Model	300	0-50	50-70	1.35	0-2400	3-5	6700	3000
GM120-300N.M	噪音 noise	整机效率 % efficiency	使用环境温度℃ ambient temperature	使用寿命 h life time	润滑介质 lubrication medium	参考重量 kg weight	转动惯量 moment of inertia	备注 remarks
	≤65	95%	-15～+40℃	≥20000	全合成润滑脂	14.15	2.62	斜齿二级

※如需带其他附件，请在型号后标注：+F（风扇）+BGM（编码器）

※if need other accessories, please indicate in the model:+F ----fan +BGM----encoder

GM142-500N.M



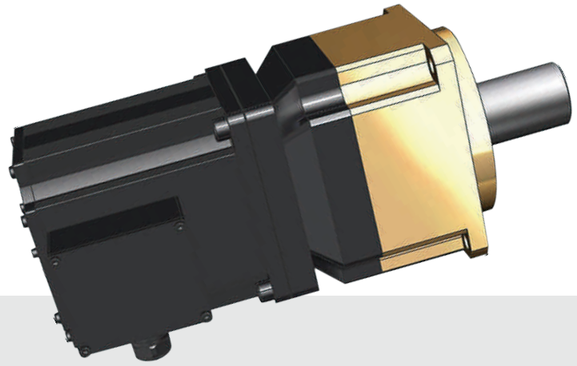


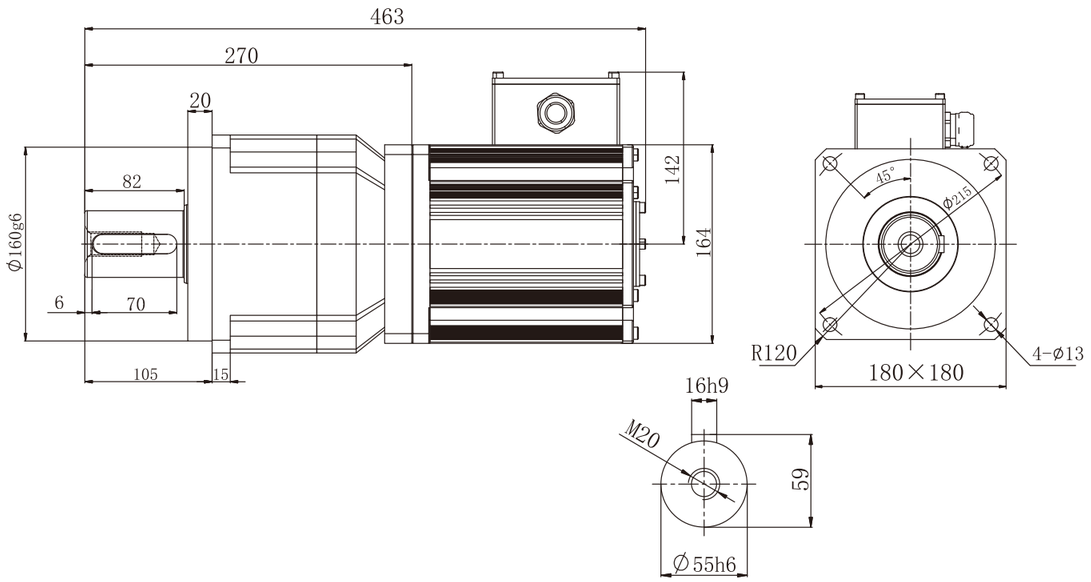
性能指标 Performance indicators	额定输出扭矩 Rated output torque	连续工作调速范围(转/分) Continuous working speed regulation range	断续工作调速范围 Intermittent working speed regulation range	电机功率 Kw motor power	电机输入转速(转/分) Motor input speed	背隙(弧分) backlash arc minute	输出轴径向力.N output shaft radial force	输出轴轴向力.N output shaft axial force
型号 Model	500	0-50	50-70	2.2	0-2400	3-5	9400	4000
GM142-500N.M	噪音 noise	整机效率 % efficiency	使用环境温度℃ ambient temperature	使用寿命 h life time	润滑介质 lubrication medium	参考重量 kg weight	转动惯量 moment of inertia	备注 remarks
	≤67	95%	-15～+40℃	≥20000	全合成润滑脂	27.25	7.14	斜齿二级

※如需带其他附件，请在型号后标注：+F（风扇）+BGM（编码器）

※if need other accessories, please indicate in the model:+F ----fan +BGM----encoder

GM180-1KN.M



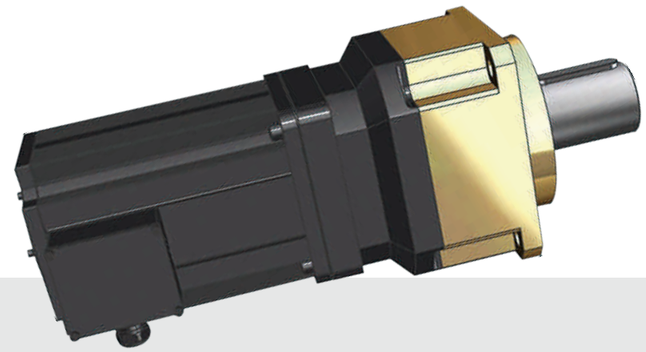


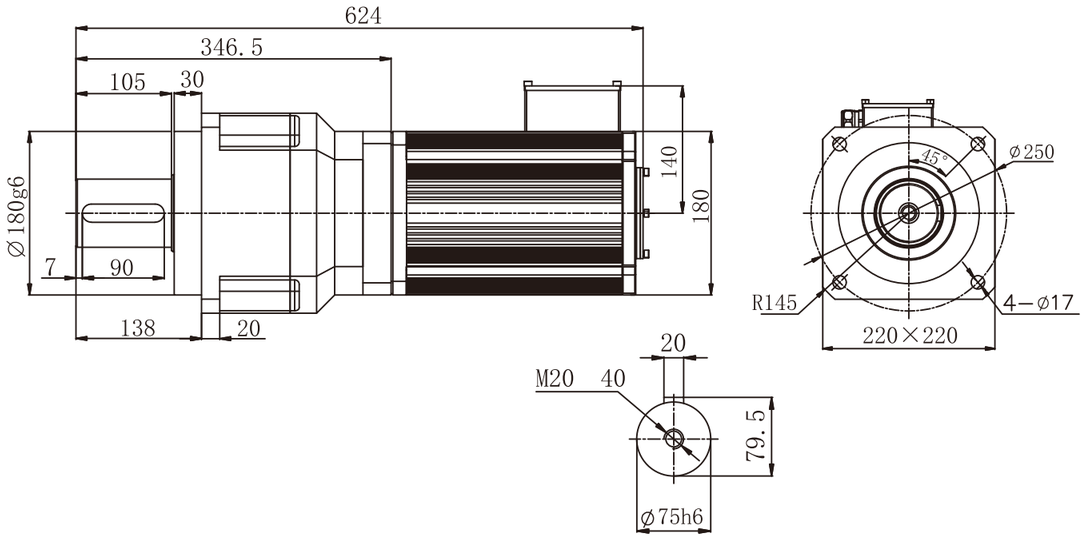
性能指标 Performance indicators	额定输出扭矩 Rated output torque	连续工作调速范围 (转/分) Continuous working speed regulation range	断续工作调速范围 Intermittent working speed regulation range	电机功率 Kw motor power	电机输入转速 (转/分) Motor input speed	背隙 (弧分) backlash arc minute	输出轴径向力.N output shaft radial force	输出轴轴向力.N output shaft axial force
型号 Model	1000	0-50	50-70	4.4	0-2400	3-5	14500	6200
GM180-1KN.M	噪音 noise	整机效率 % efficiency	使用环境温度℃ ambient temperature	使用寿命 h life time	润滑介质 lubrication medium	参考重量 kg weight	转动惯量 moment of inertia	备 注 remarks
	≤70	95%	-15 ~ +40℃	≥20000	全合成润滑脂	49.71	22.5	斜齿二级

※如需带其他附件，请在型号后标注：+F（风扇）+BGM（编码器）

※if need other accessories, please indicate in the model:+F ----fan +BGM----encoder

GM220-2KN.M





性能指标 Performance indicators	额定输出扭矩 Rated output torque	连续工作调速范围 (转/分) Continuous working speed regulation range	断续工作调速范围 Intermittent working speed regulation range	电机功率 Kw motor power	电机输入转速 (转/分) Motor input speed	背隙 (弧分) backlash arc minute	输出轴径向力.N output shaft radial force	输出轴轴向力.N output shaft axial force
型号 Model	2000	0-50	50-70	8.8	0-2400	3-5	50000	35000
GM220-2KN.M	噪音 noise	整机效率 % efficiency	使用环境温度℃ ambient temperature	使用寿命 h life time	润滑介质 lubrication medium	参考重量 kg weight	转动惯量 moment of inertia	备 注 remarks
	≤72	95%	-15 ~ +40℃	≥20000	全合成润滑脂	98	51	斜齿二级

※如需带其他附件，请在型号后标注：+F（风扇）+BGM（编码器）

※if need other accessories, please indicate in the model:+F ----fan +BGM----encoder

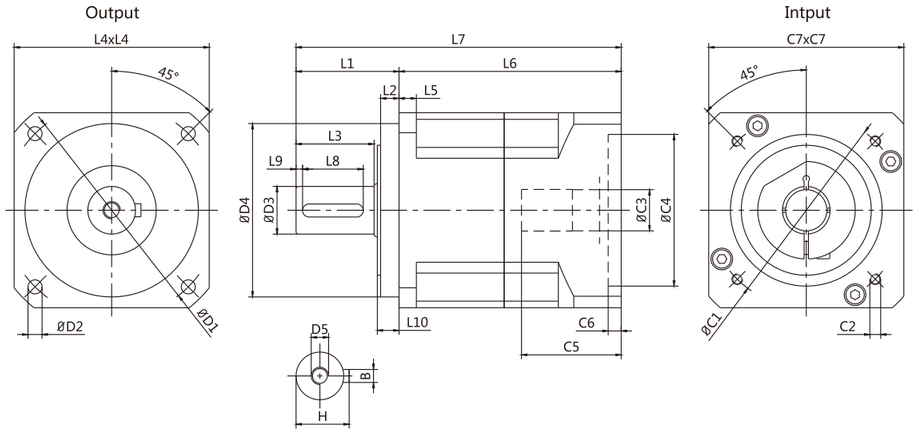
AB Series

- **低噪音**：采用螺旋齿轮设计，实现了减速机的顺畅、安静运转。
- **高精度**：背隙可达3弧分以内，定位精确。
- **高刚性、高扭矩**：输出轴采用大尺寸、大跨距式双支撑轴承设计，大大提高了减速机刚性和扭矩。
- **高效率**：单段可达95%以上，双段可达92%以上。
- **免维护**：油脂磨耗低，可终身润滑。
- **密封效果好**：润滑油脂具有高粘度、不易分离的特性，并采用IP65防护等级，确保无润滑油脂泄漏。
- **自由安装**：可任意安装减速机。
- **适用性广**：适用于任意型式伺服电机。

- **Low Noise**: The use of helical gear design, to achieve a smooth, quiet operation of the reducer.
- **High Precision**: Backlash 3 arcmin or less, accurate positioning.
- **High Rigidity, High Torque**: The output shaft used large size, large span double support bearing design, which improves the rigidity and torque of the reducer.
- **High Efficiency**: 1-Stage up to 95% or more, 2-Stage up to 92% or more.
- **Maintenance-Free**: Low grease wear, can be lifetime lubrication.
- **Sealing Effect Is Good:** Lubricating grease with high viscosity, not easy to separate the characteristics, ip65 protection class to ensure that no grease leakage.
- **Installation Unrestrained**: Can be installed arbitrarily.
- **Wide Applicability**: Applicable to any type of servo motor.

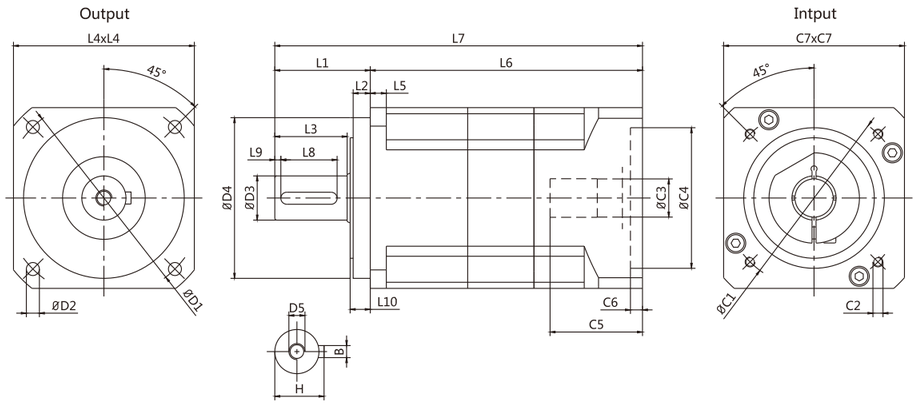


AB042-L1



AB042-L1																								
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	50	3. 5	13	35	M4	26	5	20	45	5	63	89	16	0	6	46	M4	8	30	28	5	45	5	15

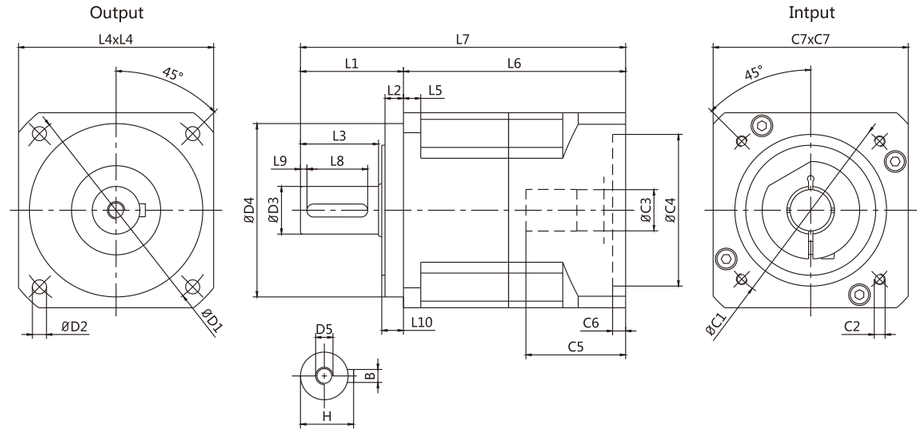
AB042-L2



AB042-L2																								
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	50	3.5	13	35	M4	26	5	20	45	5	82	108	16	0	6	46	M4	8	30	28	5	45	5	15

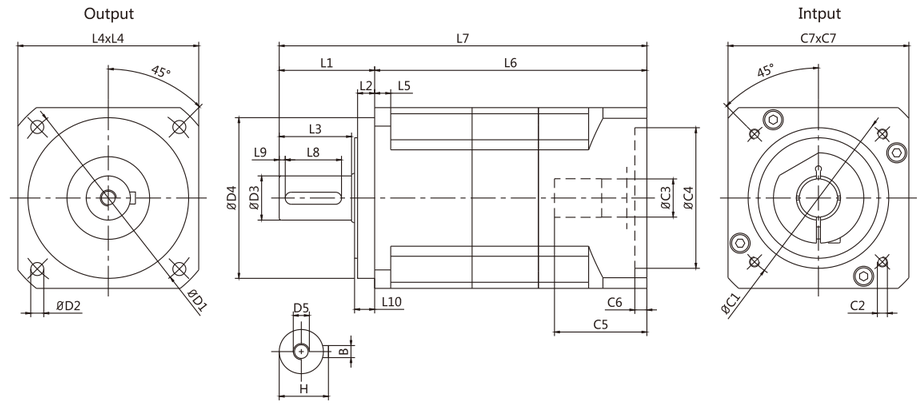
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

AB060-L1



AB060-L1																								
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	70	5.5	16	50	M5	36.5	7	28	62	6	73	115.5	25	/	7	70	M5	14	50	32.5	8	60	5	18
TypeⅡ	70	5.5	16	50	M5	36.5	7	28	62	6	73	115.5	25	/	7	70	M5	11	50	32.5	8	80	5	

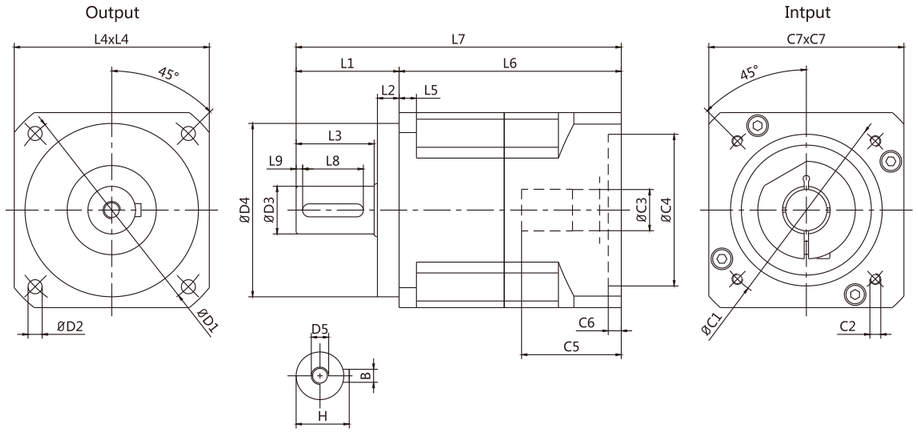
AB060-L2



AB060-L2																								
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	70	5.5	16	50	M5	36.5	7	28	62	6	107	143.5	25	/	7	70	M4	14	50	32.5	8	60	5	18
TypeⅡ	70	5.5	16	50	M5	36.5	7	28	62	6	107	143.5	25	/	7	70	M4	11	50	32.5	8	60	5	18

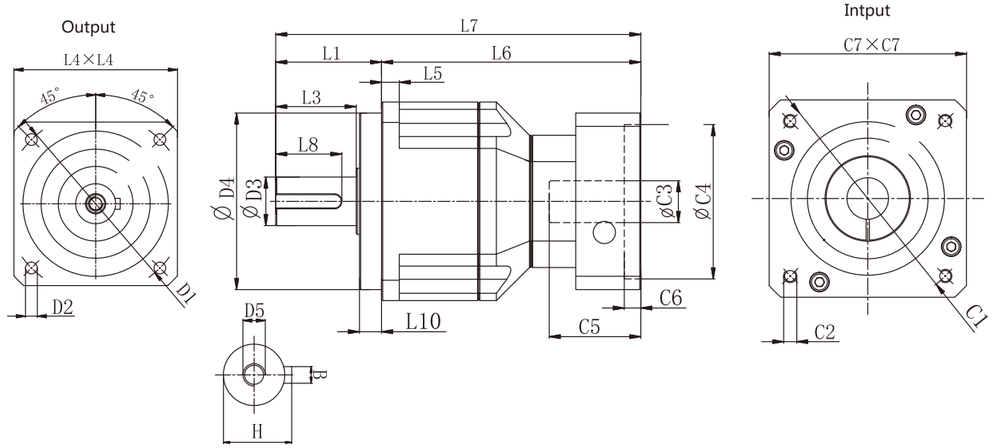
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

AB090-L1



AB090-L1																						
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
TypeⅠ	100	6.5	22	80	M8	47.5	10	36	90	8	105.5	153	33	/	90	M5	19	70	46	8	90	6	24.5
TypeⅡ	100	6.5	22	80	M8	47.5	10	36	90	8	116	163.5	33	/	145	M8	19	110	60	10	130	6	24.5
TypeⅢ	100	6.5	22	80	M8	48	9	36	90	8	116.5	164	30	/	145	M8	22	110	60	10	130	6	24.5
TypeIV	100	6.5	22	80	M8	48	9	36	90	8	116.5	164	30	/	145	M8	24	110	60	10	130	6	24.5

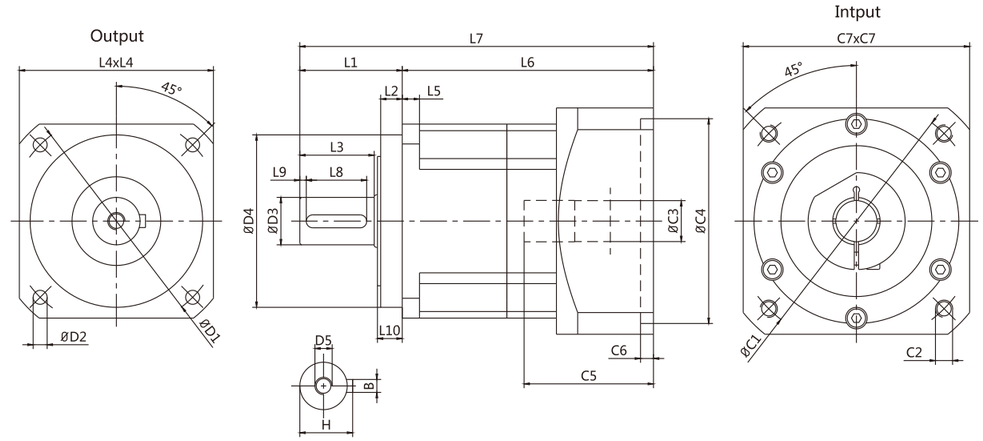
AB090-L2



AB090-L2																						
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
TypeⅠ	100	6.5	22	80	M8	47.5	10	36	90	8	131.5	179	33	/	90	M5	19	70	46	8	90	6	24.5
TypeⅡ	100	6.5	22	80	M8	47.5	10	36	90	8	117	164.5	33	/	70	M4	14	50	32.5	8	60	6	24.5

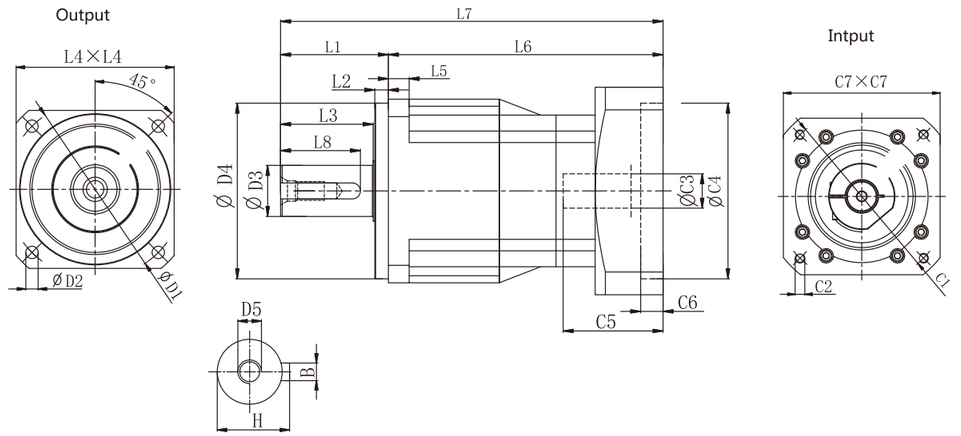
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

AB115-L1



AB115-L1																								
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
TypeⅠ	130	9	32	110	M12	67.5	8	58	115	13	129.5	197	50	/	8	145	M8	22	110	62.5	8	130	10	35
TypeⅡ	130	9	32	110	M12	67.5	8	58	115	13	129.5	197	50	/	8	145	M8	24	110	62.5	8	130	10	35

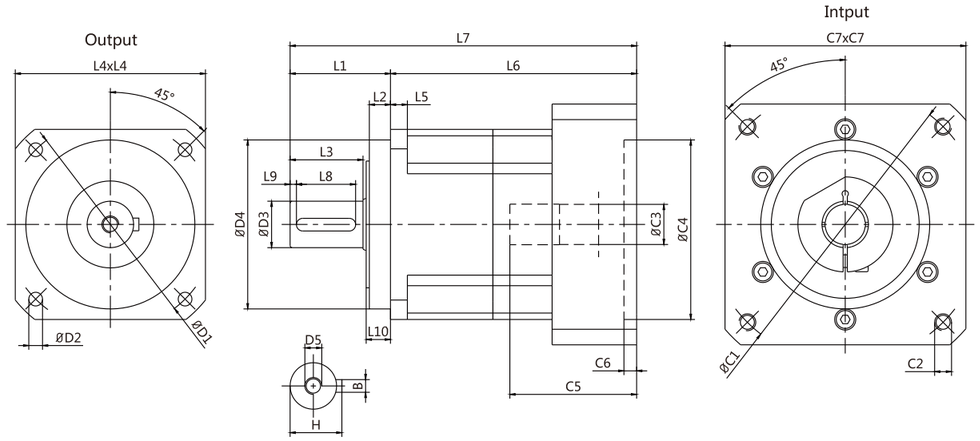
AB115-L2



AB115-L2																								
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
TypeⅠ	130	9	32	110	M12	67.5	8	58	115	13	172	239.5	50	/	8	145	M8	22	110	62.5	8	130	10	35
TypeⅡ	130	9	32	110	M12	67.5	8	58	115	13	172	239.5	50	/	8	145	M8	24	110	62.5	8	130	10	35
TypeⅢ	130	9	32	110	M12	67.5	8	58	115	13	161.5	229	50	/	8	90	M5	19	70	47.5	8	90	10	35

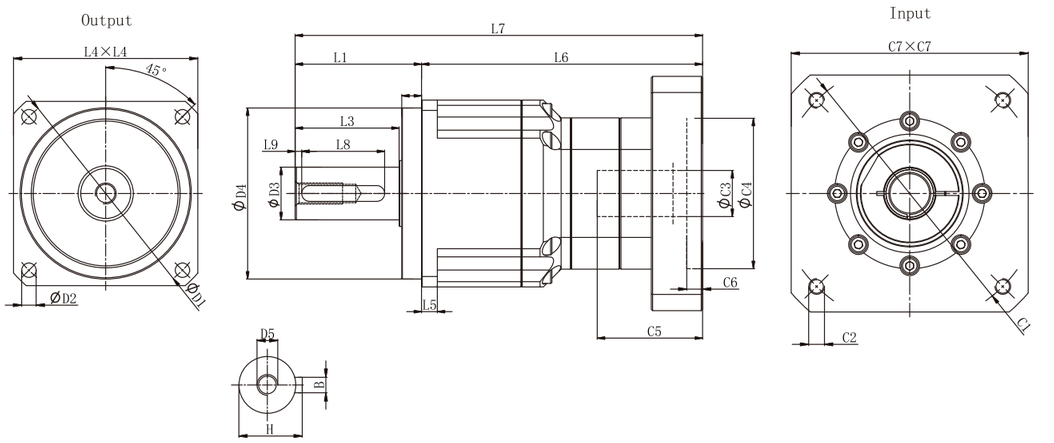
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

AB142-L1



AB142-L1																							
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	165	11	40	130	M16	97	15	79	142	12	159.5	256.5	63	/	15	200	M12	35	114.3	80	8	180	12	43

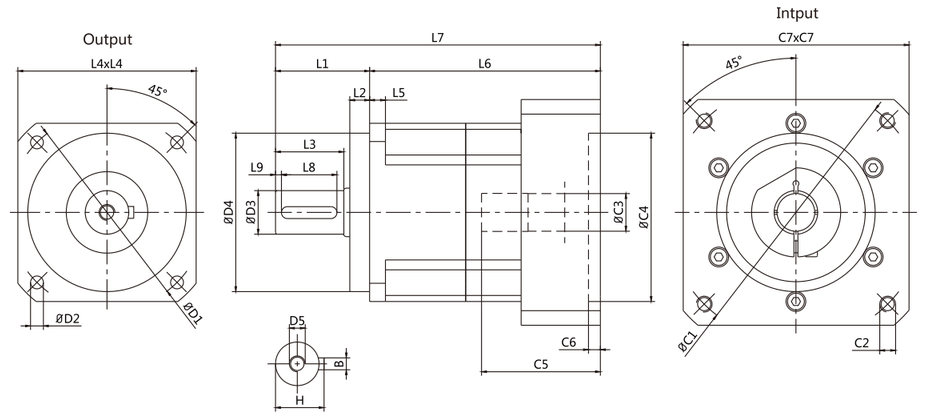
AB142-L2



AB142-L2																							
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	165	11	40	130	M16	97	15	79	142	12	212.5	309.5	63	/	15	200	M12	35	114.3	80	8	180	12	43
TypeⅡ	165	11	40	130	M16	97	15	79	142	12	189	286	63	/	15	145	M8	24	110	74	8	130	12	43
TypeⅢ	165	11	40	130	M16	97	15	79	142	12	189	286	63	/	15	145	M8	22	110	74	8	130	12	43

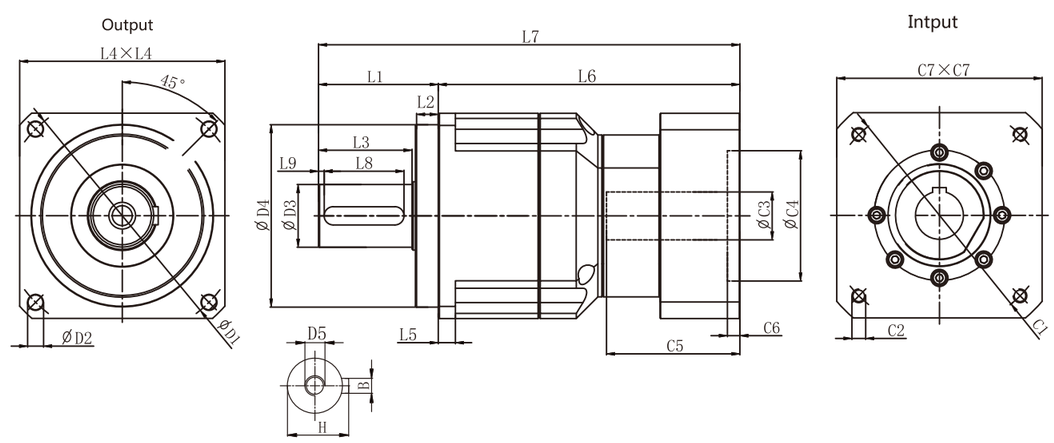
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

AB180-L1



AB180-L1																							
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	215	13.5	55	160	M20	105	20	82	180	15	212	317	70	6	200	M12	42	114.3	116	10	180	16	59

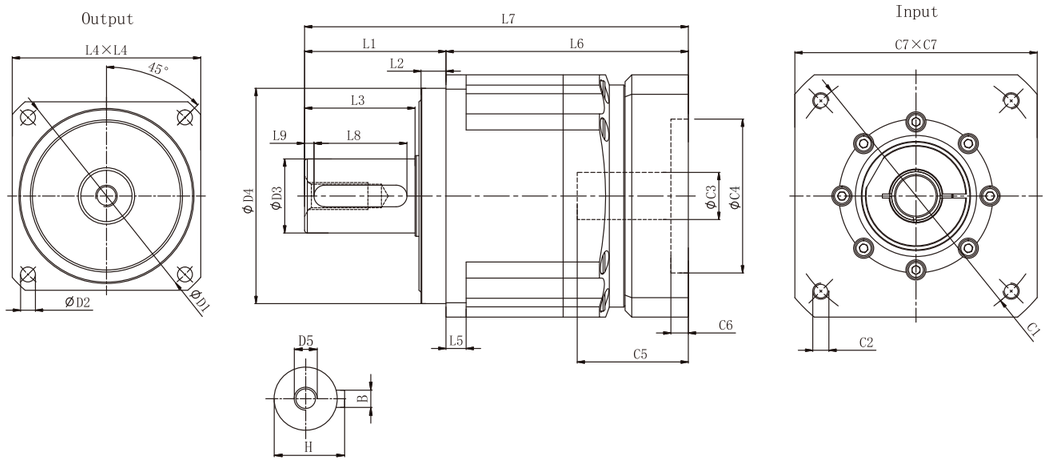
AB180-L2



AB180-L2																							
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	215	13.5	55	160	M20	105	20	82	180	15	264.5	369.5	70	6	200	M12	42	114.3	117	10	180	16	59
TypeⅡ	215	13.5	55	160	M20	105	20	82	180	15	232.5	337.5	70	6	200	M12	35	114.3	85	10	180	16	59

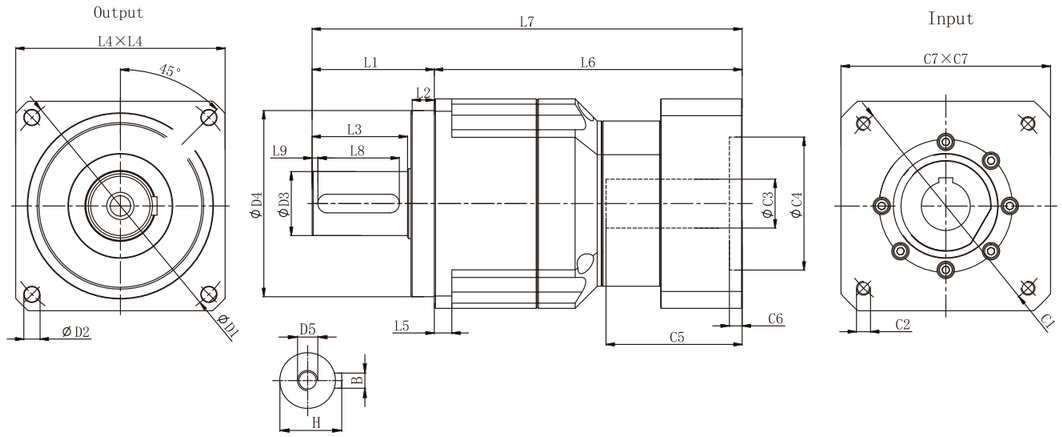
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

AB220-L1



AB220-L1																						
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	250	17	75	180	M20	138	30	105	220	20	227.5	365.5	90	7	200	M12	35	114.3	115	10	220	20	79.5

AB220-L2



AB220-L2																						
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	250	17	75	180	M20	138	30	105	220	20	271	409	90	7	200	M12	35	114.3	84	10	180	20	79.5

※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!

AB042															
速比	Ratio		3	4	5	7	10	15	20	25	30	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	19	16	16	15	14	20	19	22	20	19	17	22	19	14
急停扭矩 T_{2NOT}	Emergency Stop Torque T_{2NOT}	Nm	1.8倍额定输出扭矩 1.8times 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	3													
容许径向力 F_{2rB}	Max. Radial Load F_{2rB}	N	380													
容许轴向力 F_{2aB}	Max. Axial Load F_{2aB}	N	190													
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	℃	-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	$kg{\cdot}cm^2$	0.03	0.03	0.03	0.03	0.03	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥97%					≥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.

AB060															
速比	Ratio		3	4	5	7	10	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	50	40	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	℃	-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	$kg{\cdot}cm^2$	0.16	0.14	0.13	0.13	0.13	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

AB090

速比	Ratio		3	4	5	7	10	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	140	100	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	℃	-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	$kg{\cdot}cm^2$	0.61	0.48	0.47	0.45	0.44	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

AB115

速比	Ratio		3	4	5	7	10	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	300	230	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	℃	-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	$kg{\cdot}cm^2$	3.25	2.74	2.71	2.62	2.57	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

AB142

速比	Ratio		3	4	5	7	10	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	550	450	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	℃	-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	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

AB180

速比	Ratio		3	4	5	7	10	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	900	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	℃	-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	$kg{\cdot}cm^2$	29	23.7	23.3	22.5	22.5	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

AB220

速比	Ratio		3	4	5	7	10	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	1800	1220	2030	1804	2010	1911	1870	1824	2010	1870	1779
急停扭矩 T_{2NOT}	Emergency Stop Torque T_{2NOT}	Nm	1.8倍额定输出扭矩 1.8 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	3000													
扭转刚性	Torsional Rigidity	Nm/arcmin	240													
容许径向力 F_{2rB}	Max. Radial Load F_{2rB}	N	5100													
容许轴向力 F_{2aB}	Max. Axial Load F_{2aB}	N	25500													
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	℃	-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	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

Note:

TB Series

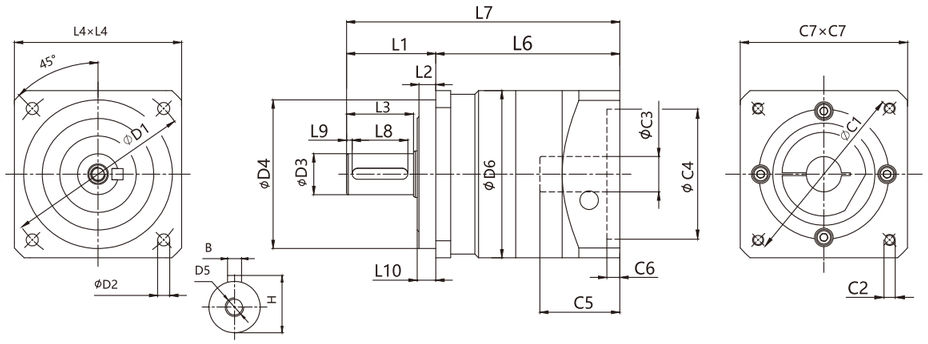
- **低噪音**：采用螺旋齿轮设计，实现了减速机的顺畅、安静运转。
- **高精度**：背隙可达3弧分以内，定位精确。
- **高刚性、高扭矩**：输出轴采用大尺寸、大跨距式双支撑轴承设计，大大提高了减速机刚性和扭矩。
- **高效率**：单段可达95%以上，双段可达92%以上。
- **免维护**：油脂磨耗低，可终身润滑。
- **密封效果好**：润滑油脂具有高粘度、不易分离的特性，并采用IP65防护等级，确保无润滑油脂泄漏。
- **自由安装**：可任意安装减速机。
- **适用性广**：适用于任意型式伺服电机。

- **Low Noise**: The use of helical gear design, to achieve a smooth, quiet operation of the reducer.
- **High Precision**: Backlash 3 arcmin or less, accurate positioning.
- **High Rigidity, High Torque**: The output shaft used large size, large span double support bearing design, which improves the rigidity and torque of the reducer.
- **High Efficiency**: 1-Stage up to 95% or more, 2-Stage up to 92% or more.
- **Maintenance-Free**: Low grease wear, can be lifetime lubrication.
- **Sealing Effect Is Good:** Lubricating grease with high viscosity, not easy to separate the characteristics, ip65 protection class to ensure that no grease leakage.
- **Installation Unrestrained**: Can be installed arbitrarily.
- **Wide Applicability**: Applicable to any type of servo motor.



TB040-L1

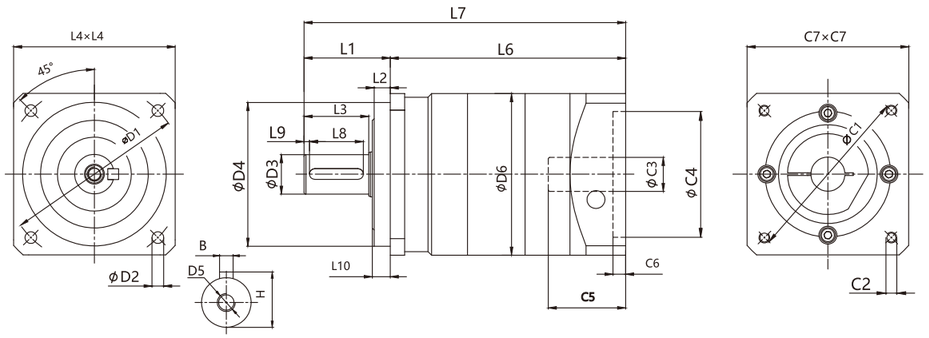
Output



GVB040-L1																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	50	3.5	13	35	M4	43	26	5	20	43	5	62.5	88.5	16	0	6	46	M4	8	30	28	5	40	5	15

TB040-L2

Output

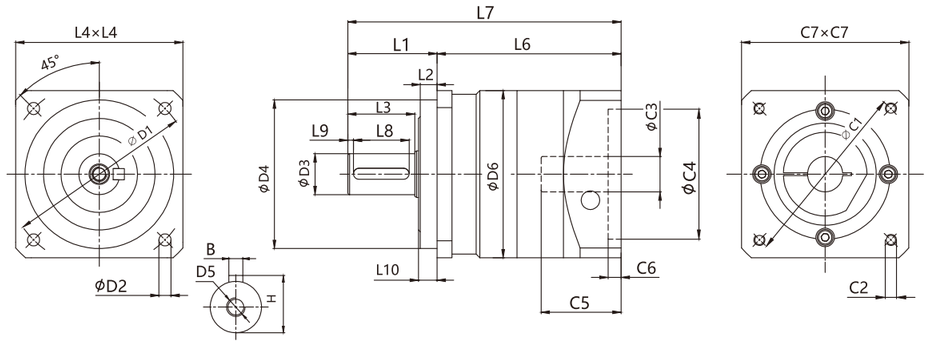


GVB040-L2																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	50	3.5	13	35	M4	43	26	5	20	43	5	82	108	16	0	7. 5	46	M4	30	30	28	5	40	5	15

※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!

TB060-L1

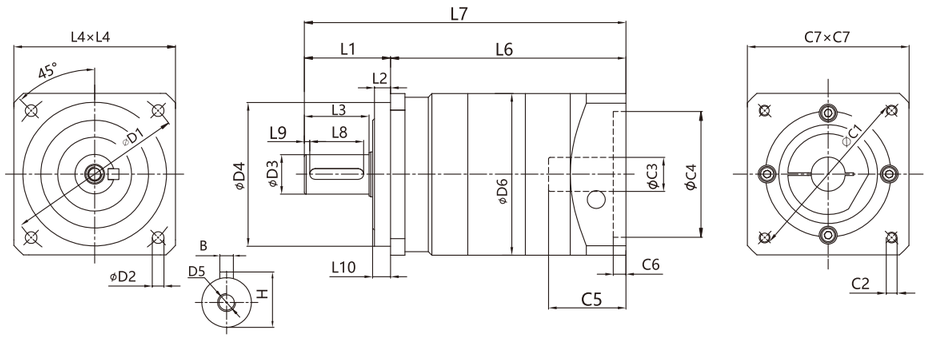
Output



GVB060-L1																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	70	5.5	16	50	M5	60	37	6	28	62	6	78	115	25	/	7.5	70	M4	14	50	32.5	6	65	5	18
TypeⅡ	70	5.5	16	50	M5	60	37	6	28	62	6	93	130	25	/	7.5	90	M5	19	70	50	12	80	5	18

TB060-L2

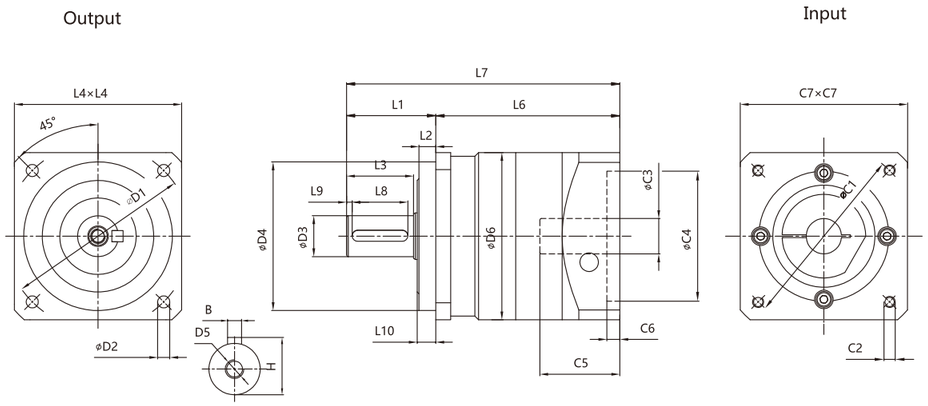
Output



GVB060-L2																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	70	5.5	16	50	M5	60	37	6	28	62	6	106	143	25	/	7.5	70	M4	14	50	32.5	6	65	5	18
TypeⅡ	70	5.5	16	50	M5	60	37	6	28	62	6	106	143	25	/	7.5	70	M4	11	50	32.5	6	65	5	18

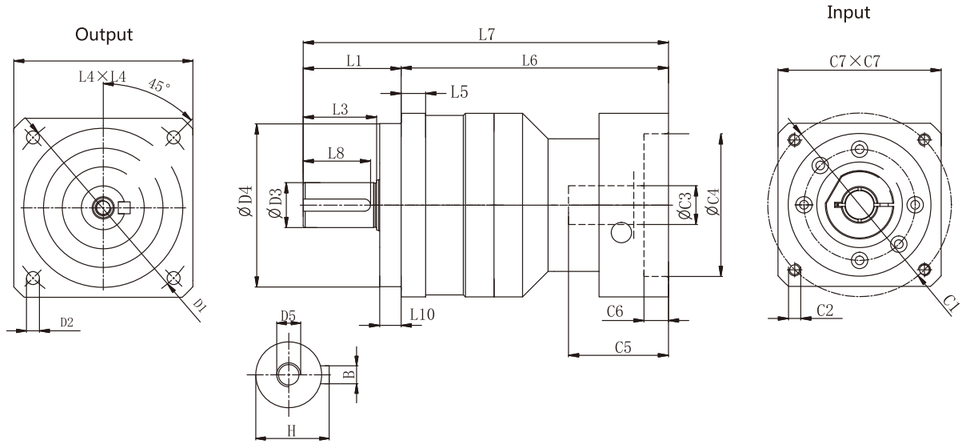
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TB090-L1



TB090-L1																									
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
TypeⅠ	100	6.5	22	80	M8	95	48	9	36	90	12	100	148	33	/	10.5	90	M5	19	70	47.5	6	90	6	24.5
TypeⅡ	100	6.5	22	80	M8	95	48	9	36	90	12	115.5	163.5	33	/	10.5	145	M8	19	110	65.5	14	130	6	24.5
TypeⅢ	100	6.5	22	80	M8	95	48	9	36	90	12	115.5	163.5	33	/	10.5	145	M8	22	110	65.5	14	130	6	24.5
TypeⅣ	100	6.5	22	80	M8	95	48	9	36	90	12	115.5	163.5	33	/	10.5	145	M8	24	110	65.5	14	130	6	24.5

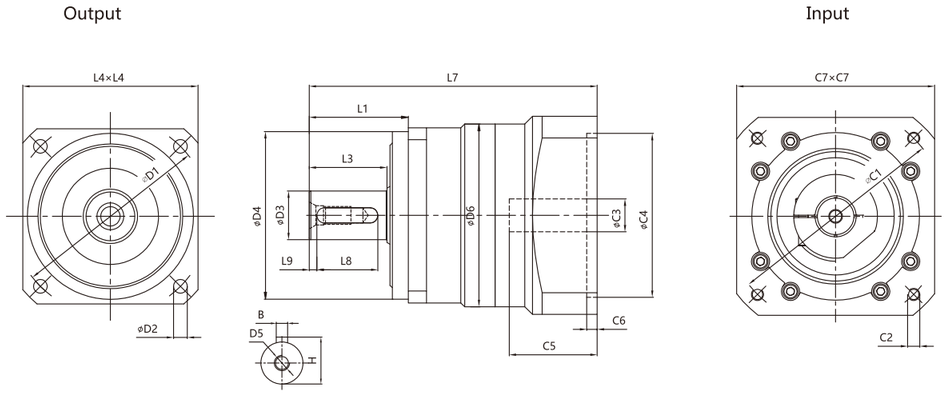
TB090-L2



TB090-L2																									
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
TypeⅠ	100	6.5	22	80	M8	95	48	9	36	90	12	131	179	33	/	10.5	90	M5	19	70	50	12	90	6	24.5
TypeⅡ	100	6.5	22	80	M8	95	48	9	36	90	12	116	164	33	/	10.5	70	M4	14	50	35	5	60	6	24.5

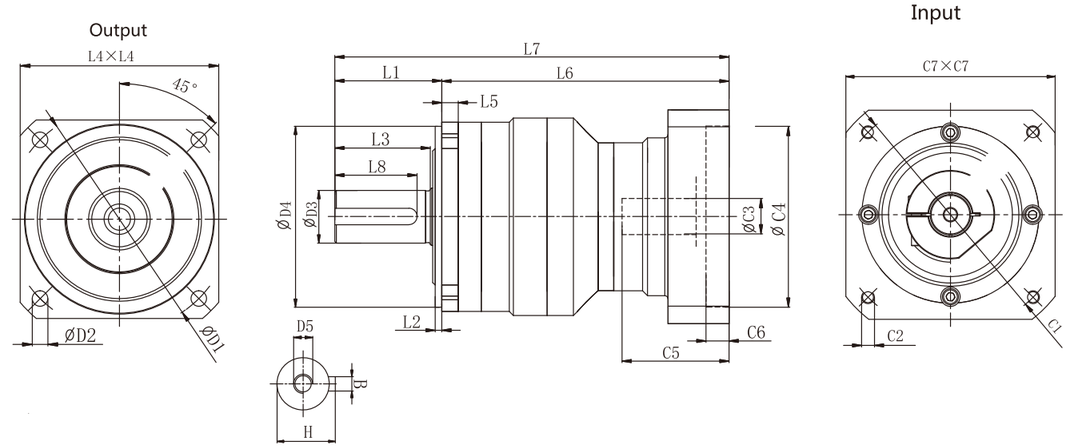
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TB120-L1



TB120-L1																									
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
TypeⅠ	130	9	32	110	M12	125	65	4	58	115	10	132	197	50	/	5.5	145	M8	22	110	65.5	8	130	10	35
TypeⅡ	130	9	32	110	M12	125	65	4	58	115	10	132	197	50	/	5.5	145	M8	24	110	65.5	8	130	10	35

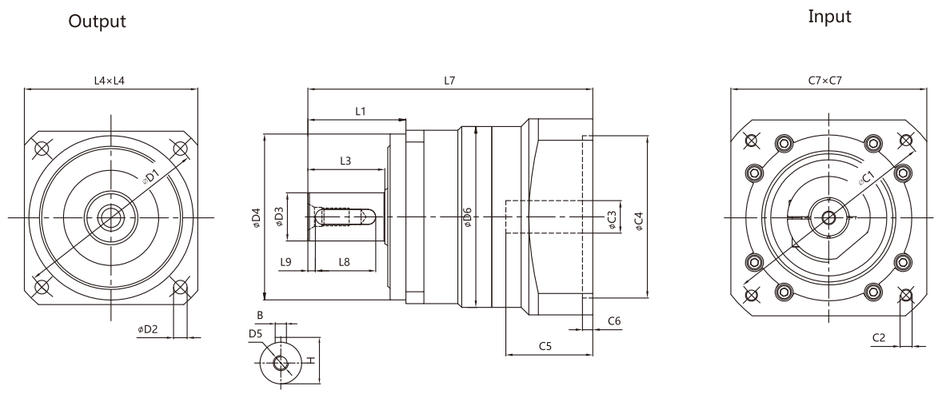
TB120-L2



TB120-L2																									
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
TypeⅠ	130	9	32	110	M12	125	65	4	58	115	10	174.5	239.5	50	/	5.5	145	M8	22	110	65.5	14	130	10	35
TypeⅡ	130	9	32	110	M12	125	65	4	58	115	10	174.5	239.5	50	/	5.5	145	M8	24	110	65.5	14	130	10	35
TypeⅢ	130	9	32	110	M12	125	65	4	58	115	12	159	224	50	/	5.5	90	M5	19	70	50	6	90	10	35

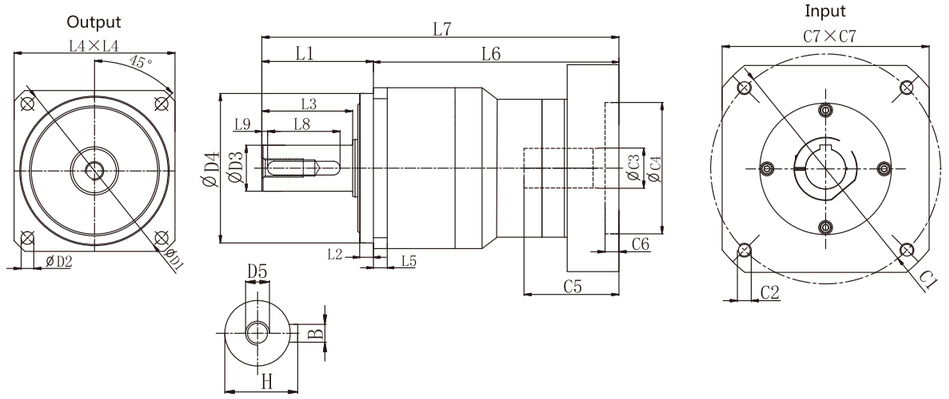
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TB140-L1



TB140-L1																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	165	11	40	130	M16	150	97	12	79	142	12	174.5	271.5	63	/	13.5	200	M12	35	114.3	92	8	180	12	43

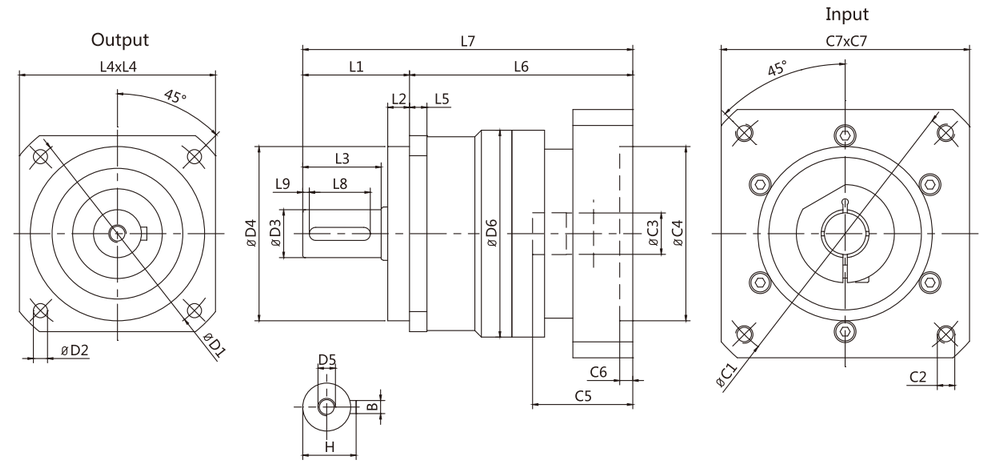
TB140-L2



TB140-L2																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	165	11	40	130	M16	150	97	12	79	142	12	213.5	310.5	63	/	5.5	200	M12	35	114.3	74	12	180	12	43
TypeⅡ	165	11	40	130	M16	150	97	12	79	142	12	195	292	63	/	5.5	145	M8	24	110	65.5	8	130	12	43
TypeⅢ	165	11	40	130	M16	150	97	12	79	142	12	195	292	63	/	5.5	145	M8	22	110	65.5	8	130	12	43

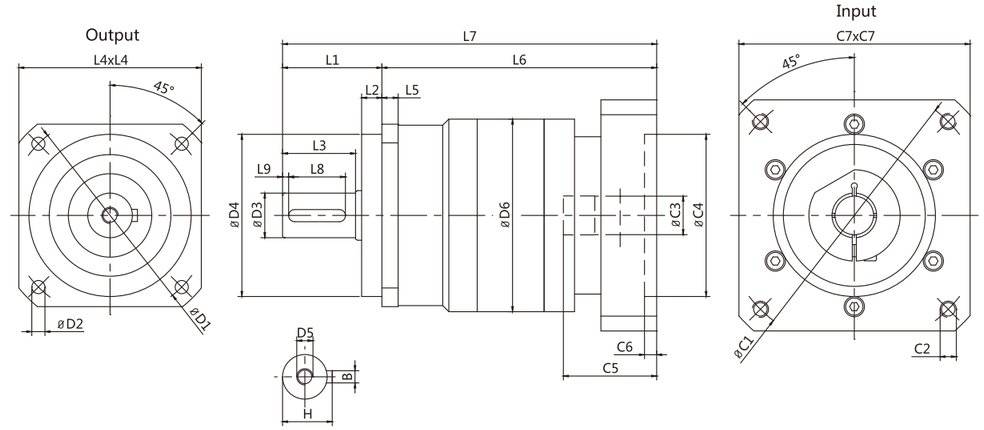
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TB180-L1



TB180-L1																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	215	13.5	55	160	M20	200	105	20	82	180	15	176.5	281.5	70	6	200	M12	42	114.3	82.5	10	180	16	59

TB180-L2



TB180-L2																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	215	13.5	55	160	M20	200	105	20	82	180	15	228.5	333.5	70	6	200	M12	42	114.3	82.5	10	180	16	59
TypeⅡ	215	13.5	55	160	M20	200	105	20	82	180	15	228.5	333.5	70	6	200	M12	35	114.3	82.5	10	180	16	59

※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!

TB040

速比	Ratio		3	4	5	7	10	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	20	20	20	14	14	20	20	20	20	20	20	14
急停扭矩 T_{2NOT}	Emergency Stop Torque T_{2NOT}	Nm	2倍额定输出扭矩 2 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	8500													
扭转刚性	Torsional Rigidity	Nm/arcmin	3													
容许径向力 F_{2rB}	Max. Radial Load F_{2rB}	N	380													
容许轴向力 F_{2aB}	Max. Axial Load F_{2aB}	N	190													
使用寿命	Service Life	hr	20000（连续运转寿命减半①）													
噪音值	Noise	dB	≤63（输入转速=3000rpm、空载、距离1M②）													
使用温度	Operating Temp	℃	-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	$kg{\cdot}cm^2$	0.03	0.03	0.03	0.03	0.03	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

TB060

速比	Ratio		3	4	5	7	10	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	50	40	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	℃	-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	$kg{\cdot}cm^2$	0.16	0.14	0.13	0.13	0.13	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

TB090

速比	Ratio		3	4	5	7	10	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	140	100	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	℃	-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	$kg{\cdot}cm^2$	0.61	0.48	0.47	0.45	0.44	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

TB120

速比	Ratio		3	4	5	7	10	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	300	230	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	℃	-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	$kg{\cdot}cm^2$	3.25	2.74	2.71	2.62	2.57	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

TB140

速比	Ratio		3	4	5	7	10	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	550	450	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	℃	-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	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

TB180

速比	Ratio		3	4	5	7	10	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	900	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	℃	-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	$kg{\cdot}cm^2$	29	23.7	23.3	22.5	22.5	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

Note:

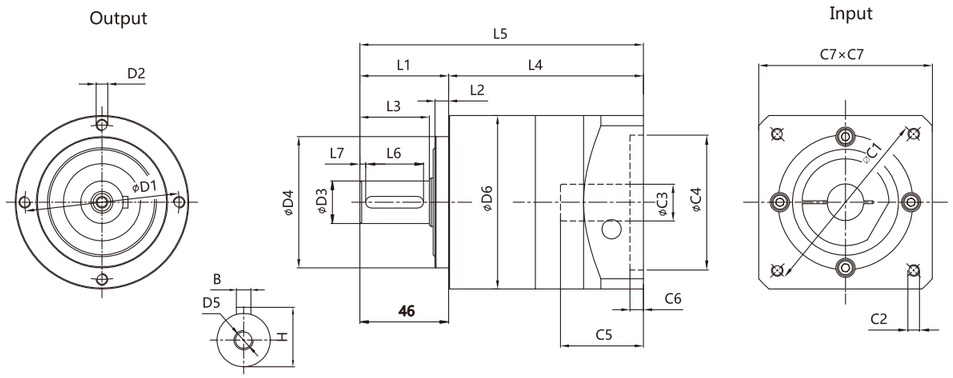
TL Series

- **低噪音**：采用螺旋齿轮设计，实现了减速机的顺畅、安静运转。
- **高精度**：背隙可达3弧分以内，定位精确。
- **高刚性、高扭矩**：输出轴采用大尺寸、大跨距式双支撑轴承设计，大大提高了减速机刚性和扭矩。
- **高效率**：单段可达95%以上，双段可达92%以上。
- **免维护**：油脂磨耗低，可终身润滑。
- **密封效果好**：润滑油脂具有高粘度、不易分离的特性，并采用IP65防护等级，确保无润滑油脂泄漏。
- **自由安装**：可任意安装减速机。
- **适用性广**：适用于任意型式伺服电机。

- **Low Noise**: The use of helical gear design, to achieve a smooth, quiet operation of the reducer.
- **High Precision**: Backlash 3 arcmin or less, accurate positioning.
- **High Rigidity, High Torque**: The output shaft used large size, large span double support bearing design, which improves the rigidity and torque of the reducer.
- **High Efficiency**: 1-Stage up to 95% or more, 2-Stage up to 92% or more.
- **Maintenance-Free**: Low grease wear, can be lifetime lubrication.
- **Sealing Effect Is Good:** Lubricating grease with high viscosity, not easy to separate the characteristics, ip65 protection class to ensure that no grease leakage.
- **Installation Unrestrained**: Can be installed arbitrarily.
- **Wide Applicability**: Applicable to any type of servo motor.

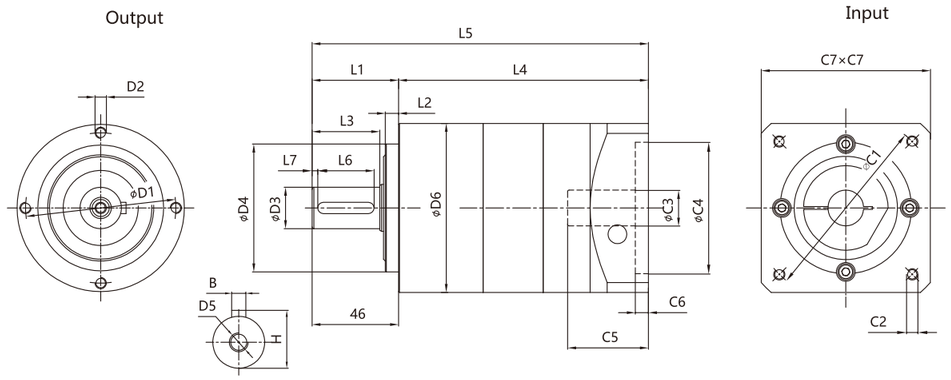


TL060-L1



TL060-L1																						
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	62	M5	16	52	M5	65	36	6	28	79	115	25	/	70	M5	14	50	35	5	65	5	18

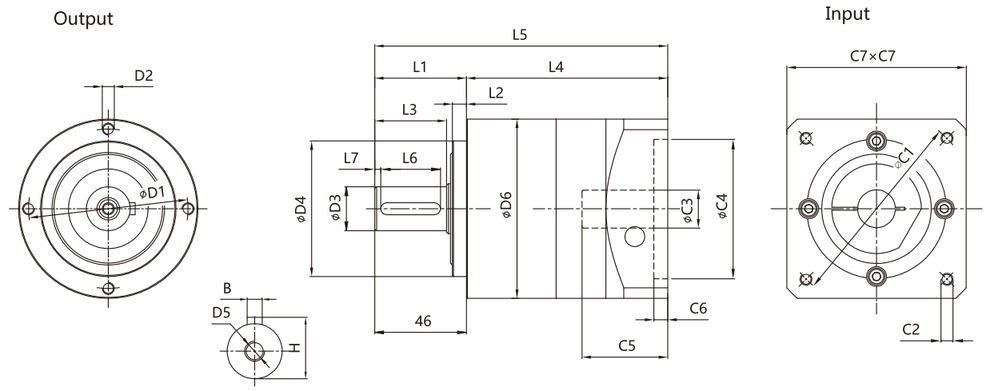
TL060-L2



TL060-L2																						
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	62	M5	16	52	M5	65	36	6	28	107	143	25	/	70	M4	14	50	35	5	65	5	18

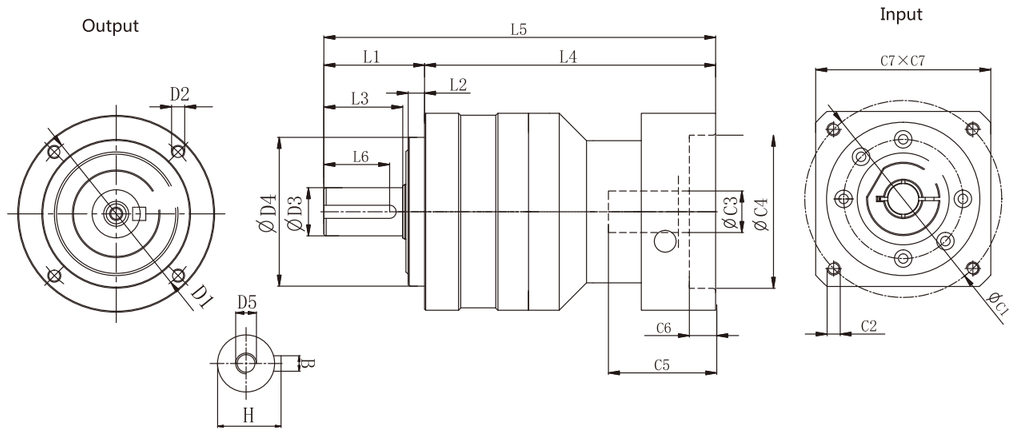
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TL090-L1



TL090-L1																						
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	80	M6	22	68	M8	89.2	46	7	36	102	143	33	/	90	M5	19	70	50	6	90	6	24.5
TypeⅡ	80	M6	22	68	M8	89.2	46	7	36.5	117.5	163.5	33	/	145	M8	19	110	65.5	14	130	6	24.5
TypeⅢ	80	M6	22	68	M8	89.2	46	7	36.5	117.5	163.5	33	/	145	M8	22	110	65.5	14	130	6	24.5
TypeⅣ	80	M6	22	68	M8	89.2	46	7	36	117.5	163.5	33	/	145	M8	24	110	65.5	14	130	6	24.5

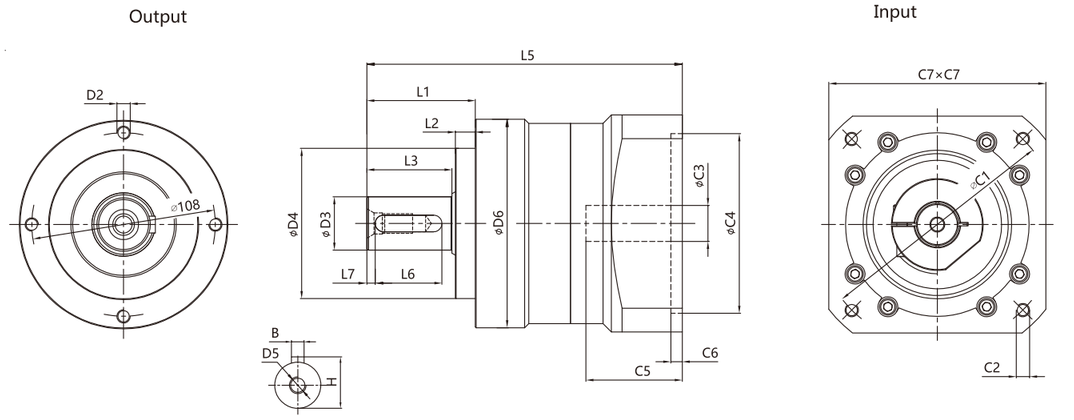
TL090-L2



TL090-L2																						
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	70	M6	22	60	M8	89.2	46	3	36.5	133	179	33	/	90	M5	19	70	49	12	80	6	24.5
TypeⅡ	70	M6	22	60	M8	90	46	7	36.5	118	164	33	/	70	M4	14	50	32.5	5	60	6	24.5

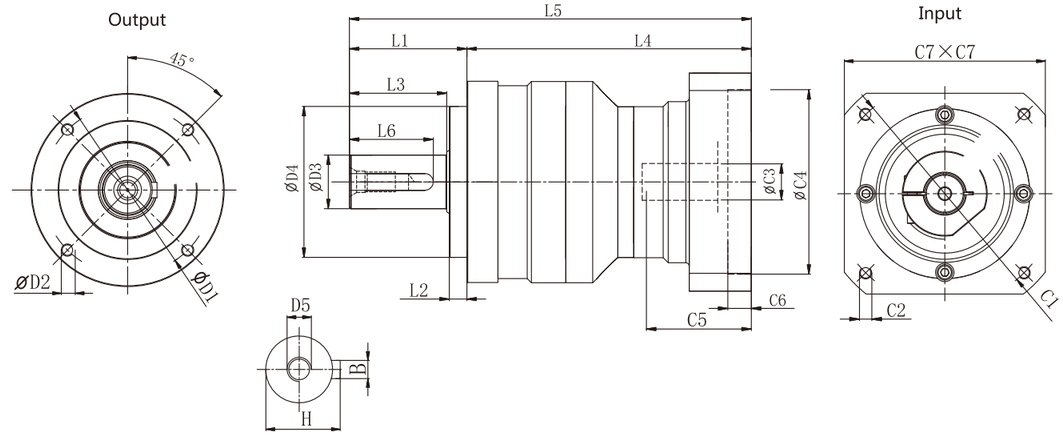
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TL120-L1



TL120-L1																						
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	110	M8	32	90	M12	125	70	9	58	127	197	50	/	145	M8	22	110	65.5	8	130	10	35
TypeⅡ	110	M8	32	90	M12	125	70	9	58	127	197	50	/	145	M8	24	110	65.5	8	130	10	35

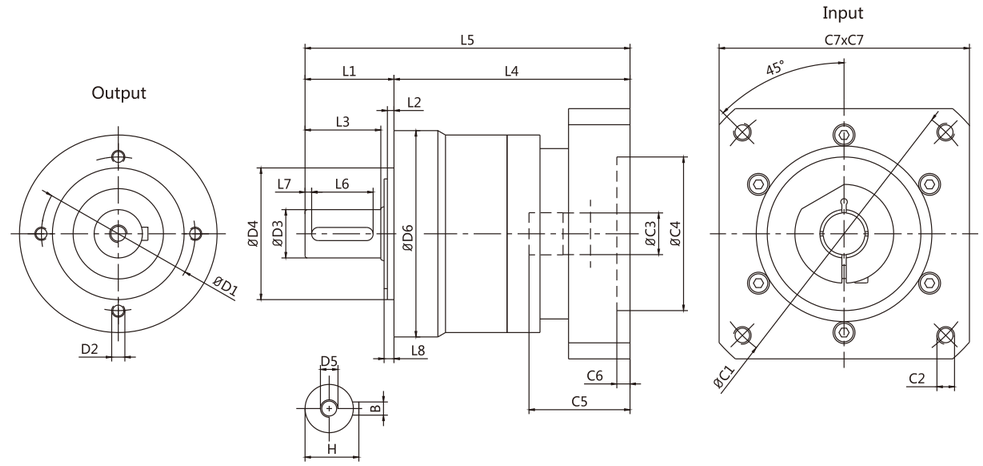
TL120-L2



TL120-L2																						
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	110	M8	32	90	M12	125	70	9	58	169.5	239.5	50	/	145	M8	22	110	65	14	130	8	28
TypeⅡ	110	M8	32	90	M12	125	70	9	58	169.5	239.5	50	/	145	M8	24	110	65	14	130	8	28
TypeⅢ	110	M8	32	90	M12	125	70	9	58	154	224	50	/	90	M5	19	70	50	6	90	8	28

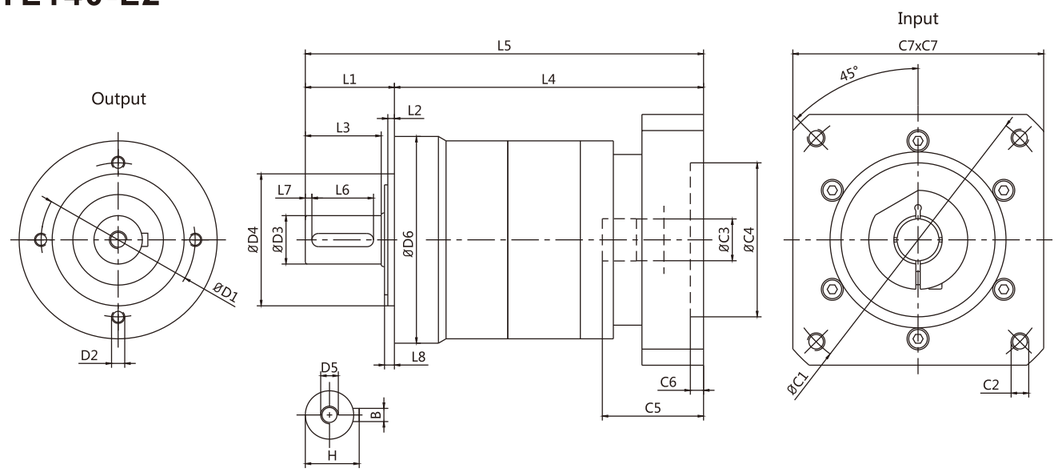
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TL140-L1



TL140-L1																						
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	120	M10	40	120	M16	155	97	12	82	160	257	65	5	13.5	200	M12	35	114.3	81.5	8	180	12	43

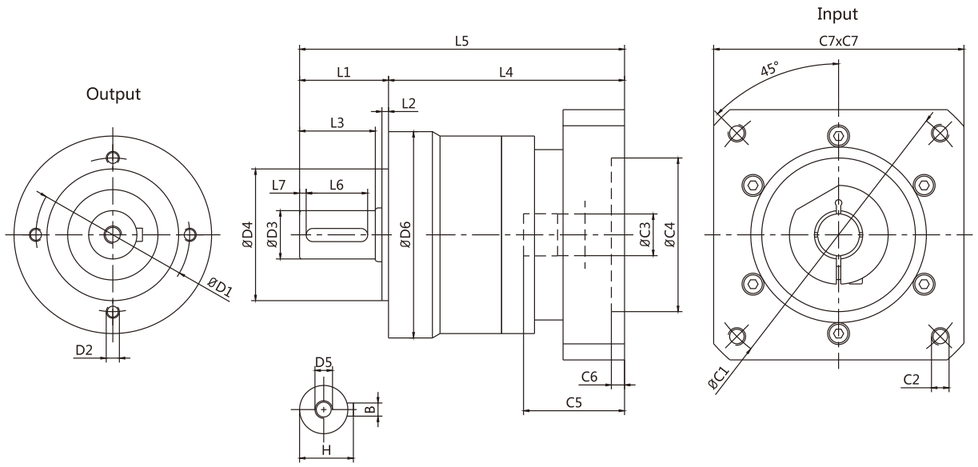
TL140-L2



TL140-L2																						
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	120	M10	40	120	M16	155	97	12	82	204	301	65	5	13.5	200	M12	35	114.3	81.5	8	180	12	43

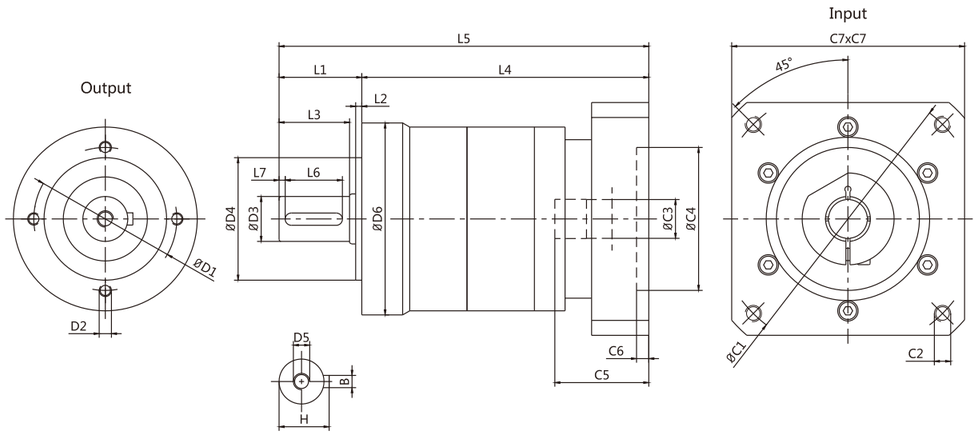
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TL180-L1



TL180-L1																						
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	184	M12	55	160	M20	205	100	15	82	181.5	281.5	70	6	200	M12	42	114.3	82.5	10	180	16	59

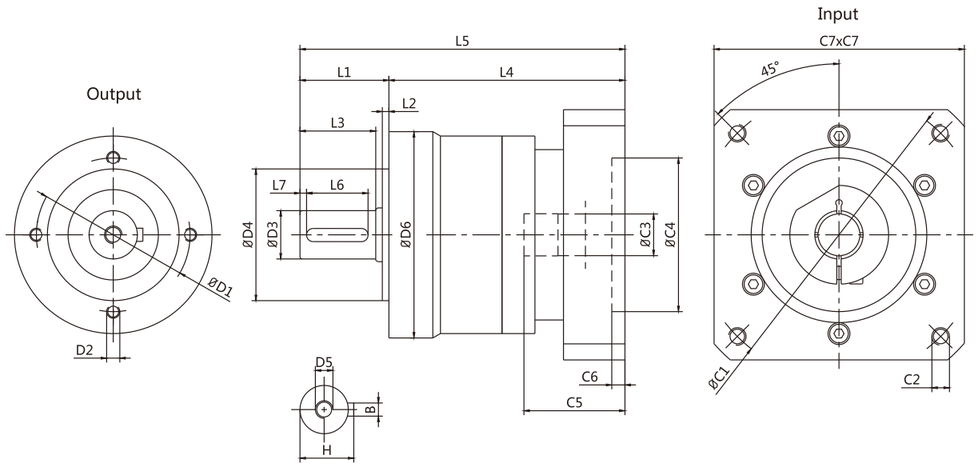
TL180-L2



TL180-L2																						
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	184	M12	55	160	M20	205	100	15	82	233.5	333.5	70	6	200	M12	42	114.3	82.5	10	180	16	59
TypeⅡ	184	M12	55	160	M20	205	100	15	82	233.5	333.5	70	6	200	M12	35	114.3	82.5	10	180	16	59

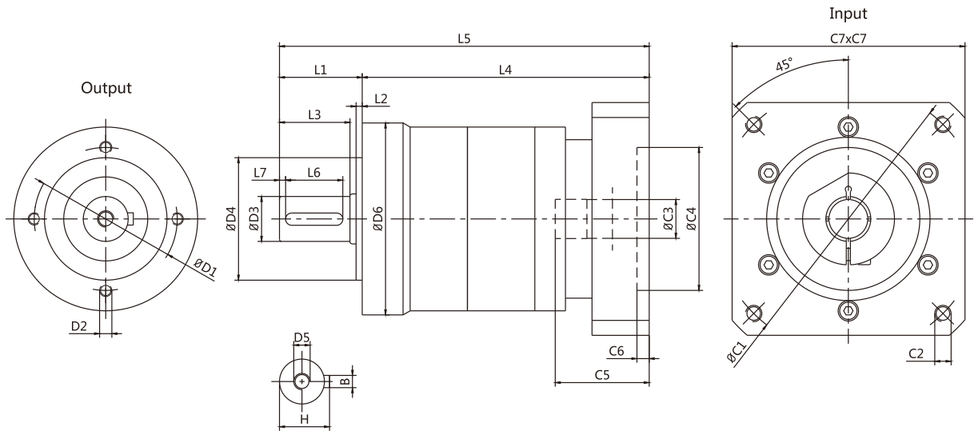
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TL220-L1



TLE220-L1																						
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	210	M16	75	180	M20	235	126	18	105	224	350	90	7	235	M12	55	200	117.5	10	225	20	79.5

TL220-L2



TL220-L2																						
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	210	M16	75	180	M20	235	126	18	105	288	414	90	7	235	M12	55	200	117.5	10	225	20	79.5
TypeⅡ	210	M16	75	180	M20	235	126	18	105	252	378	90	7	200	M12	42	114.3	82.5	10	180	20	79.5
TypeⅢ	210	M16	75	180	M20	235	126	18	105	252	378	90	7	200	M12	35	114.3	82.5	10	180	20	79.5

※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!

TL060

速比	Ratio		3	4	5	7	10	15	20	25	30	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	35	40	45	40	30	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	≤60（输入转速=3000rpm、空载、距离1M②）													
使用温度	Operating Temp	℃	-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	$kg{\cdot}cm^2$	0.16	0.14	0.13	0.13	0.13	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤5								
效率 η	Efficiency η	%	≥95%					≥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.

TL090

速比	Ratio		3	4	5	7	10	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	80	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	℃	-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	$kg{\cdot}cm^2$	0.61	0.48	0.47	0.45	0.44	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

TL120

速比	Ratio		3	4	5	7	10	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	200	180	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	≤65（输入转速=3000rpm、空载、距离1M②）													
使用温度	Operating Temp	℃	-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	$kg{\cdot}cm^2$	3.25	2.74	2.71	2.62	2.57	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

TL140

速比	Ratio		3	4	5	7	10	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	550	450	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	℃	-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	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

TL180

速比	Ratio		3	4	5	7	10	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	900	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	℃	-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	$kg{\cdot}cm^2$	29	23.7	23.3	22.5	22.5	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

TL220

速比	Ratio		3	4	5	7	10	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	1800	1500	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	℃	-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	$kg{\cdot}cm^2$	69.6	54.4	53.3	51	50.6	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

Note:

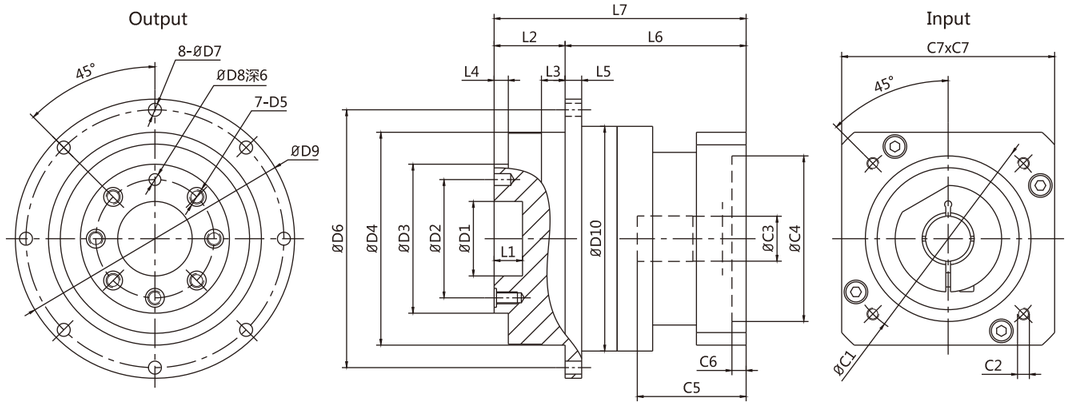
TD Series

- **低噪音**：采用螺旋齿轮设计，实现了减速机的顺畅、安静运转。
- **高精度**：背隙可达3弧分以内，定位精确。
- **高刚性、高负载**：法兰盘式输出，并采用跨距式双支撑角接触球轴承设计，大大提高了减速机刚性和负载能力。
- **高效率**：单段可达95%以上，双段可达92%以上。
- **免维护**：油脂磨耗低，可终身润滑。
- **密封效果好**：润滑油脂具有高粘度、不易分离的特性，并采用IP65防护等级，确保无润滑油脂泄漏。
- **自由安装**：可任意安装减速机。
- **适用性广**：适用于任意型式伺服电机。

- **Low Noise**: The use of helical gear design, to achieve a smooth, quiet operation of the reducer.
- High Precision:Backlash 3 arcmin or less, accurate positioning.
- **High Rigidity, High Load**: Flange-type output, and the use of large span double support angular contact ball bearings design, which improves the rigidity and load capacity of the reducer.
- **High Efficiency**: 1-Stage up to 95% or more, 2-Stage up to 92% or more.
- **Maintenance-Free**: Low grease wear, can be lifetime lubrication.
- **Sealing Effect Is Good**: Lubricating grease with high viscosity, not easy to separate the characteristics, ip65 protection class to ensure that no grease leakage.
- **Installation Unrestrained**: Can be installed arbitrarily.
- **Wide Applicability**: Applicable to any type of servo motor.

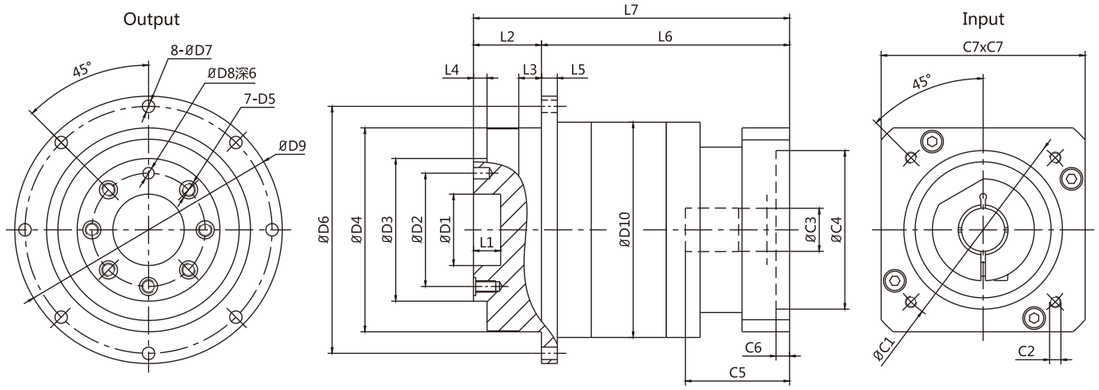


TD064-L1



TD064-L1																							
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7
TypeⅠ	20	31.5	40	64	M5	79	4.5	5	86	70	8	19.5	8	3	4	64.5	84	70	M4	14	50	34	5	65
TypeⅡ	20	31.5	40	64	M5	79	4.5	5	86	70	8	19.5	8	3	4	81	100.5	90	M5	19	70	43	6	80

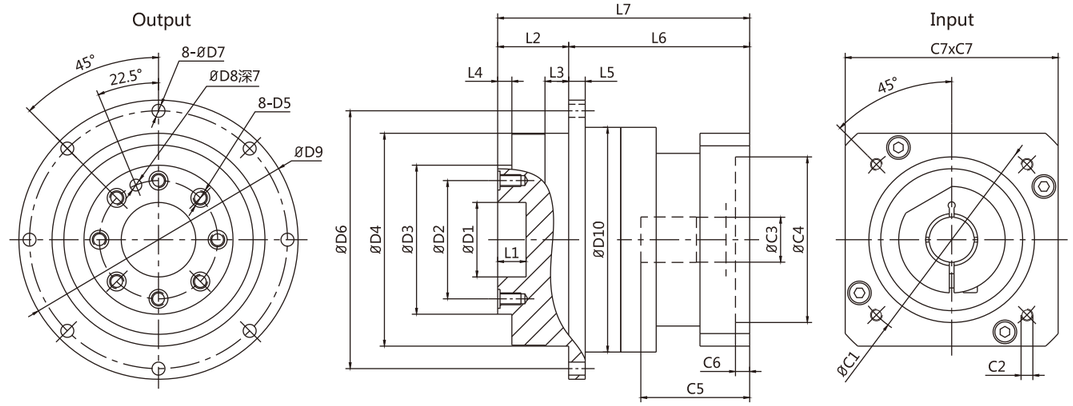
TD064-L2



TD064-L2																							
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7
TypeⅠ	20	31.5	40	64	M5	79	4.5	5	86	70	8	19.5	8	3	4	84.5	104	70	M4	14	50	34	5	65
TypeⅡ	20	31.5	40	64	M5	79	4.5	5	86	70	8	19.5	8	3	4	84.5	104	70	M4	11	50	34	5	65

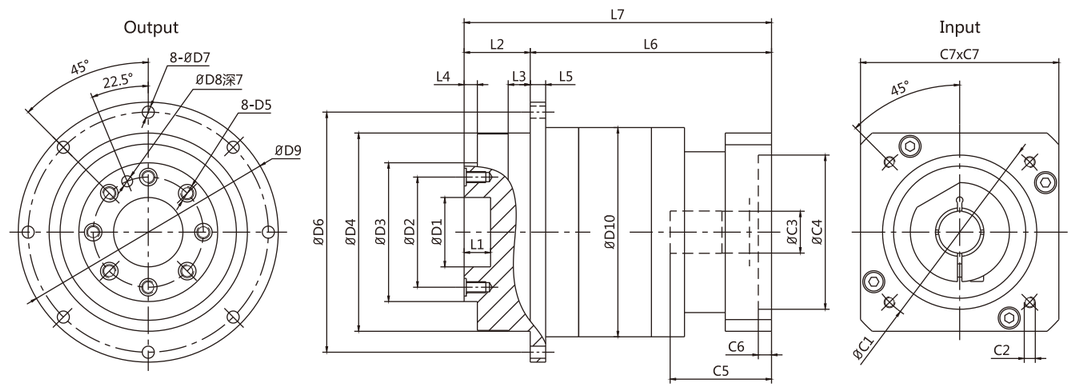
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TD090-L1



TD090-L1																							
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7
TypeⅠ	31.5	50	63	90	M6	109	5.5	6	118	95	12	30	10	6	7	76.5	106.5	90	M5	19	70	45.5	6	90
TypeⅡ	31.5	50	63	90	M6	109	5.5	6	118	95	12	30	10	6	7	92.5	122.5	145	M8	19	110	61.5	10	130
TypeⅢ	31.5	50	63	90	M6	109	5.5	6	118	95	12	30	10	6	7	92.5	122.5	145	M8	22	110	61.5	10	130
TypeⅣ	31.5	50	63	90	M6	109	5.5	6	118	95	12	30	10	6	7	92.5	122.5	145	M8	24	110	61.5	10	130

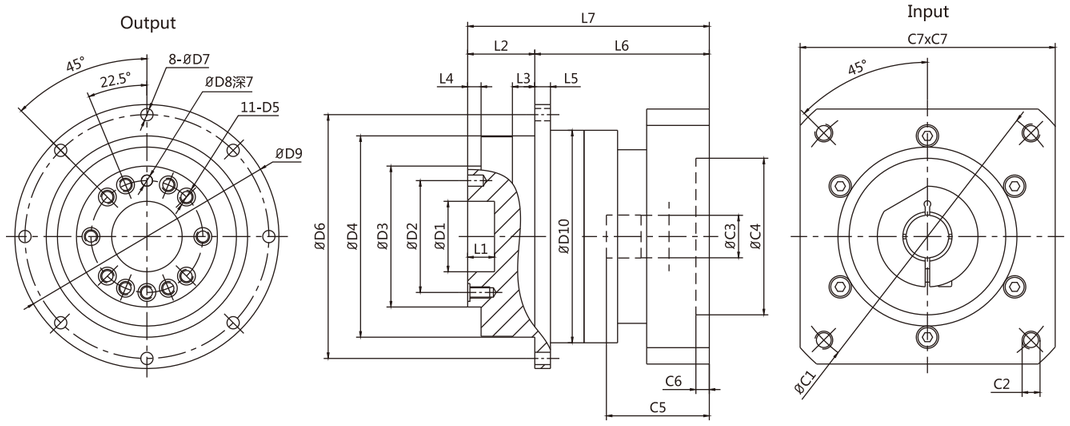
TD090-L2



TD090-L2																							
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7
TypeⅠ	31.5	50	63	90	M6	109	5.5	6	118	95	12	30	10	6	7	104.5	134.5	90	M5	19	70	45.5	6	90
TypeⅡ	31.5	50	63	90	M6	109	5.5	6	118	95	12	30	10	6	7	92	122	70	M4	14	50	32.5	5.5	60

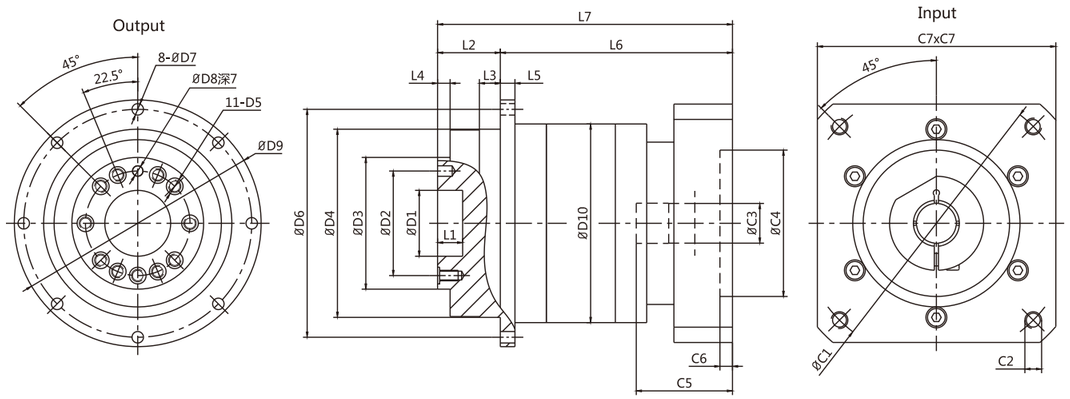
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TD110-L1



TD110-L1																							
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7
TypeⅠ	40	63	80	110	M6	135	5.5	6	145	115	13	29	8	7	8	117	146	145	M8	22	110	67	8	130
TypeⅡ	40	63	80	110	M6	135	5.5	6	145	115	13	29	8	7	8	117	146	145	M8	24	110	67	8	130

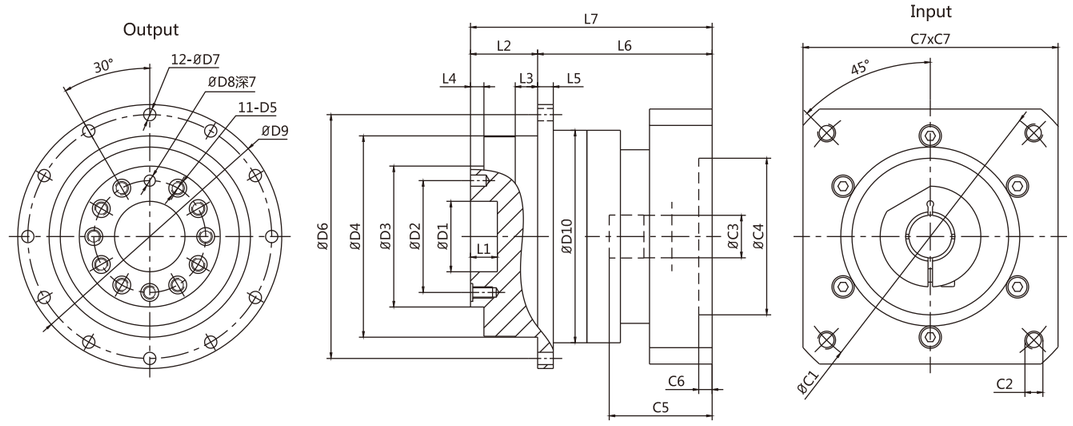
TD110-L2



TD110-L2																							
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7
TypeⅠ	40	63	80	110	M6	135	5.5	6	145	115	13	29	8	7	8	148	177	145	M8	22	110	67	8	130
TypeⅡ	40	63	80	110	M6	135	5.5	6	145	115	13	29	8	7	8	148	177	145	M8	24	110	67	8	130
TypeⅢ	40	63	80	110	M6	135	5.5	6	145	115	13	29	8	7	8	125	154	90	M5	19	70	45.5	6	90

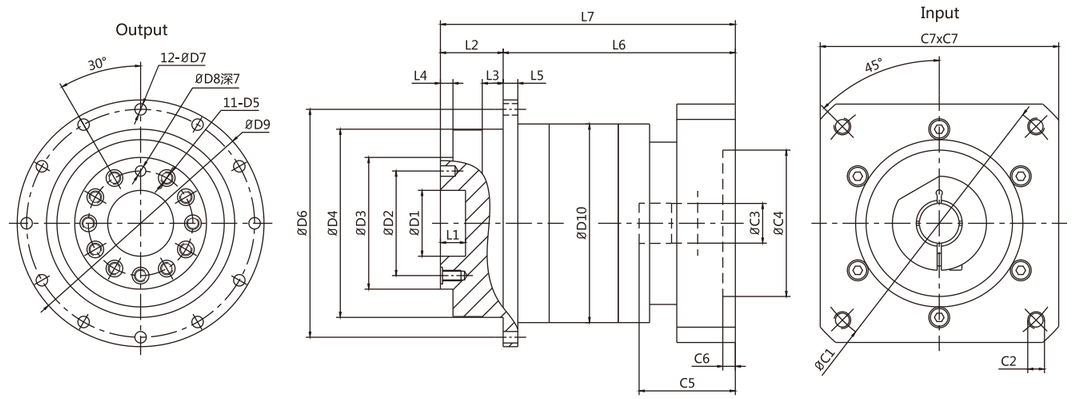
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带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TD140-L1



TD140-L1																							
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7
TypeⅠ	50	80	100	140	M8	168	6.5	8	179	152.5	12	38	14.5	7.5	10	138	176	200	M12	35	114.3	83	10	180

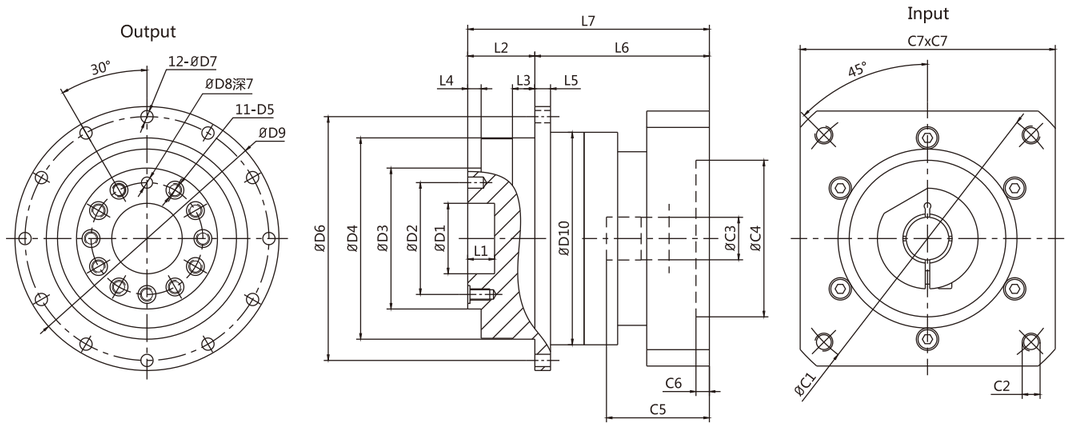
TD140-L2



TD140-L2																							
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7
TypeⅠ	50	80	100	140	M8	168	6.5	8	179	152.5	12	38	14.5	7.5	10	175.5	213.5	200	M12	35	114.3	83	10	180
TypeⅡ	50	80	100	140	M8	168	6.5	8	179	152.5	12	38	14.5	7.5	10	171.5	209.5	145	M8	22	110	79	8	130
TypeⅢ	50	80	100	140	M8	168	6.5	8	179	152.5	12	38	14.5	7.5	10	171.5	209.5	145	M8	24	110	79	8	130

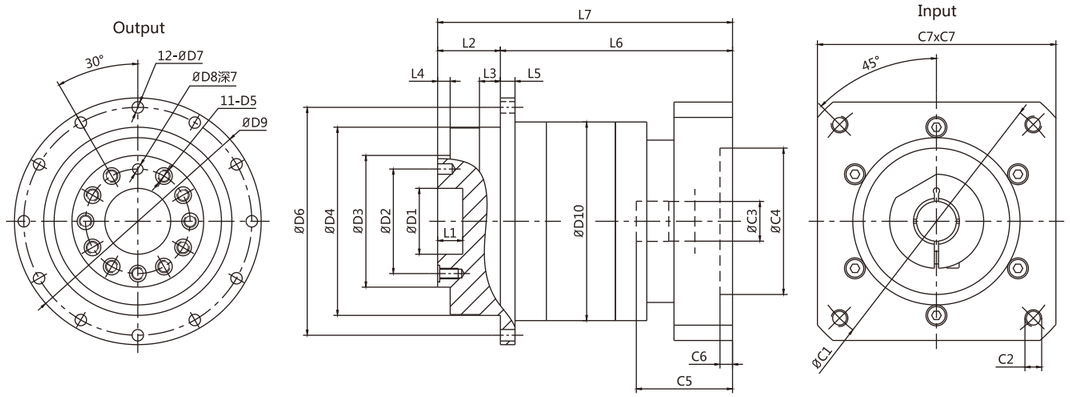
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TD200-L1



TD200-L1																							
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7
Type Ⅰ	80	125	160	200	M10	233	9	10	247	212	16	50	15	8	12	200.5	250.5	200	M12	42	114.3	82	10	180

TD200-L2



TD200-L2																							
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7
Type Ⅰ	80	125	160	200	M10	233	9	10	247	212	16	50	15	8	12	252.5	302.5	200	M12	42	114.3	82	10	180
TypeⅡ	80	125	160	200	M10	233	9	10	247	212	16	50	15	8	12	252.5	302.5	200	M12	35	114.3	82	10	180

※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!

TD064													
速比	Ratio		4	5	7	10	20	25	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	48	60	50	40	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	℃	-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	$kg{\cdot}cm^2$	0.14	0.13	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	≤3				≤5						
标准背隙 P2	Standard Backlash P2	arcmin	≤5				≤8						
效率 η	Efficiency η	%	≥95%				≥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.

TD090													
速比	Ratio		4	5	7	10	20	25	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	130	160	140	100	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	℃	-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	$kg{\cdot}cm^2$	0.48	0.47	0.45	0.44	0.47	0.47	0.47	0.44	0.44	0.13	0.13
精密背隙 P1	Precision Backlash P1	arcmin	≤3				≤5						
标准背隙 P2	Standard Backlash P2	arcmin	≤5				≤8						
效率 η	Efficiency η	%	≥95%				≥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.

TD110

速比	Ratio		4	5	7	10	20	25	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	270	330	300	230	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	≤65（输入转速=3000rpm、空载、距离1M②）										
使用温度	Operating Temp	℃	-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	$kg{\cdot}cm^2$	2.74	2.71	2.62	2.57	2.71	2.71	2.62	2.57	2.57	0.44	0.44
精密背隙 P1	Precision Backlash P1	arcmin	≤3				≤5						
标准背隙 P2	Standard Backlash P2	arcmin	≤5				≤8						
效率 η	Efficiency η	%	≥95%				≥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.

TD140

速比	Ratio		4	5	7	10	20	25	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	560	650	550	450	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	℃	-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	$kg{\cdot}cm^2$	7.54	7.42	7.14	7.03	7.42	7.42	7.14	7.03	7.03	2.57	2.57
精密背隙 P1	Precision Backlash P1	arcmin	≤3				≤5						
标准背隙 P2	Standard Backlash P2	arcmin	≤5				≤8						
效率 η	Efficiency η	%	≥95%				≥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.

TD200

速比	Ratio		4	5	7	10	20	25	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	1100	1200	1100	900	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	℃	-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	$kg{\cdot}cm^2$	23.67	23.29	22.48	22.51	23.29	23.29	22.48	22.51	22.51	7.03	7.03
精密背隙 P1	Precision Backlash P1	arcmin	≤3				≤5						
标准背隙 P2	Standard Backlash P2	arcmin	≤5				≤8						
效率 η	Efficiency η	%	≥95%				≥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.

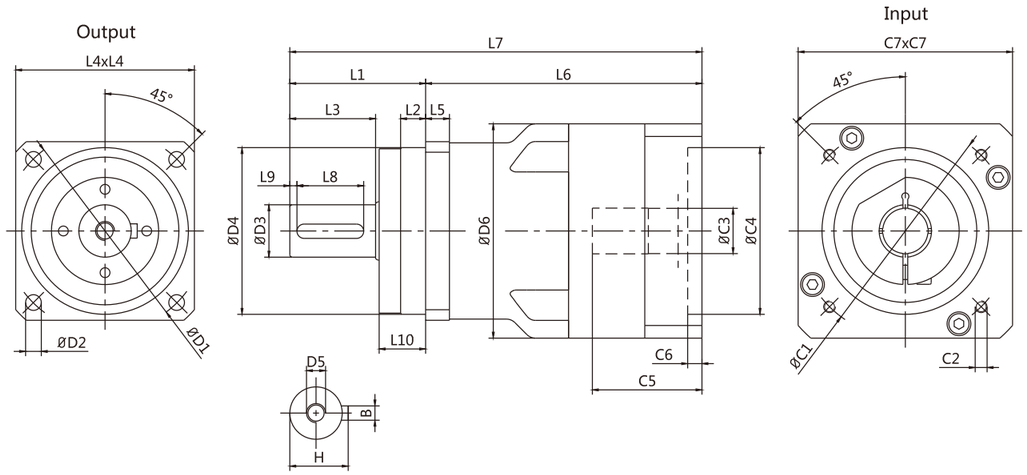
TS Series

- **低噪音**：采用螺旋齿轮设计，实现了减速机的顺畅、安静运转。
- **高精度**：背隙可达3弧分以内，定位精确。
- **高刚性、高负载**：输出轴采用并列式圆锥滚子轴承设计，大大提高了减速机刚性和负载能力。
- **高效率**：单段可达95%以上，双段可达92%以上。
- **免维护**：油脂磨耗低，可终身润滑。
- **密封效果好**：润滑油脂具有高粘度、不易分离的特性，并采用IP65防护等级，确保无润滑油脂泄漏。
- **自由安装**：可任意安装减速机。
- **适用性广**：适用于任意型式伺服电机。

- **Low Noise**: The use of helical gear design, to achieve a smooth, quiet operation of the reducer.
- **High Precision**:Backlash 3 arcmin or less, accurate positioning.
- **High Rigidity, High Load**:The output shaft with side-by-side tapered roller bearing design, which improves the rigidity and load capacity of the reducer.
- **High Efficiency**: 1-Stage up to 95% or more, 2-Stage up to 92% or more.
- **Maintenance-Free**: Low grease wear, can be lifetime lubrication.
- **Sealing Effect Is Good**: Lubricating grease with high viscosity, not easy to separate the characteristics, ip65 protection class to ensure that no grease leakage.
- **nstallation Unrestrained**: Can be installed arbitrarily.
- **Wide Applicability**: Applicable to any type of servo motor.

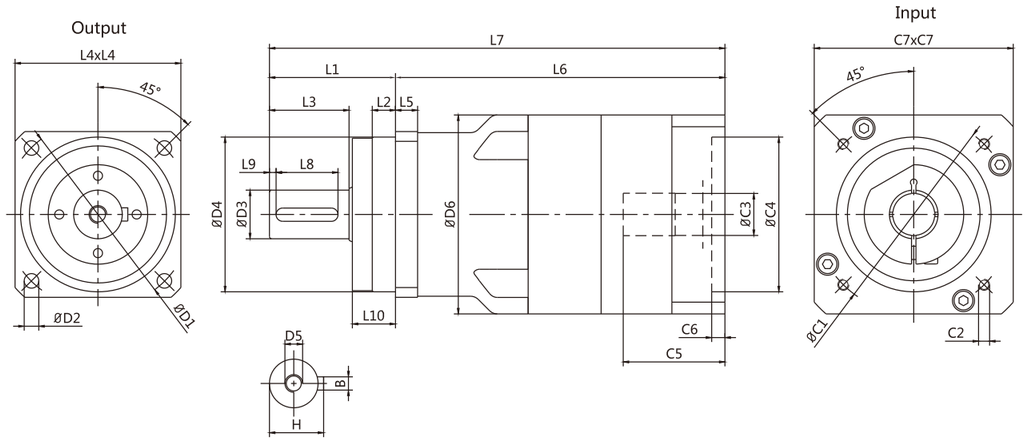


TS060-L1



TS060-L1																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type I	68	5.5	16	60	M5	60	48	5	28	60	6	88.5	136.5	20	3	19	70	M4	14	50	32.5	5.5	60	5	18

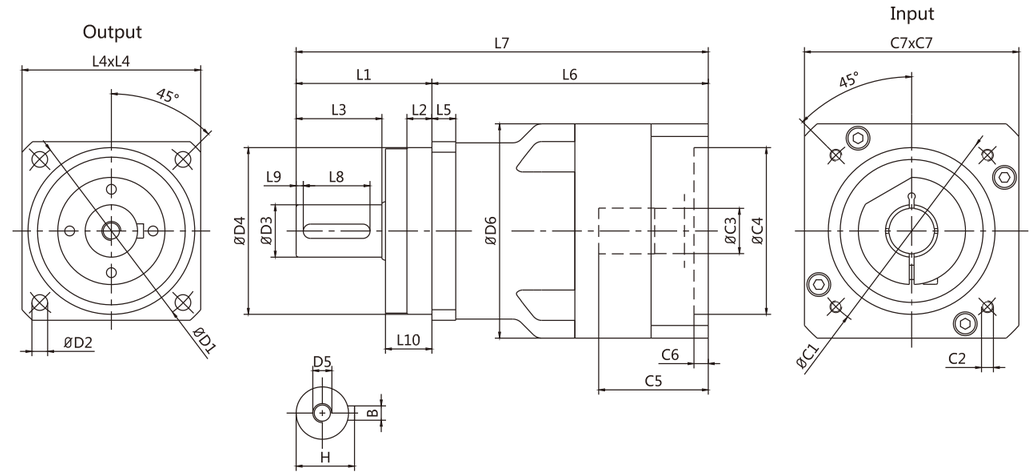
TS060-L2



TS060-L2																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type I	68	5.5	16	60	M5	60	48	5	28	60	6	117.5	165.5	20	3	19	70	M4	14	50	32.5	5.5	60	5	18

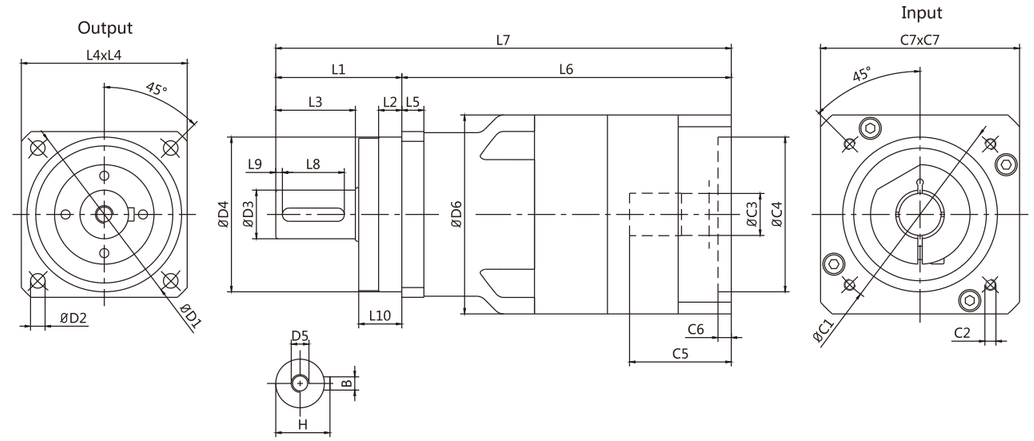
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TS090-L1



TS090-L1																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type I	85	6.5	22	70	M8	90	56	6	35.5	75	8	114.5	170.5	30	3	19.5	90	M5	19	70	47	6	90	6	24.5

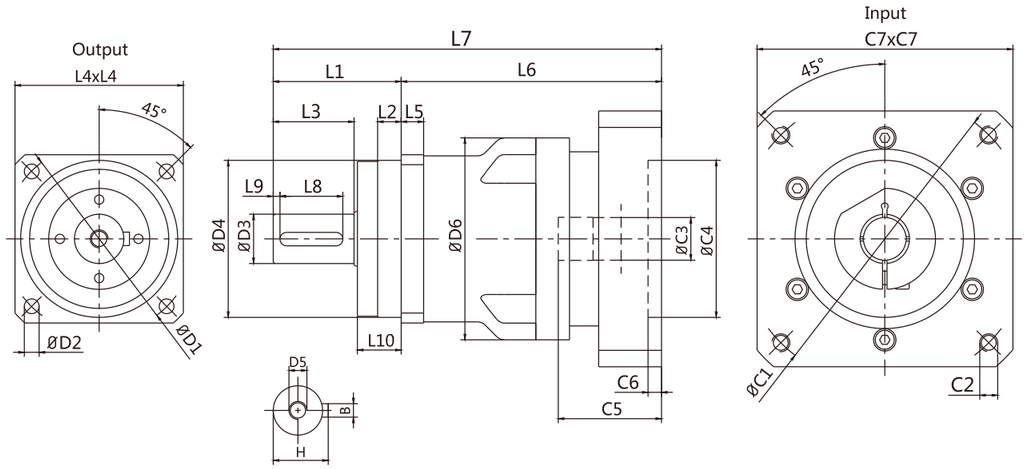
TS090-L2



TS090-L2																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type I	85	6.5	22	70	M8	90	56	6	35.5	75	10	143.5	199.5	30	3	19.5	90	M5	19	70	47	6	90	6	24.5

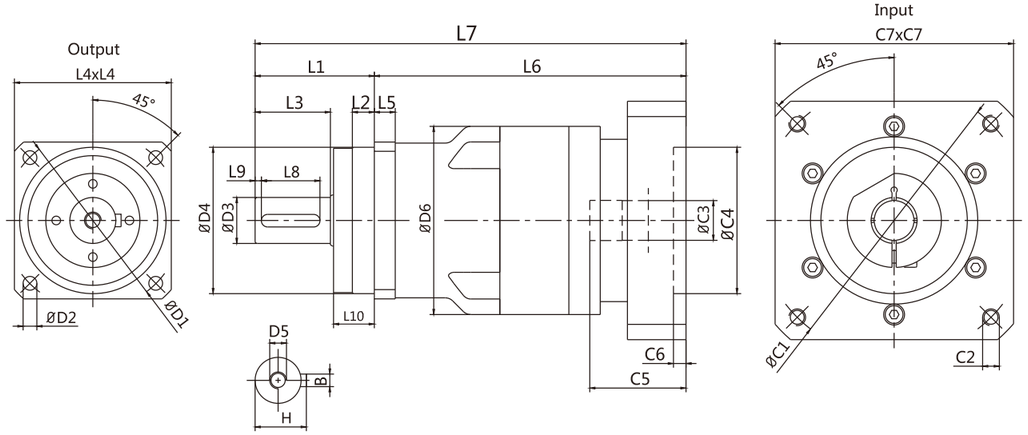
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TS120-L1



TS120-L1																									
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	120	9	32	90	M12	120	88	8	58	100	10	145	233	40	5	29	145	M8	22	110	60	8	130	10	35
TypeⅡ	120	9	32	90	M12	120	88	8	58	100	10	145	233	40	5	29	145	M8	24	110	60	8	130	10	35

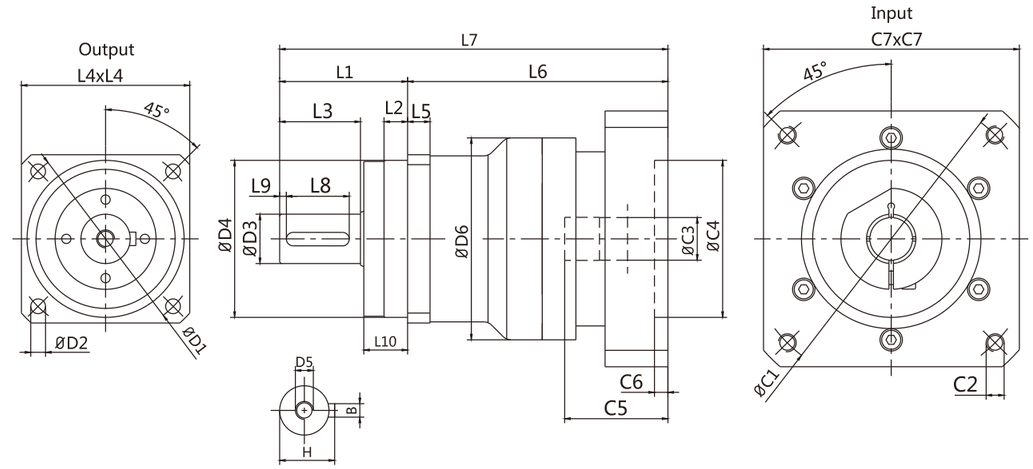
TS120-L2



TS120-L2																									
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	120	9	32	90	M12	120	88	8	58	100	10	178	266	40	5	29	145	M8	22	110	60	8	130	10	35
TypeⅡ	120	9	32	90	M12	120	88	8	58	100	10	178	266	40	5	29	145	M8	24	110	60	8	130	10	35
TypeⅢ	120	9	32	90	M12	120	88	8	58	100	10	160	248	40	5	29	90	M5	19	70	45	6	90	10	35

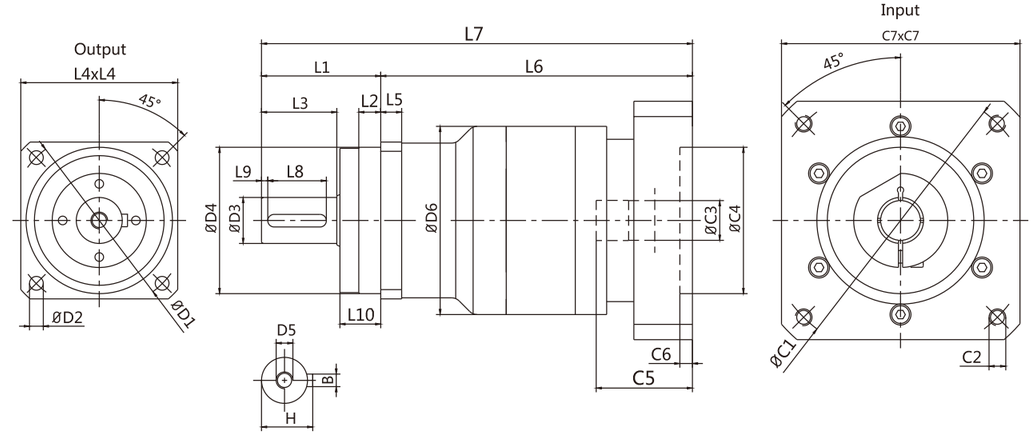
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带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TS140-L1



TS140-L1																									
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	165	11	40	130	M16	150	112	10	82	140	12	182.5	294.5	65	5	29	200	M12	35	114.3	81.5	8	180	12	43

TS140-L2



TS140-L2																									
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	B	H
Type Ⅰ	165	11	40	130	M16	150	112	10	82	140	12	222	334	65	5	29	200	M12	35	114.3	81.5	8	180	12	43
TypeⅡ	165	11	40	130	M16	150	112	10	82	140	12	214.5	326.5	65	5	29	145	M8	24	110	74	8	130	12	43
TypeⅢ	165	11	40	130	M16	150	112	10	82	140	12	214.5	326.5	65	5	29	145	M8	22	110	74	8	130	12	43

※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!

TS060

速比	Ratio		3	4	5	7	10	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	18	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	℃	-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	$kg{\cdot}cm^2$	0.16	0.14	0.13	0.13	0.13	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

TS090

速比	Ratio		3	4	5	7	10	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	50	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	℃	-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	$kg{\cdot}cm^2$	0.61	0.48	0.47	0.45	0.44	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

TS120

速比	Ratio		3	4	5	7	10	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	120	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	℃	-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	$kg{\cdot}cm^2$	3.25	2.74	2.71	2.62	2.57	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

TS140

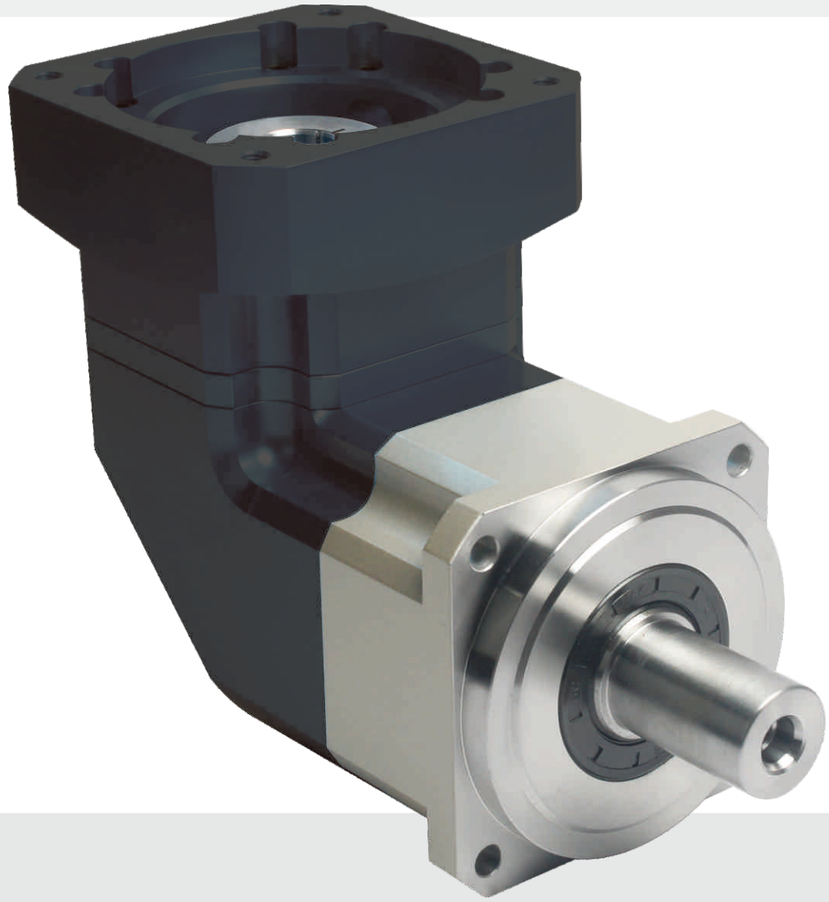
速比	Ratio		3	4	5	7	10	15	20	25	30	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	240	360	360	360	240	240	360	360	340	360	360	360	360	240
急停扭矩 T_{2NOT}	Emergency Stop Torque T_{2NOT}	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque													
额定输入转速 n_{1N}	Nominal Input Speed n_{1N}	rpm	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	℃	-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	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	≤3					≤5								
标准背隙 P2	Standard Backlash P2	arcmin	≤5					≤8								
效率 η	Efficiency η	%	≥95%					≥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.

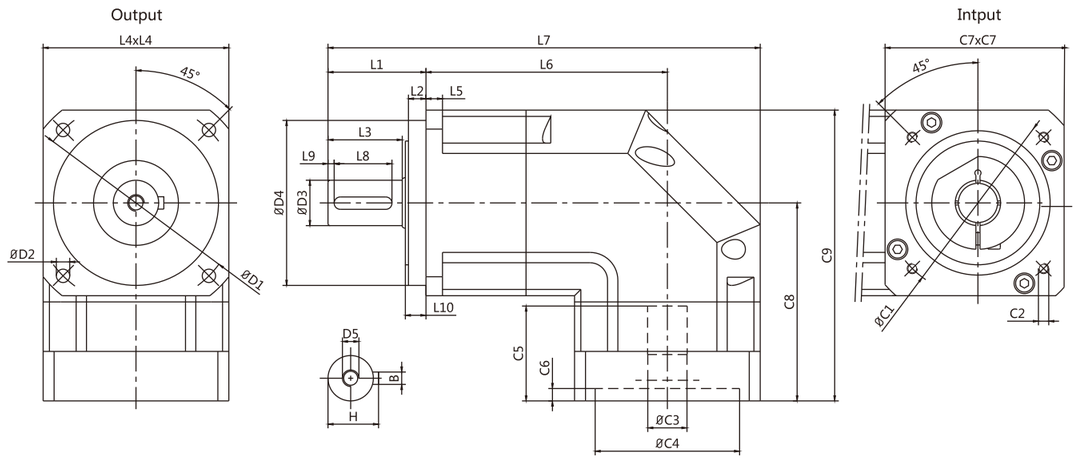
ABR Series

- **低噪音**：采用螺旋齿轮设计，实现了减速机的顺畅、安静运转。
- **高刚性、高扭矩**：输出轴采用大尺寸、大跨距式双支撑轴承设计，大大提高了减速机刚性和扭矩。
- **高效率**：单段可达93%以上，双段可达90%以上。
- **免维护**：油脂磨耗低，可终身润滑。
- **密封效果好**：润滑油脂具有高粘度、不易分离的特性，并采用IP65防护等级，确保无润滑油脂泄漏。
- **节省空间**：转角壳体采用一体式设计，既能保证减速机运转之精度又能节省安装空间。
- **适用性广**：适用于任意型式伺服电机。

- **Low Noise**: The use of helical gear design, to achieve a smooth, quiet operation of the reducer.
- **High Rigidity, High Torque**: The output shaft used large size, large span double support bearing design, which improves the rigidity and torque of the reducer.
- **High Efficiency**: 1-Stage up to 93% or more, 2-Stage up to 90% or more.
- **Maintenance-Free**: Low grease wear, can be lifetime lubrication.
- **Sealing Effect Is Good**: Lubricating grease with high viscosity, not easy to separate the characteristics, ip65 protection class to ensure that no grease leakage.
- **Space Saving**: Right angle housing with integrated design, both to ensure the accuracy of the reducer operation can save space.
- **Wide Applicability:** Applicable to any type of servo motor.

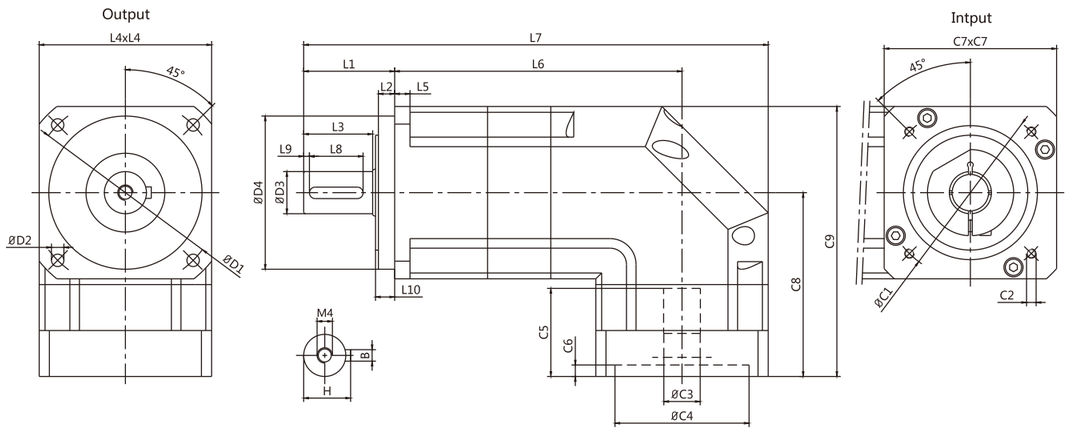


ABR042-L1



ABR042-L1																									
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type Ⅰ	50	3.5	13	35	M4	26	5	20	45	5	76	121	16	0	5	46	M3	8	30	26	5	45	72.5	95	5	15

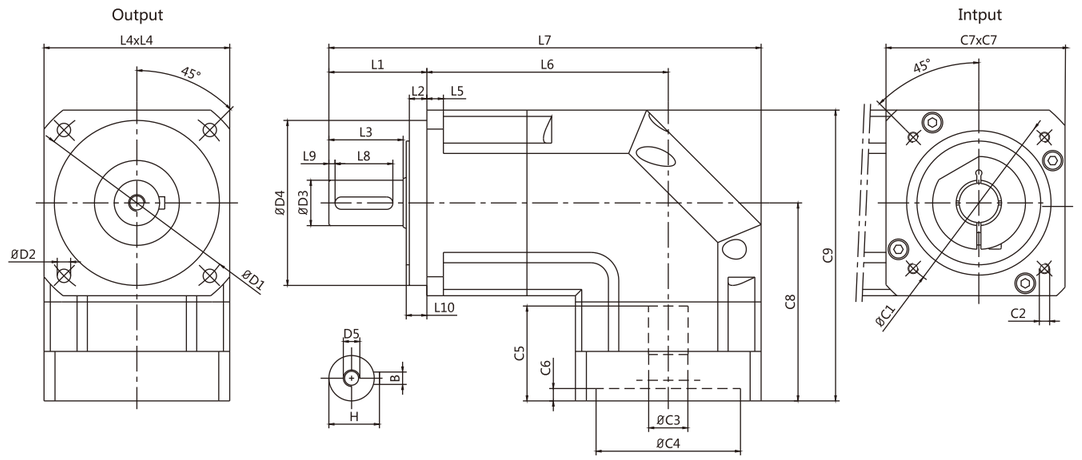
ABR042-L2



ABR042-L2																									
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type Ⅰ	50	3.5	13	35	M4	26	5	20	45	5	100	136	16	0	5	46	M4	8	30	26	5	45	72.5	95	5	15

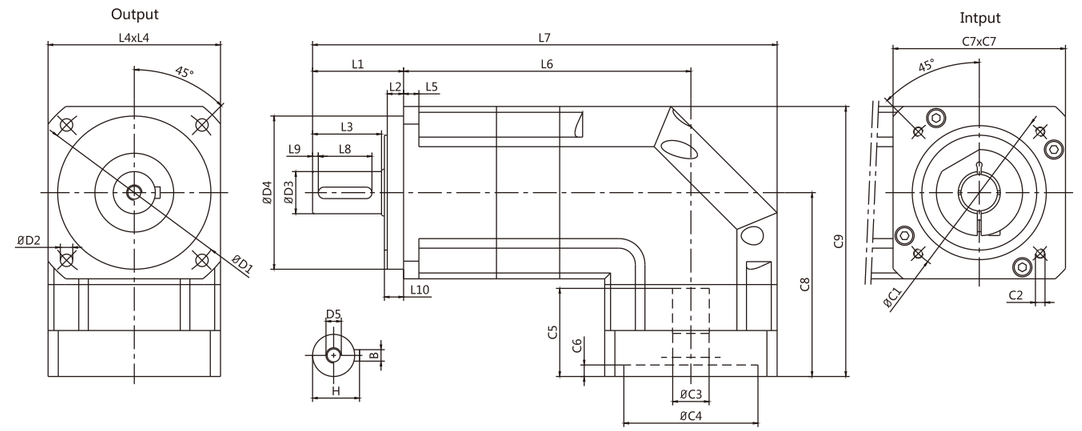
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

ABR060-L1



ABR060-L1																									
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type Ⅰ	70	5.5	16	50	M5	36.5	7	28	60	6	85.5	156.5	25	/	/	70	M4	14	50	43	5	60	75	105	5	18
TypeⅡ	70	5.5	16	50	M5	36.5	7	28	60	6	85.5	156.5	25	/	/	90	M5	19	70	48	6	80	87	117	5	18

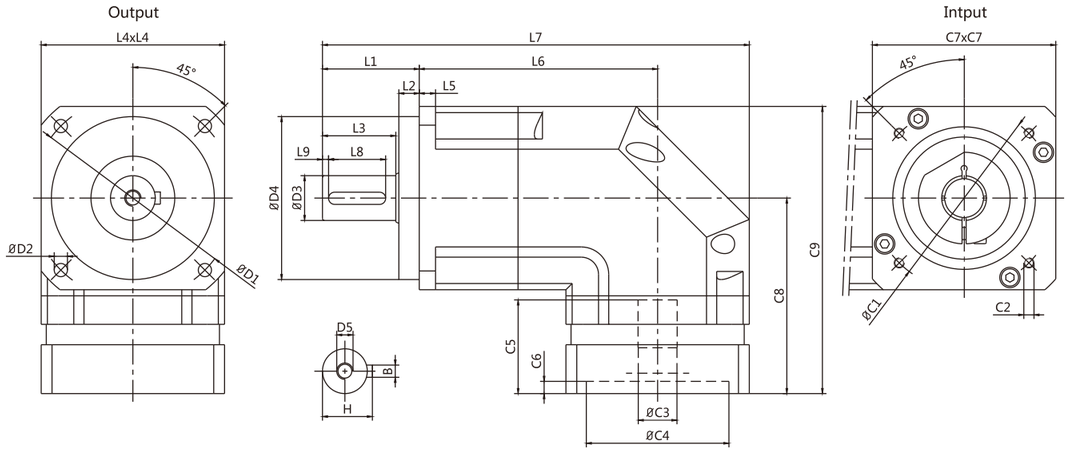
ABR060-L2



ABR060-L2																									
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type Ⅰ	70	5.5	16	50	M5	36.5		28	60	6	143.5	180	25	/	7.5	70	M4	14	50	43	5	60	75	105	5	18
TypeⅡ	70	5.5	16	50	M5	36.5		28	60	6	143.5	180	25	/	7.5	70	M4	11	50	43	5	60	75	105	5	18

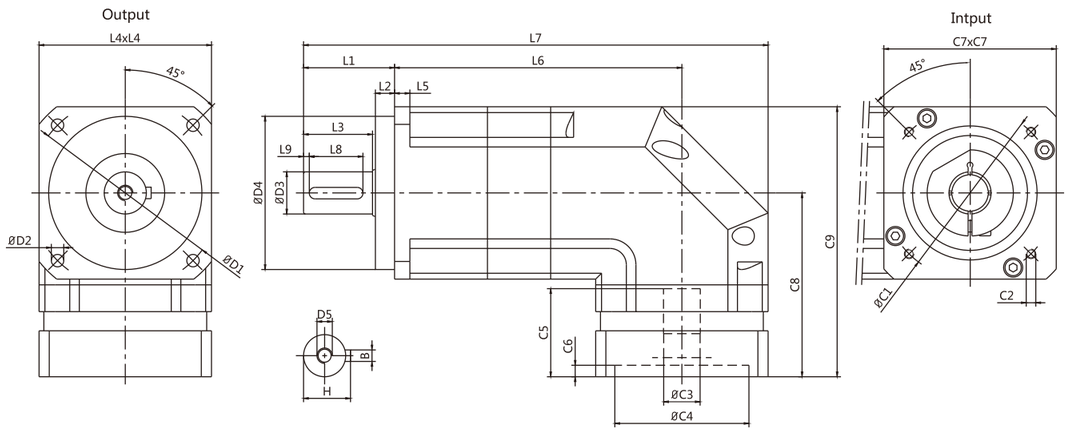
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

ABR090-L1



ABR090-L1																								
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
TypeⅠ	100	6.5	22	80	M8	47.5	10	36	90	8	110	202.5	33	/	90	M5	19	70	48	6	90	96	141	6	24.5
TypeⅡ	100	6.5	22	80	M8	47.5	10	36	90	8	110	202.5	33	/	145	M8	19	110	60	10	130	116	161	6	24.5
TypeⅢ	100	6.5	22	80	M8	47.5	10	36	90	8	110	202.5	33	/	145	M8	22	110	60	10	130	116	161	6	24.5
TypeⅣ	100	6.5	22	80	M8	47.5	10	36	90	8	110	202.5	33	/	145	M8	24	110	60	10	130	116	161	6	24.5

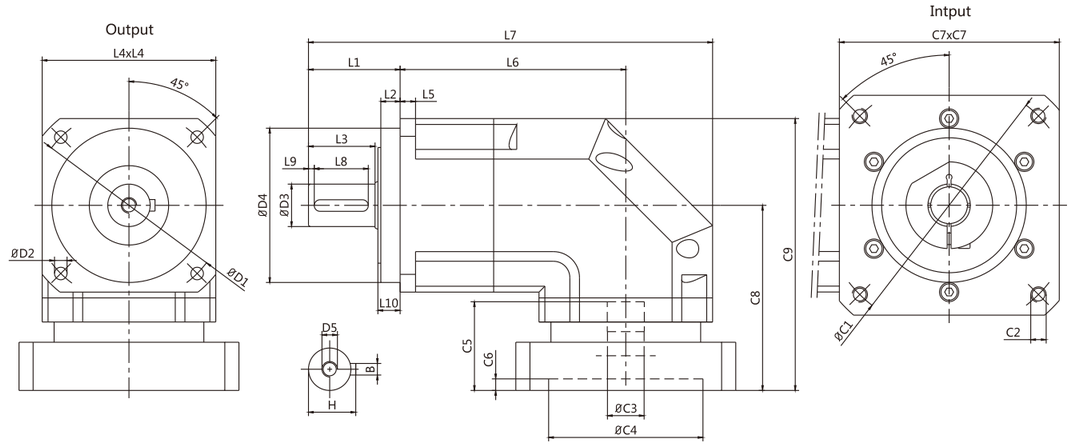
ABR090-L2



ABR090-L2																								
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
TypeⅠ	100	6.5	22	80	M8	47.5	10	36	90	8	149.5	244.5	33	/	90	M5	19	70	48	6	90	96	141	6	24.5
TypeⅡ	100	6.5	22	80	M8	47.5	10	36	90	8	149.5	244.5	33	/	70	M4	14	50	48	6	60	90	135	6	24.5

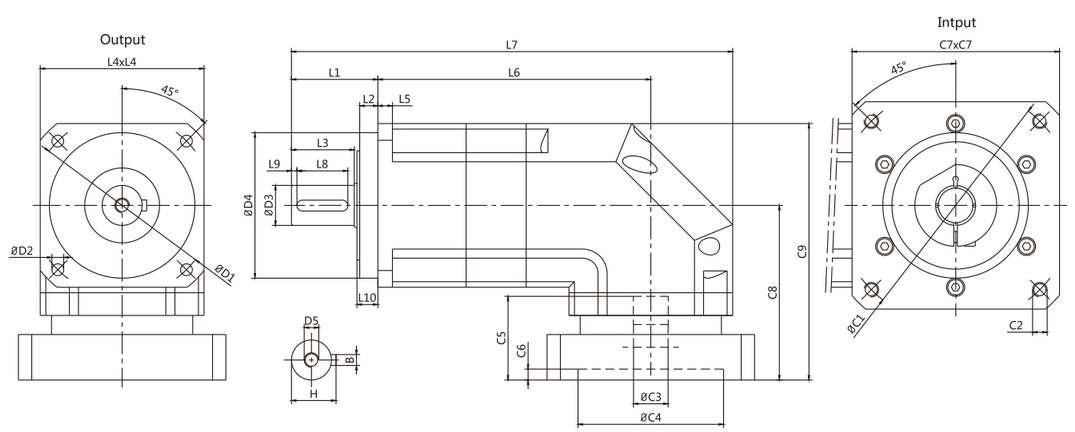
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

ABR115-L1



ABR115-L1																										
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
TypeⅠ	130	9	32	110	M12	67.5	8	58	115	13	140.5	265.5	50	/	14	145	M8	22	110	65	8	130	134	191.5	10	35
TypeⅡ	130	9	32	110	M12	67.5	8	58	115	13	140.5	265.5	50	/	14	145	M8	24	110	65	8	130	134	191.5	10	35

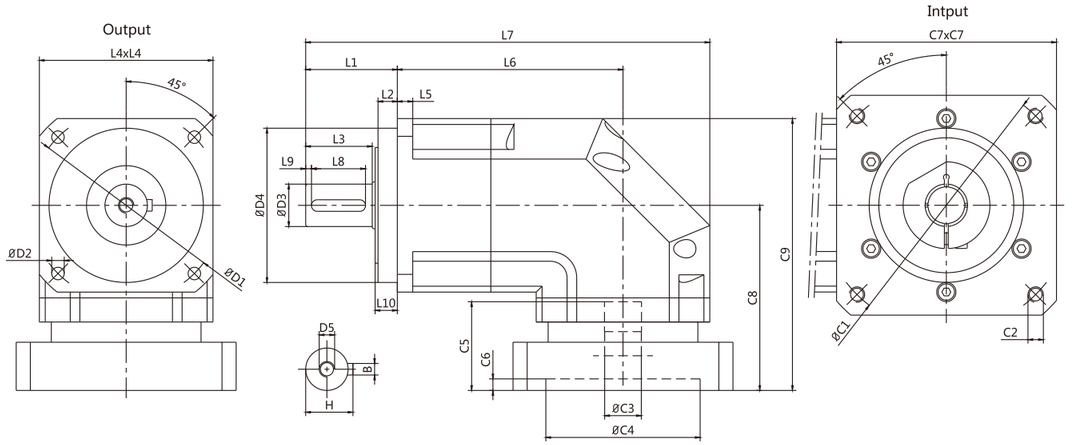
ABR115-L2



ABR115-L2																										
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
TypeⅠ	130	9	32	110	M12	67.5	8	58	115	13	166	278.5	50	/	14	145	M8	22	110	65	8	130	134	191.5	10	35
TypeⅡ	130	9	32	110	M12	67.5	8	58	115	13	166	278.5	50	/	14	145	M8	24	110	65	8	130	134	191.5	10	35
TypeⅢ	130	9	32	110	M12	67.5	8	58	115	13	166	278.5	50	/	14	90	M5	19	70	65	6	90	124	181.5	10	35

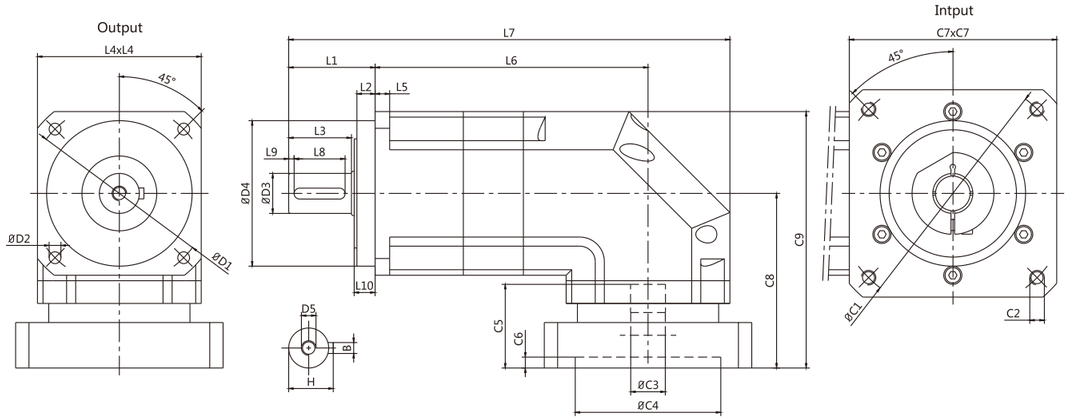
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

ABR142-L1



ABR142-L1																									
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type Ⅰ	165	11	40	130	M16	97	15	79	142	12	174.2	271.2	63	5	13.5	200	M12	35	114.3	82.5	8	180	167	237	12	43

ABR142-L2



ABR142-L2																									
Dimension	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type Ⅰ	165	11	40	130	M16	97	15	79	142	12	205	369.5	63	5	13.5	200	M12	35	114.3	81.5	8	180	167	237	12	43
TypeⅡ	165	11	40	130	M16	97	15	79	142	12	205	369.5	63	5	13.5	145	M8	24	110	65	8	130	157	227	12	43
TypeⅢ	165	11	40	130	M16	97	15	79	142	12	205	369.5	63	5	13.5	145	M8	22	110	65	8	130	157	227	12	43

※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!

ABR042																
速比	Ratio		3	4	5	7	10	15	20	25	30	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	9	12	15	19	14	14	14	15	20	19	17	14	19	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	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	780													
容许轴向力 F_{2aB}	Max. Axial Load F_{2aB}	N	390													
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	℃	-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	$kg{\cdot}cm^2$	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
标准背隙 P2	Standard Backlash P2	arcmin	≤8					≤10								
效率 η	Efficiency η	%	≥93%					≥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.

ABR060																
速比	Ratio		3	4	5	7	10	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	50	40	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	℃	-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	$kg{\cdot}cm^2$	0.16	0.14	0.13	0.13	0.13	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	≤8					≤10								
效率 η	Efficiency η	%	≥93%					≥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.

ABR090

速比	Ratio		3	4	5	7	10	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	140	100	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	℃	-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	$kg{\cdot}cm^2$	0.61	0.48	0.47	0.45	0.44	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	≤8					≤10								
效率 η	Efficiency η	%	≥93%					≥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.

ABR115

速比	Ratio		3	4	5	7	10	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	300	230	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	℃	-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	$kg{\cdot}cm^2$	3.25	2.74	2.71	2.62	2.57	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	≤8					≤10								
效率 η	Efficiency η	%	≥93%					≥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.

ABR142

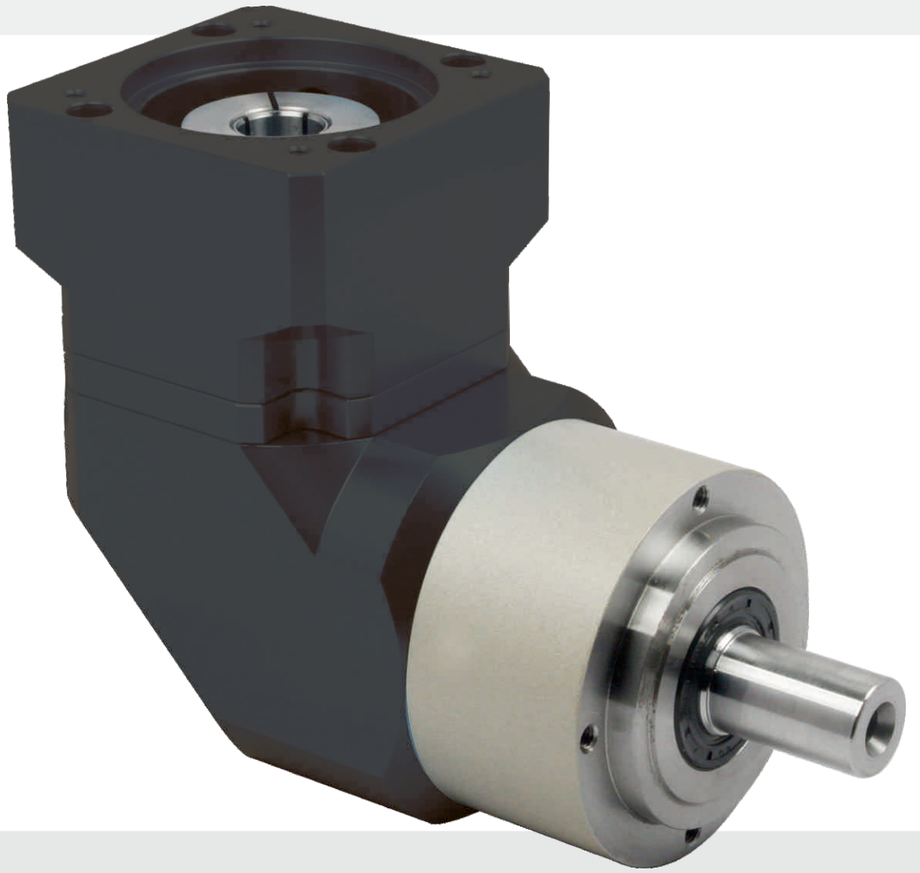
速比	Ratio		3	4	5	7	10	15	20	25	30	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	342	542	650	550	450	342	542	650	600	550	542	650	550	450
急停扭矩 T_{2NOT}	Emergency Stop Torque T_{2NOT}	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque													
额定输入转速 n_{1N}	Nominal Input Speed n_{1N}	rpm	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	℃	-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	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	≤8					≤10								
效率 η	Efficiency η	%	≥93%					≥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.

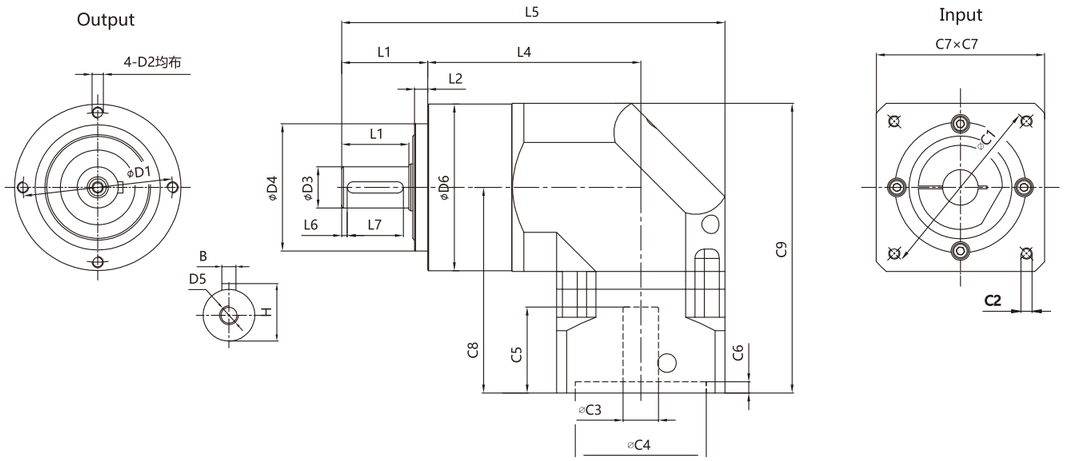
TLR Series

- **低噪音**：采用螺旋齿轮设计，实现了减速机的顺畅、安静运转。
- **高刚性、高扭矩**：输出轴采用大尺寸、大跨距式双支撑轴承设计，大大提高了减速机刚性和扭矩。
- **高效率**：单段可达93%以上，双段可达90%以上。
- **免维护**：油脂磨耗低，可终身润滑。
- **密封效果好**：润滑油脂具有高粘度、不易分离的特性，并采用IP65防护等级，确保无润滑油脂泄漏。
- **节省空间**：转角壳体采用一体式设计，既能保证减速机运转之精度又能节省安装空间。
- **适用性广**：适用于任意型式伺服电机。

- **Low Noise**: The use of helical gear design, to achieve a smooth, quiet operation of the reducer.
- **High Rigidity, High Torque**: The output shaft used large size, large span double support bearing design, which improves the rigidity and torque of the reducer.
- **High Efficiency**: 1-Stage up to 93% or more, 2-Stage up to 90% or more.
- **Maintenance-Free**: Low grease wear, can be lifetime lubrication.
- **Sealing Effect Is Good**: Lubricating grease with high viscosity, not easy to separate the characteristics, ip65 protection class to ensure that no grease leakage.
- **Space Saving**: Right angle housing with integrated design, both to ensure the accuracy of the reducer operation can save space.
- **Wide Applicability:** Applicable to any type of servo motor.

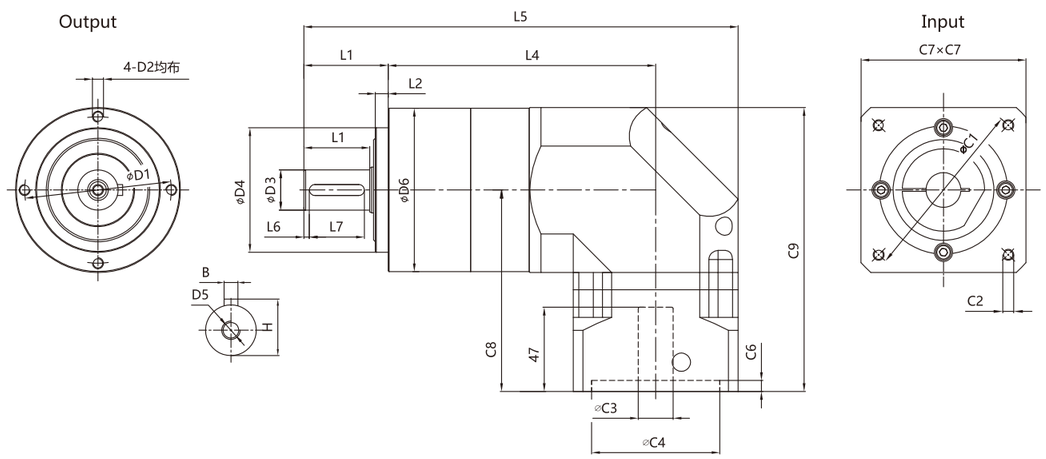


TLR060-L1



TLR060-L1																							
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type I	52	M5	14	40	M5	60	27.5	3	23.5	95.5	153	20	3	70	M4	14	50	32	6	60	75	105	5	16

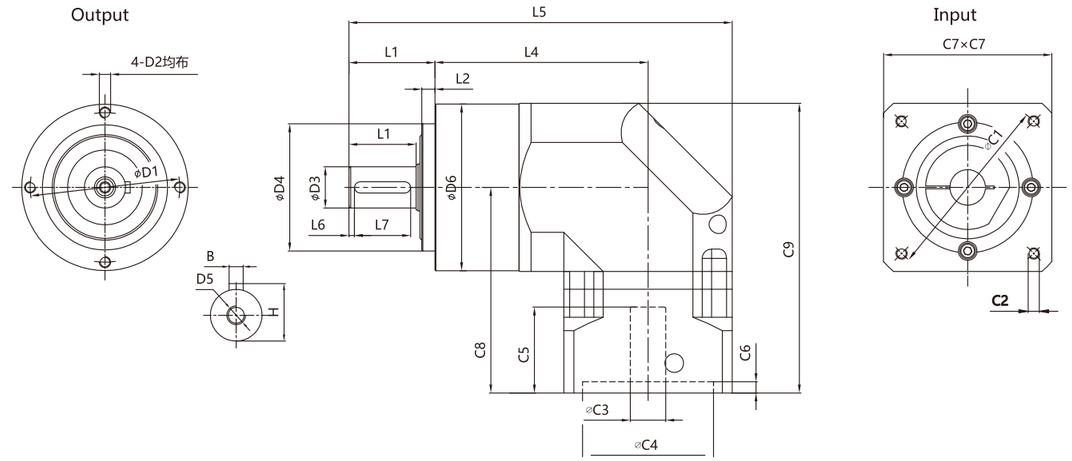
TLR060-L2



TLR060-L2																							
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type I	52	M5	14	40	M5	60	27.5	3	23.5	115.5	173	20	3	70	M4	14	50	32	6	60	75	105	5	16

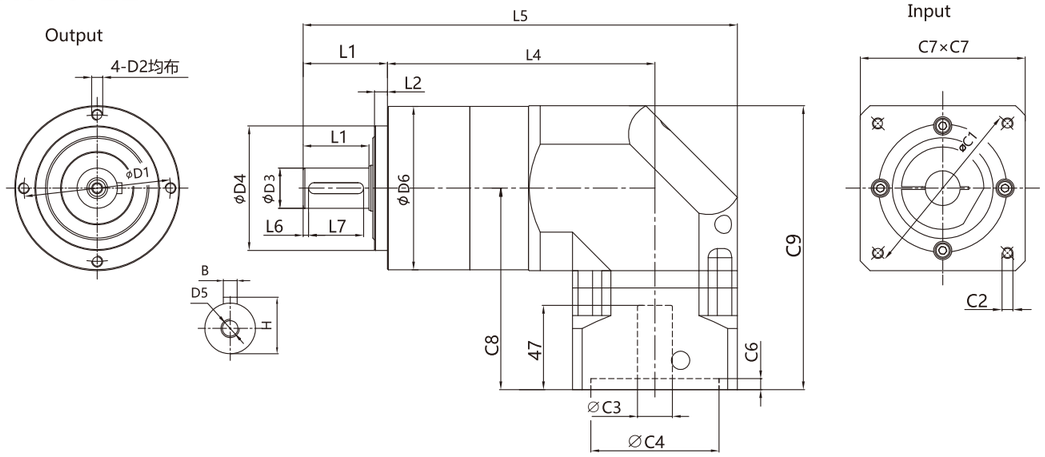
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TLR090-L1



TLR090-L1																							
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type I	70	M6	20	60	M8	90	40.5	3	36.5	120.5	206	30	3	90	M5	19	70	47.5	6	90	96	141	6	22.5

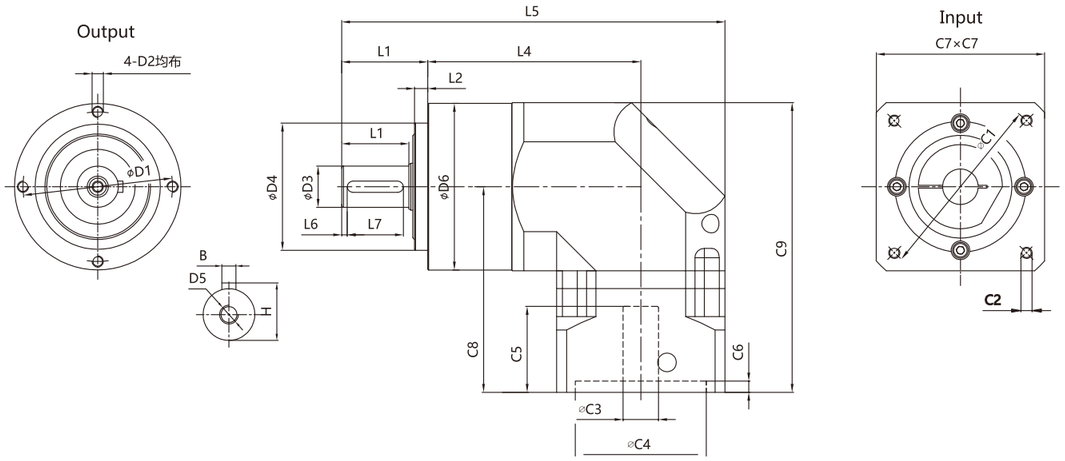
TLR090-L2



Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type I	70	M6	20	60	M8	90	40.5	3	36.5	148	233.5	30	3	90	M5	19	70	47.5	6	90	96	141	6	22.5

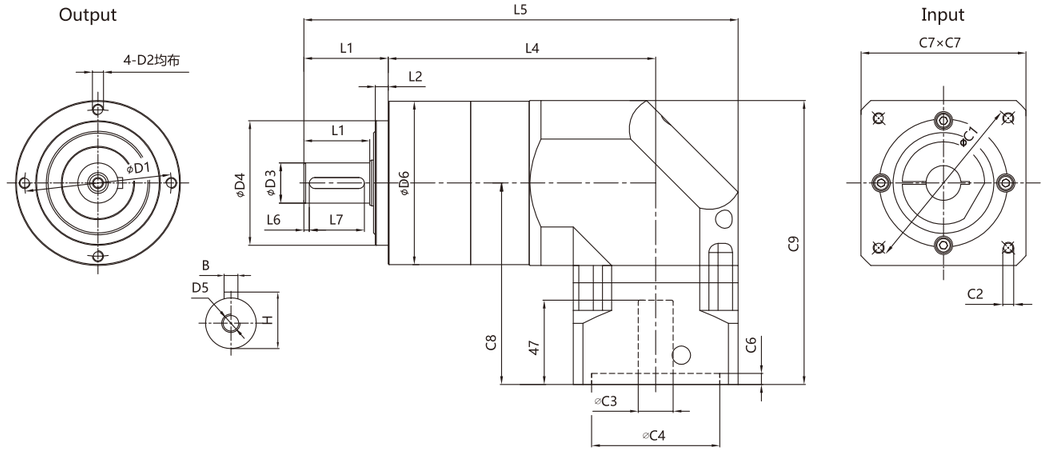
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TLR120-L1



TLR120-L1																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type Ⅰ	108	M8	32	90	M12	125	65	12	51	135.5	253	40	5	145	M8	22	110	62.5	8	130	134	196.5	8	28
TypeⅡ	108	M8	32	90	M12	125	65	12	51	135.5	253	40	5	145	M8	24	110	62.5	8	130	134	196.5	8	28

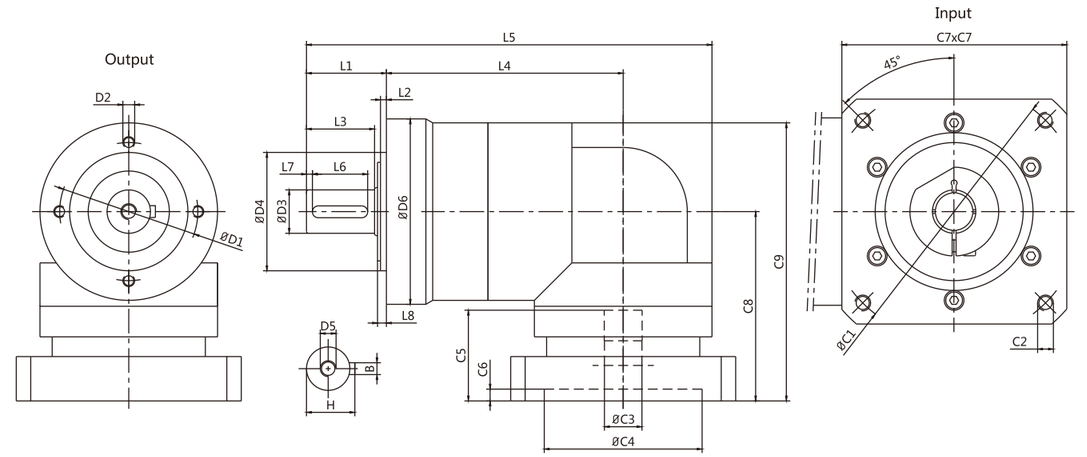
TLR120-L2



TLR120-L2																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type Ⅰ	108	M8	32	90	M12	125	65	12	51	172.5	290	40	5	145	M8	22	110	62.5	8	130	134	196.5	8	28
TypeⅡ	108	M8	32	90	M12	125	65	12	51	172.5	290	40	5	145	M8	24	110	62.5	8	130	134	196.5	8	28

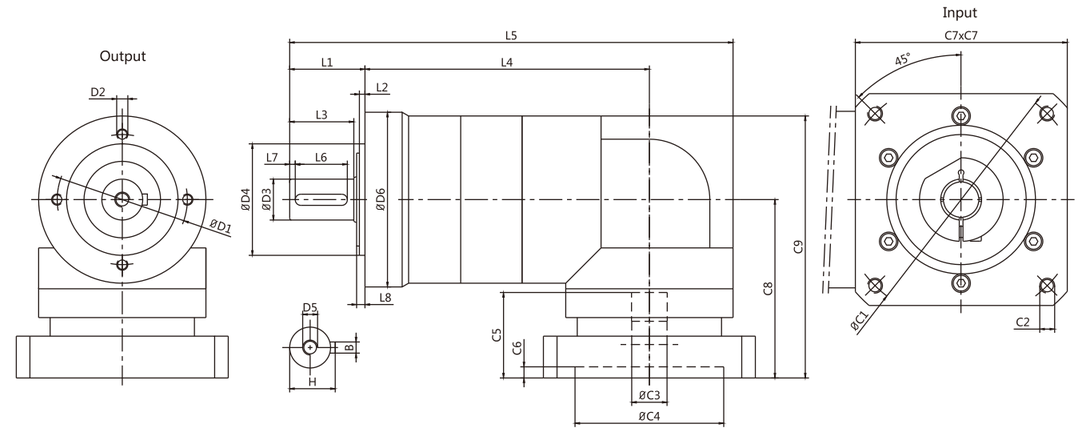
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TLR140-L1



TLR140-L1																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type Ⅰ	140	M10	40	120	M16	155	97	12	82	185.5	357.5	65	5	13.5	200	M12	35	114.3	81.5	8	180	167	242	12	43

TLR140-L2



TLR140-L2																								
Dimension	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	L7	L8	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9	B	H
Type Ⅰ	140	M10	40	120	M16	155	97	12	82	227	399	65	5	13.5	200	M12	35	114.3	81.5	8	180	167	242	12	43

※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!

TLR060

速比	Ratio		3	4	5	7	10	15	20	25	30	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	35	40	45	40	30	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	℃	-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	$kg{\cdot}cm^2$	0.16	0.14	0.13	0.13	0.13	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	≤8					≤10								
效率 η	Efficiency η	%	≥93%					≥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.

TLR090

速比	Ratio		3	4	5	7	10	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	80	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	℃	-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	$kg{\cdot}cm^2$	0.61	0.48	0.47	0.45	0.44	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	≤8					≤10								
效率 η	Efficiency η	%	≥93%					≥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.

TLR120

速比	Ratio		3	4	5	7	10	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	200	180	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	℃	-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	$kg{\cdot}cm^2$	3.25	2.74	2.71	2.62	2.57	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	≤8					≤10								
效率 η	Efficiency η	%	≥93%					≥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.

TLR140

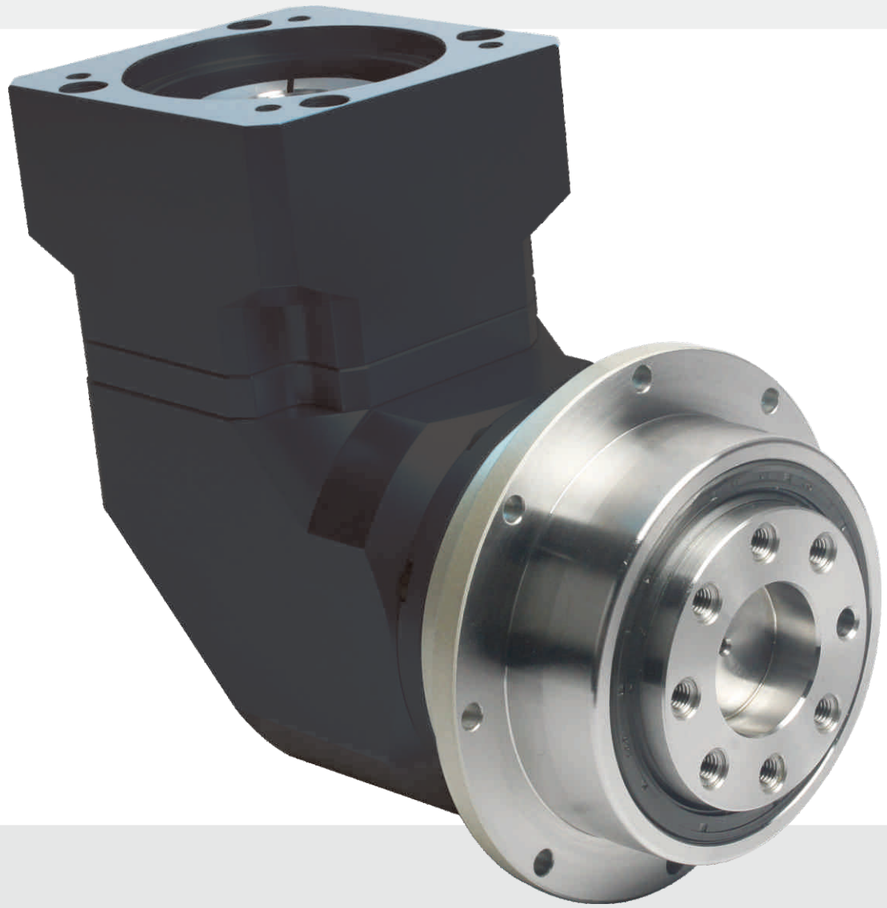
速比	Ratio		3	4	5	7	10	15	20	25	30	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	342	542	650	550	450	342	542	650	600	550	542	650	550	450
急停扭矩 T_{2NOT}	Emergency Stop Torque T_{2NOT}	Nm	2.5倍额定输出扭矩 2.5 times of Nominal Output Torque													
额定输入转速 n_{1N}	Nominal Input Speed n_{1N}	rpm	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	℃	-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	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	≤8					≤10								
效率 η	Efficiency η	%	≥93%					≥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.

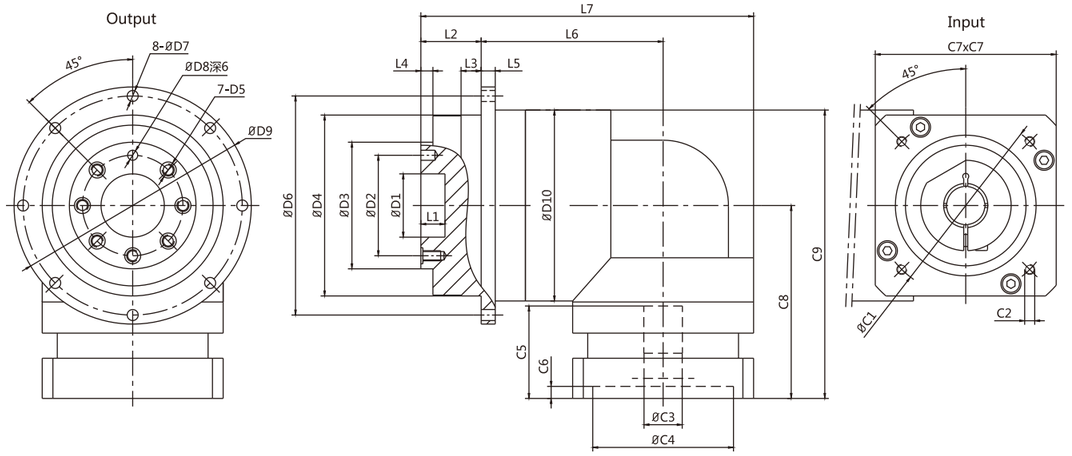
TDR Series

- **低噪音**：采用螺旋齿轮设计，实现了减速机的顺畅、安静运转。
- **高刚性、高负载**：法兰盘式输出，并采用跨距式双支撑角接触球轴承设计，大大提高了减速机刚性和负载能力。
- **高效率**：单段可达 93% 以上，双段可达 90% 以上。
- **免维护**：油脂磨耗低，可终身润滑。
- **密封效果好**：润滑油脂具有高粘度、不易分离的特性，并采用 IP65 防护等级，确保无润滑油脂泄漏。
- **节省空间**：转角壳体采用一体式设计，既能保证减速机运转之精度又能节省安装空间。
- **适用性广**：适用于任意型式伺服电机。

- **Low Noise**:The use of helical gear design, to achieve a smooth, quiet operation of the reducer.
- **High Rigidity, High Load**: Flange-type output, and the use of large span double support angular contact ball bearings design, which improves the rigidity and load capacity of the reducer.
- **High Efficiency**: 1-Stage up to 93% or more, 2-Stage up to 90% or more.
- **Maintenance-Free**: Low grease wear, can be lifetime lubrication.
- **Sealing Effect Is Good**: Lubricating grease with high viscosity, not easy to separate the characteristics, ip65 protection class to ensure that no grease leakage.
- **Space Saving**: Right angle housing with integrated design, both to ensure the accuracy of the reducer operation can save space.
- **Wide Applicability**: Applicable to any type of servo motor.

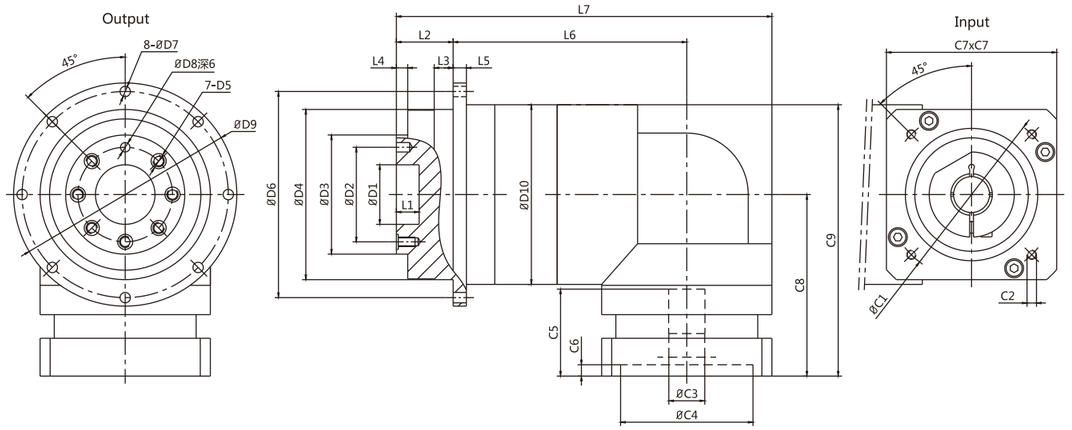


TDR064-L1



TDR064-L1																									
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9
TypeⅠ	20	31.5	40	64	M5	79	4.5	5	86	70	8	19.5	8	3	4	71	125.5	70	M4	14	50	32	6	60	75	110
TypeⅡ	20	31.5	40	64	M5	79	4.5	5	86	70	8	19.5	8	3	4	71	125.5	90	M5	19	70	43	6	80	87	122

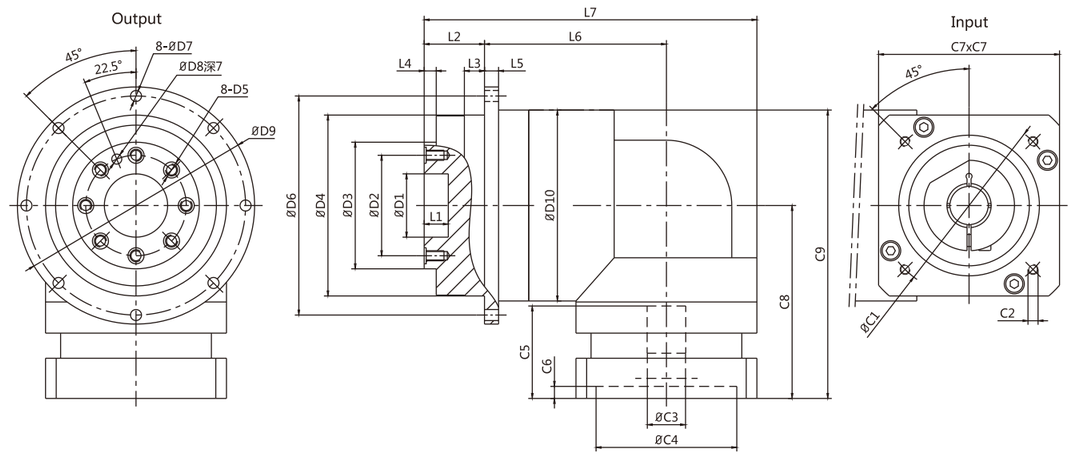
TDR064-L2



TDR064-L2																									
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9
TypeⅠ	20	31.5	40	64	M5	79	4.5	5	86	70	8	19.5	8	3	4	94.5	149	70	M4	14	50	32	6	60	75	110
TypeⅡ	20	31.5	40	64	M5	79	4.5	5	86	70	8	19.5	8	3	4	94.5	149	70	M4	11	50	32	6	60	75	110

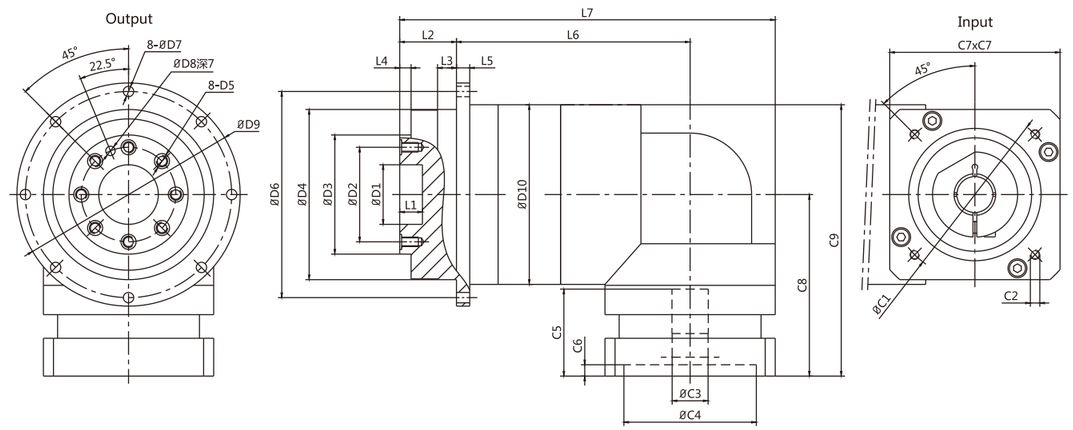
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TDR090-L1



TDR090-L1																											
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9
TypeⅠ	31.5	50	63	90	M6	109	5.5	6	118	95	12	30	10	6	7	102	179.5	90	M5	19	70	45.5	6	90	96	143.5
TypeⅡ	31.5	50	63	90	M6	109	5.5	6	118	95	12	30	10	6	7	102	179.5	145	M8	19	110	61	10	130	116	163.5
TypeⅢ	31.5	50	63	90	M6	109	5.5	6	118	95	12	30	10	6	7	102	179.5	145	M8	22	110	61	10	130	116	163.5
TypeⅣ	31.5	50	63	90	M6	109	5.5	6	118	95	12	30	10	6	7	102	179.5	145	M8	24	110	61	10	130	116	163.5

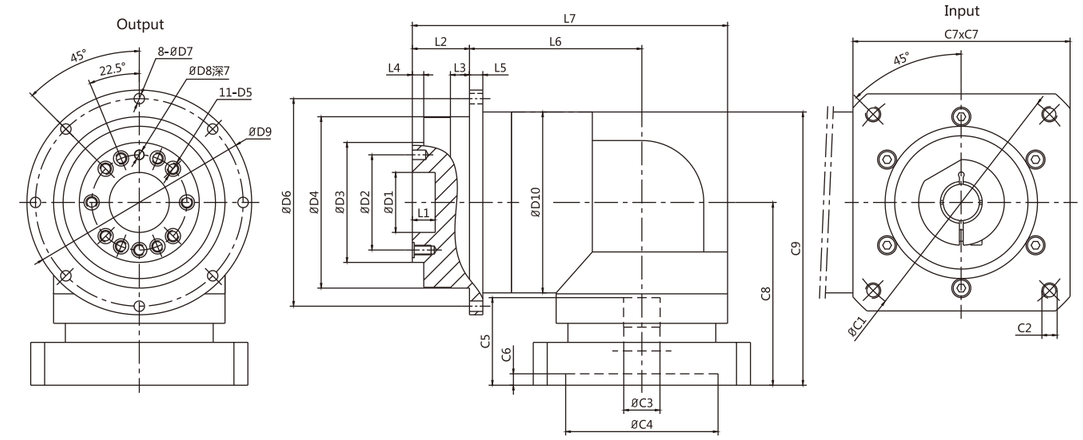
TDR090-L2



TDR090-L2																											
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9
TypeⅠ	31.5	50	63	90	M6	109	5.5	6	118	95	12	30	10	6	7	130	207.5	90	M5	19	70	45.5	6	90	96	143.5
TypeⅡ	31.5	50	63	90	M6	109	5.5	6	118	95	12	30	10	6	7	130	207.5	70	M4	14	50	32.5	6	60	90	137.5

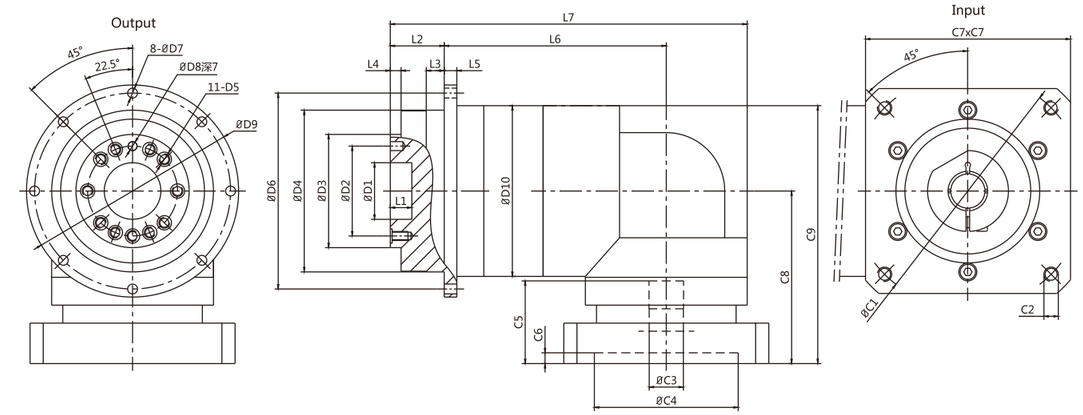
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TDR110-L1



TDR110-L1																									
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9
Type Ⅰ	40	63	80	110	M6	135	5.5	6	145	115	13	29	8	7	8	130	216.5	145	M8	22	110	62.5	8	130	134	191.5
TypeⅡ	40	63	80	110	M6	135	5.5	6	145	115	13	29	8	7	8	130	216.5	145	M8	24	110	62.5	8	130	134	191.5

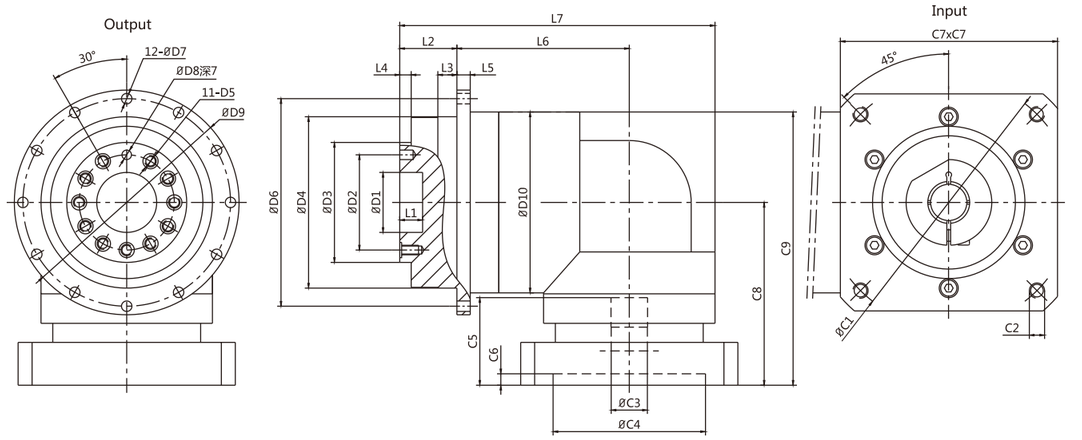
TDR110-L2



TDR110-L2																									
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9
Type Ⅰ	40	63	80	110	M6	135	5.5	6	145	115	13	29	8	7	8	161	247.5	145	M8	22	110	62.5	8	130	134	191.5
TypeⅡ	40	63	80	110	M6	135	5.5	6	145	115	13	29	8	7	8	161	247.5	145	M8	24	110	62.5	8	130	134	191.5
TypeⅢ	40	63	80	110	M6	135	5.5	6	145	115	13	29	8	7	8	161	247.5	90	M5	19	70	45.5	6	90	124	181.5

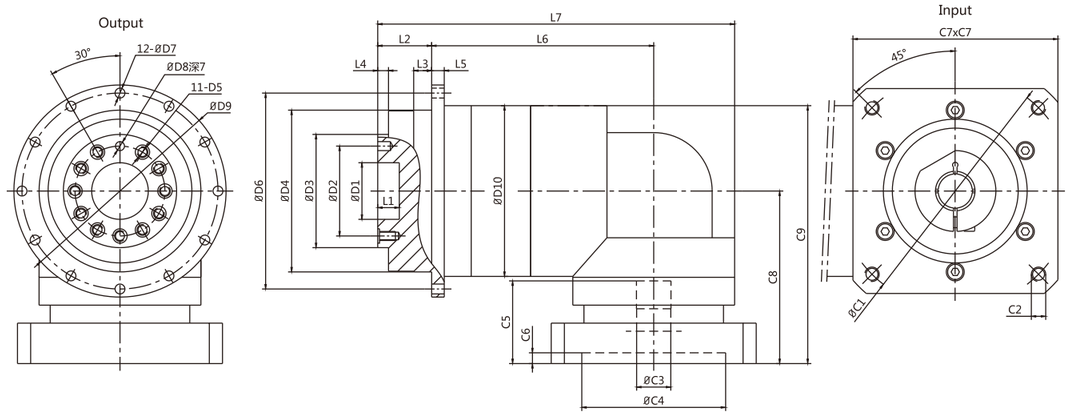
※Dimension can be customized according to the motor,if necessary,please contact us!
带※尺寸可根据客户电机实际尺寸定制，如有需要，请联系我们!

TDR140-L1



TDR140-L1																										
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9
Type Ⅰ	50	80	100	140	M8	168	6.5	8	179	152.5	12	38	14.5	7.5	10	142.5	256.5	200	M12	35	114.3	81.5	10	180	167	243

TDR140-L2



TDR140-L2																										
Dimension	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	L1	L2	L3	L4	L5	L6	L7	※C1	※C2	※C3	※C4	※C5	※C6	※C7	C8	C9
Type Ⅰ	50	80	100	140	M8	168	6.5	8	179	152.5	12	38	14.5	7.5	10	180	294	200	M12	35	114.3	81.5	10	180	167	243
TypeⅡ	50	80	100	140	M8	168	6.5	8	179	152.5	12	38	14.5	7.5	10	180	294	145	M8	22	110	74	8	130	157	233
TypeⅢ	50	80	100	140	M8	168	6.5	8	179	152.5	12	38	14.5	7.5	10	180	294	145	M8	24	110	74	8	130	157	233

※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!

TDR064

速比	Ratio		4	5	7	10	20	25	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	48	60	50	40	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	≤70（输入转速=3000rpm、空载、距离1M②）										
使用温度	Operating Temp	℃	-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	$kg{\cdot}cm^2$	0.14	0.13	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	≤8				≤10						
效率 η	Efficiency η	%	≥93%				≥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.

TDR090

速比	Ratio		4	5	7	10	20	25	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	130	160	140	100	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	℃	-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	$kg{\cdot}cm^2$	0.48	0.47	0.45	0.44	0.47	0.47	0.47	0.44	0.44	0.13	0.13
标准背隙 P2	Standard Backlash P2	arcmin	≤8				≤10						
效率 η	Efficiency η	%	≥93%				≥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.

TDR110

速比	Ratio		4	5	7	10	20	25	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	270	330	300	230	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	℃	-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	$kg{\cdot}cm^2$	2.74	2.71	2.62	2.57	2.71	2.71	2.62	2.57	2.57	0.44	0.44
标准背隙 P2	Standard Backlash P2	arcmin	≤8				≤10						
效率 η	Efficiency η	%	≥93%				≥90%						

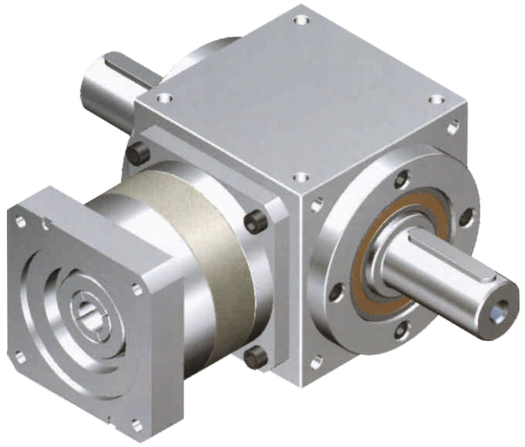
① Half-life under continuous operation mode.
② Reducer under no-load mode,input speed is 3000,the value which Noise Measurement machine get at one meter away postion.

TDR140

速比	Ratio		4	5	7	10	20	25	35	40	50	70	100
额定输出扭矩 T_{2N}	Nominal Output Torque T_{2N}	Nm	560	650	550	450	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	℃	-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	$kg{\cdot}cm^2$	7.54	7.42	7.14	7.03	7.42	7.42	7.14	7.03	7.03	2.57	2.57
标准背隙 P2	Standard Backlash P2	arcmin	≤8				≤10						
效率 η	Efficiency η	%	≥93%				≥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.

法兰型系列行星减速机
FLANGE SERIES PIANETARY GEARBOX



ZT法兰型系列产品特点：
ZT flange series product peatures:

一体化铝合金本体确保最大刚性与耐蚀性，多重精密加工表面易于组装。
Integration of al loy aluminum body to ensure the maximum rigidity and corrosion resistsnce,and easy to assemble with multiple precision machined surface.

采用顶级蜗线伞齿轮，经最佳化设计，接触齿面负载均一、容许高扭矩输出。
The use of top-level spiral bevel gear,with optimization design,the contact tooth surface of uniform load、allowable hith torque out put.

齿轮采用高强力渗碳合金钢，研磨精密度符合ISO6级标准。
Gear is made of high strength alloy steel carburzing,grinding precision accorded with the standard of ISO 6.

多重合金钢输出输入轴的设计适用于各种工业上的需求。
The design of multiple alloy steel output and input shaft applies to various industrial requirements.

高精密研磨的蜗线伞齿轮组可以达到400:1的减速比。
Spiral bevel gear set of high precision grinding can achieve 400:1 ratio.

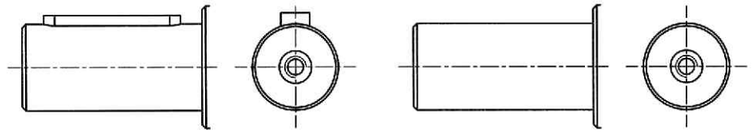
高扭矩低侧隙的精简结构设计适用于精密伺服的应用。
The simplified structure desigh with high torque and low backlash applies to applications of precision servo.

免保养无需更换润滑油，运转寿命长。
With maintenance-free,no need ti replace the grease and long service life.

订货说明 ORDERING INSTRUCTIONS

ZT070 FL – 4 – S1 – MOTOR

- MOTOR：电机适配器，未注明为标准尺寸 / Motor adapter,not specified for the standard size
- S1：轴形式S1：光轴，未注明为带键轴 / Shaft output form of the S1:Smooth Output Shaft,not specified for the keyed shaft
- 4：速比：单级(Single stage)1/2/3/4/5/6；双级(Double stage)8/10/16/20/24/30；三级(Three stage)32/40/50/60/80/100；四级(Four stage)120/160/200/250/320/400 / Ratio
- FL：减速机型式(Deceleration type):FL、FL1、FR1、FH、FC、L、L1、R1、H、C
- ZT070：产品系列(Product series): ZT070、ZT090、ZT110、ZT140、ZT170、ZT210、ZT240



带键轴
With keyed shaft

S1光轴
Smooth Output Shaft

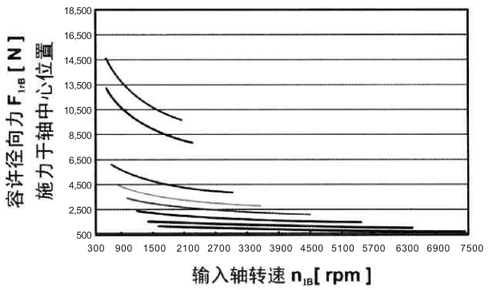
选用范例：ZT090–FL–20–S1/SIEMENS 1FT6 041–4AF71
如果有疑问或者非标定做请咨询客服人员
The selection of examples:ZT090–FL–20–S1/SIEMENS 1FT6 041–4AF71
If in doubt,please contact customer ser vice.

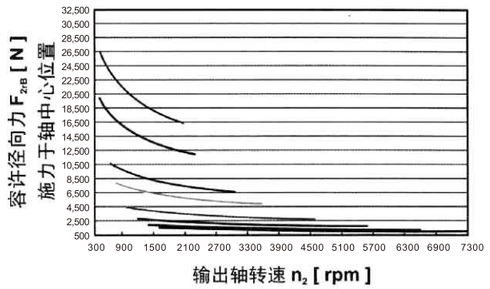
减速机轴容许的径向力和轴向力

Permissible Radial Force and Axial Force of Gearbox Shaft

当径向力F2r施力在轴中心位置时即X=1/2L，不同规格的减速机在不同的输出转速使用下，使用寿命为20000hr时所能承受的径向力F1rB、F2rB，请参照下图。

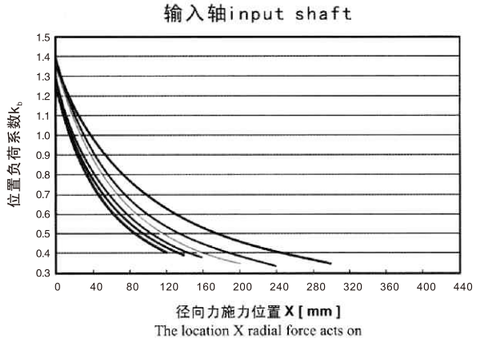
Please consult the left picture to find the right permissible radial force F1rB、F2rB, when gearbox with 20000hr, using life works at different output speed on the condition that radial force F2r acts on the middle of the shaft,X=1/2L.

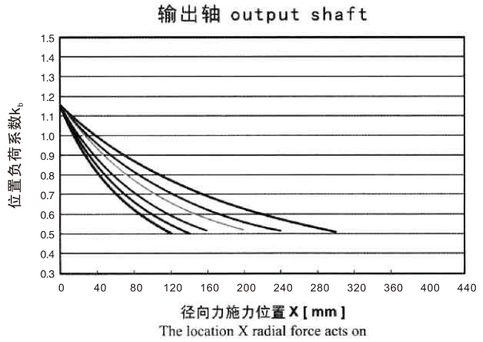


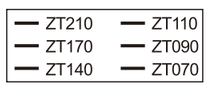


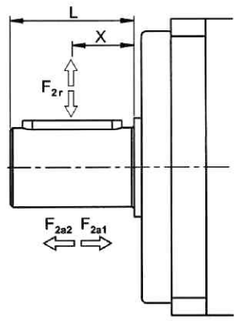
当径向力F2r施力不在轴中心位置时，越靠近减速机即X<1/2L，所容许的径向力变大，远离则相反。如下图，依减速机规格及径向施力位置X,查出位置负荷系数Kb。

The gearbox permissible radial force is bigger when radial force is closer to gearbox(X<1/2L)on the condition that radial force F2r is not at the shaft .Under the same condition you can consult the left picture to find the locational coefficient at load Kb by the specification of gearbox and the location X radial force acts on.









ZT法兰系列行星减速机技术参数

ZT Flange Series Servo Planetary Gearbox Techincal Data

产品型号 Model		ZT070FL ZT070FL1 ZT070FR1 ZT070FH ZT070FC	ZT090FL ZT090FL1 ZT090FR1 ZT900FH ZT090FC	ZT110FL ZT110FL1 ZT110FR1 ZT110FH ZT110FC	ZT140FL ZT140FL1 ZT140FR1 ZT140FH ZT140FC	ZT170FL ZT170FL1 ZT170FR1 ZT170FH ZT170FC	ZT210FL ZT210FL1 ZT210FR1 ZT210FH ZT210FC	ZT240FL ZT240FL1 ZT240FR1 ZT240FH ZT240FC	Ratio	Stage
额定输出扭矩 Rated Output Torque	Nm	45	78	150	360	585	1300	2150	1	1
		42	68	150	330	585	1220	2010	2	
		33	54	120	270	450	1020	1650	2.5	
		42	68	150	330	544	1220	2010	4	2
		42	68	150	330	544	1220	2010	5	
		42	68	150	290	480	1000	--	7	
		42	68	65	210	450	800	1550	8	
		36	68	90	200	415	910	--	9	
		32	68	150	330	544	910	1500	10	
		42	68	150	330	544	1220	2010	16	
		42	68	150	330	544	1220	2010	20	
		42	68	150	330	544	1220	2010	25	3
		42	68	150	330	544	1220	2010	32	
		42	68	150	330	544	1220	2010	40	
		42	68	150	330	544	1220	2010	50	
		42	68	150	330	544	1220	2010	80	
		42	68	150	330	544	1220	2010	100	
故障停止扭矩[1] Fault stop torque[1]	Nm	2倍额定输出扭矩							1～100	1～3
回程间隙 Backlash	arcmin	≤6	≤6	≤6	≤6	≤8	≤10	≤12	1～3	1
		≤8	≤8	≤8	≤8	≤10	≤12	≤15	4～20	2
		≤10	≤10	≤10	≤10	≤15	≤15	≤20	25～100	3
输出最大径向力[2] Output maximum radial force[2]	N	1100	1700	2700	4800	6600	11500	16000	1～100	1～3
输出最大轴向力[2] Output maximum axial force[2]	N	550	850	1350	2400	3300	5750	8500	1～100	1～3
平均寿命 Average life span	hr	20000							1～100	1
满载效率Full loading efficiency η	%	≥96%							1～3	1～3
		≥94%							4～20	1
		≥92%							25～100	2
噪音[3] Noise[3]	dB(A)	≤72	≤76	≤77	≤78	≤79	≤81	≤83	1～100	1

最大输入速度[2] Max iput speed	rpm	3500	3500	3000	3000	2500	2000	1800	1～3	1
		6000	6000	6000	6000	6000	6000	4000	4～100	2～3
额定输入速度[2] Rated iput speed	rpm	2500	2500	2000	2000	1500	1500	1200	1～3	1
		3000	3000	3000	3000	3000	3000	2000	4～100	2～3
转动惯量 Rotational Inetia	$kgcm^2$	1.3	3.16	7.7	23.57	58.99	195.4	369.34	1	1
		1.11	2.7	6.31	17.75	45.35	140.24	249.74	2	1
		1.09	2.68	6.26	17.54	44.86	135.7	240.53	25	1
		1.09	2.66	6.17	17.18	44.01	134.95	237.71	3	1
		0.15	0.5	2.79	5.4	7.5	11.91	29.26	4～20	2
		0.14	0.48	2	3.6	5.8	9.46	25.43	25～100	3
重量 Weight	kg	4.4	7.1	12.1	20.9	36.1	69.4	95.2	1～3	1
		4.8	8.1	14.3	24.2	38.5	74.1	102.4	4～20	2
		5.5	9.8	16.9	27.7	40.8	80.4	115.2	25～100	3

1. 角标“1”在输出转速100rpm时，作用于输出轴中心位置（L/2处）之容许径向力及轴向力。
2. 角标“2”环境温度为20℃。
3. 角标“3”音在n1=3000min-1、1米处测得。
4. 样本重量作为参考以实物为准。

1 The subscript "1" in the output speed of 100RPM, in the center of the output shaft position (L/2) permissible radial force and axial force.
Note: with "*" is not commonly used speed ratio, in the form of 2 groups of digital representation of the torque corresponding to the actual ratio,
2 The subscript "2" the environment temperature is 20℃.
3 The subscript "3" sound in n1<3000min-1, measured at 1 m.
4 The Weight of the Sample book shall be taken as a reference, subject to physical object.

ZT轴系列减速机技术参数
ZT Axis Series Servo Gearbox Techincal Data

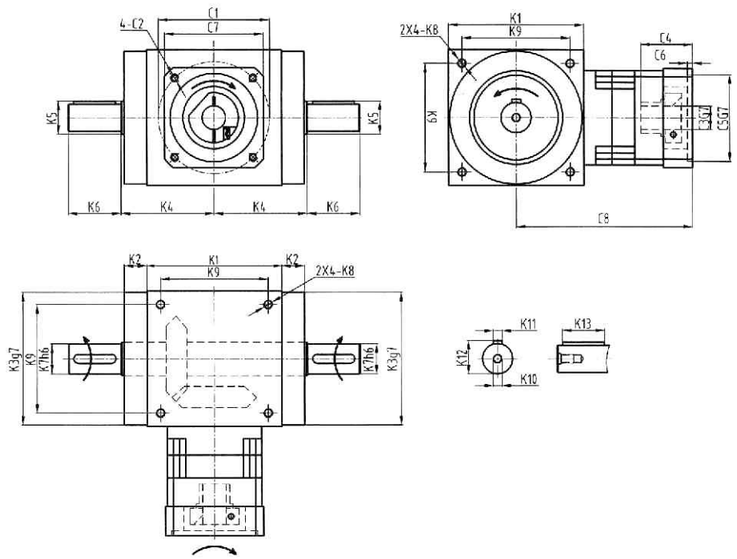
产品型号 Model		ZT070FL	ZT090FL	ZT110FL	ZT140FL	ZT170FL	ZT210FL	ZT240FL	Ratio	Stage
		ZT070FL1	ZT090FL1	ZT110FL1	ZT140FL1	ZT170FL1	ZT210FL1	ZT240FL1		
		ZT070FR1	ZT090FR1	ZT110FR1	ZT140FR1	ZT170FR1	ZT210FR1	ZT240FR1		
		ZT070FH	ZT900FH	ZT110FH	ZT140FH	ZT170FH	ZT210FH	ZT240FH		
		ZT070FC	ZT090FC	ZT110FC	ZT140FC	ZT170FC	ZT210FC	ZT240FC		
额定输出扭矩 Rated Output Torque	Nm	45	78	150	360	585	1300	2150	1	1
		42	68	150	330	544	1220	2010	2	
		37	60	130	280	450	1020	1800	2.5	
		33	54	120	270	450	1020	1650	3	
故障停止扭矩[1] Fault stop torque[1]	Nm	2倍额定输出扭矩							1～3	1～3
回程间隙 Backlash	arcmin	≤6	≤6	≤6	≤6	≤6	≤8	≤10	1～3	1
输出最大径向力[2] Output maximum radial force[2]	N	1100	1700	2700	4800	6600	11500	16000	1～3	1～3
输出最大轴向力[2] Output maximum axial force[2]	N	550	850	1350	2400	3300	5750	8500	1～3	1～3
平均寿命 Average life span	h	20000							1～3	1
效率η Efficiency	%	≥96%							1～3	1～3
噪音[3] Noise[3]	dB(A)	≤72	≤76	≤77	≤78	≤79	≤81	≤83	1～100	1
最大输入速度[4] Max input speed[4]	min^{-1}	3500	3500	3000	3000	2500	2000	1800	1～3	1
额定输入速度[4] Rated input speed[4]	min^{-1}	2500	2500	2000	2000	1500	1500	1500	1～3	1
转动惯量 Moment of inertia	$kgcm^2$	1.3	3.16	7.7	23.57	58.99	195.4	369.34	1	1
		1.11	2.7	6.31	17.75	45.35	140.24	249.74	2	1
		1.09	2.68	6.26	17.54	44.86	135.7	240.53	2.5	1
		1.09	2.66	6.17	17.18	44.01	134.95	237.71	3	1
重量 Weight	kg	4.2	6.8	11.6	19.8	34.8	66.2	98.1	L系列	
		4.1	6.7	11.5	19.5	34.2	65.1	96.6	L1系列	
		3.9	6.4	11	18.1	31.6	60	89.4	H系列	
		4.2	6.9	11.4	19.6	33.7	63.3	97.9	C系列	

角标“1”在输出转速100rpm时，作用于输出轴中心位置（L/2处）之容许径向力及轴向力。
角标“2”环境温度为20℃。
角标“3”音在n1=3000min^{-1}、1米处测得。
样本重量作为参考以实物为准。

The subscript "1" in the output speed of 100RPM, in the center of the output shaft position (L/2) permissible radial force and axial force.
Note: with "*" is not commonly used speed ratio, in the form of 2 groups of digital representation of the torque corresponding to the actual ratio,
The subscript "2" the environment temperature is 20℃.
The subscript "3" sound in n1<3000min-1, measured at 1 m.
The Weight of the Sample book shall be taken as a refereace, subject to physical object.

ZTFL系列行星减速机标准尺寸

ZTFL Series Servo Planetary Gearbox Standard Size

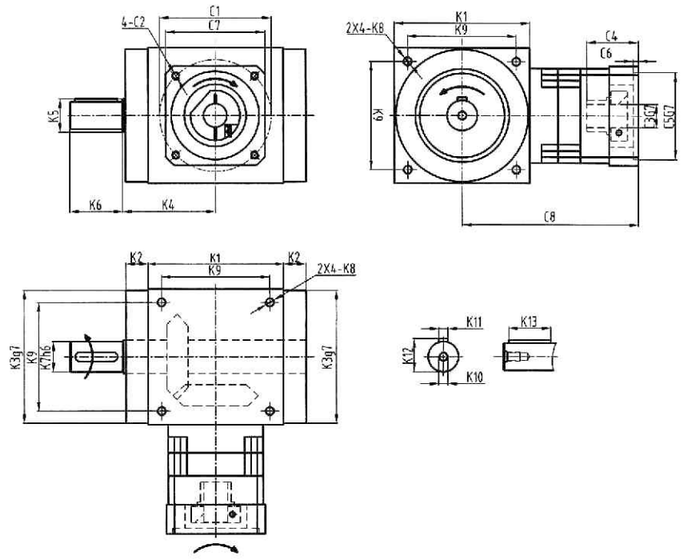


尺寸 Size	ZT070FL	ZT090FL	ZT110FL	ZT140FL	ZT170FL	ZT210FL	ZT240FL
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	ϕ73	ϕ88	ϕ108	ϕ135	ϕ165	ϕ205	ϕ235
K4	54	62	72	87	102	127	147
K5	ϕ22	ϕ25	ϕ30	ϕ47	ϕ55	ϕ75	ϕ85
K6	30	35	40	50	60	75	85
K7	ϕ16	ϕ18	ϕ22	ϕ32	ϕ40	ϕ50	ϕ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
单级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25

尺寸 Size	ZT070FL	ZT090FL	ZT110FL	ZT140FL	ZT170FL	ZT210FL	ZT240FL
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	93	103	143	172.2	248.5	318	355
双级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	116
C4	32.1	41.6	41.6	61.3	61.3	82	82.5
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	114.5	137	147	208	248.5	318	355
三级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ200
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ35
C4	32.1	41.6	41.6	61.3	61.3	82	82
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ114.3
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	175
C8	138.2	168	178.3	249.8	309.5	358	399

ZTFL1系列行星减速机标准尺寸

ZTFL1 Series Servo Planetary Gearbox Standard Size

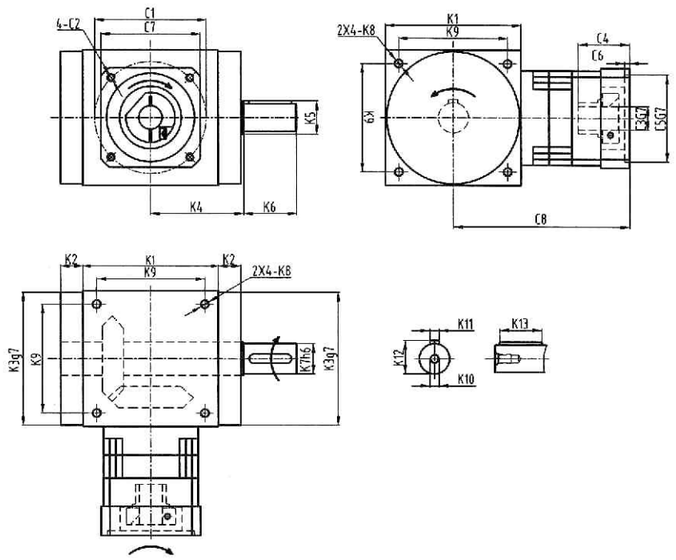


尺寸 Size	ZT070FL1	ZT090FL1	ZT110FL1	ZT140FL1	ZT170FL1	ZT210FL1	ZT240FL1
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	ϕ73	ϕ88	ϕ108	ϕ135	ϕ165	ϕ205	ϕ235
K4	54	62	72	87	102	127	147
K5	ϕ22	ϕ25	ϕ30	ϕ47	ϕ55	ϕ75	ϕ85
K6	30	35	40	50	60	75	85
K7	ϕ16	ϕ18	ϕ22	ϕ32	ϕ40	ϕ50	ϕ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
单级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25

尺寸 Size	ZT070FL1	ZT090FL1	ZT110FL1	ZT140FL1	ZT170FL1	ZT210FL1	ZT240FL1
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	93	103	143	172.2	248.5	318	355
双级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	114.5	137	147	208	248.5	318	355
三级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ200
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ35
C4	32.1	41.6	41.6	61.3	61.3	82	82
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ114.3
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	175
C8	138.2	168	178.3	249.8	309.5	358	399

ZTFR1系列行星减速机标准尺寸

ZTFR1 Series Servo Planetary Gearbox Standard Size

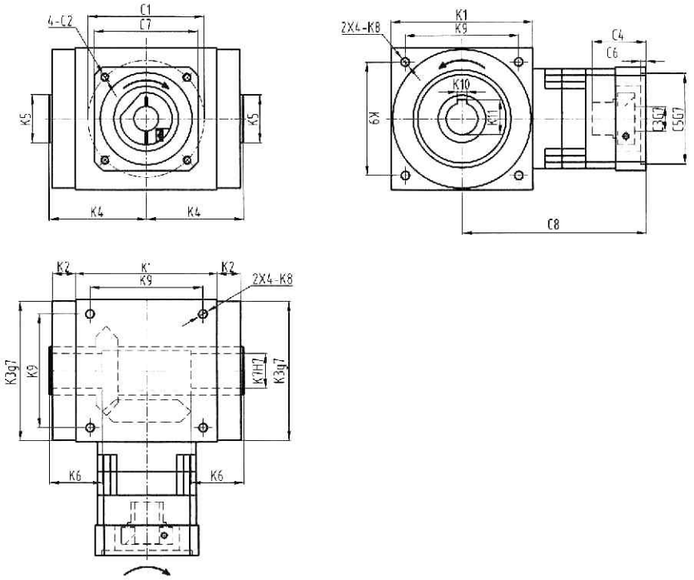


尺寸 Size	ZT070FR1	ZT090FR1	ZT110FR1	ZT140FR1	ZT170FR1	ZT210FR1	ZT240FR1
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	ϕ73	ϕ88	ϕ108	ϕ135	ϕ165	ϕ205	ϕ235
K4	54	62	72	87	102	127	147
K5	ϕ22	ϕ25	ϕ30	ϕ47	ϕ55	ϕ75	ϕ85
K6	30	35	40	50	60	75	85
K7	ϕ16	ϕ18	ϕ22	ϕ32	ϕ40	ϕ50	ϕ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
单级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25

尺寸 Size	ZT070FR1	ZT090FR1	ZT110FR1	ZT140FR1	ZT170FR1	ZT210FR1	ZT240FR1
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	93	103	143	172.2	248.5	318	355
双级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	114.5	137	147	208	248.5	318	355
三级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ200
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ35
C4	32.1	41.6	41.6	61.3	61.3	82	82
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ114.3
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	175
C8	138.2	168	178.3	249.8	309.5	358	399

ZTFH系列行星减速机标准尺寸

ZTFH Series Servo Planetary Gearbox Standard Size

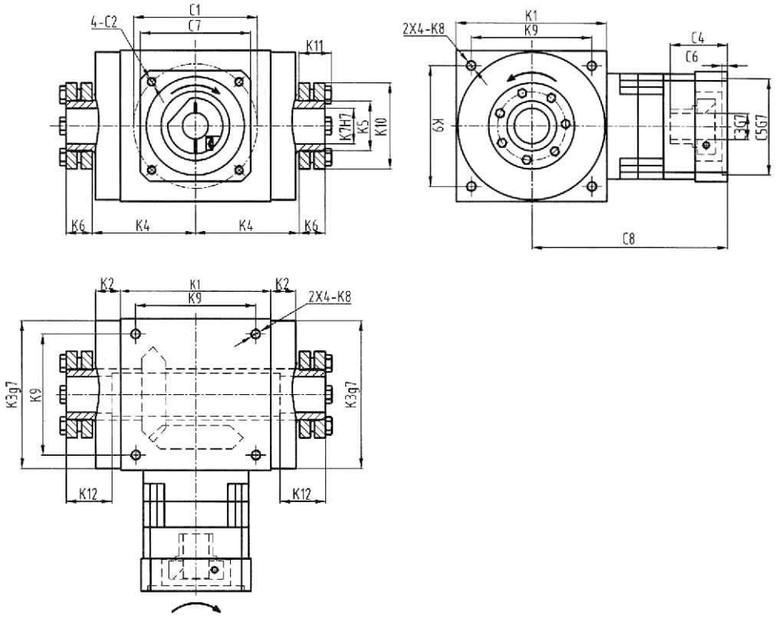


尺寸 Size	ZT070FH	ZT090FH	ZT110FH	ZT140FH	ZT170FH	ZT210FH	ZT240FH
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	ϕ73	ϕ88	ϕ108	ϕ135	ϕ165	ϕ205	ϕ235
K4	54	62	72	87	102	127	147
K5	ϕ22	ϕ28	ϕ33	ϕ47	ϕ55	ϕ75	ϕ85
K6	32	35	40	50	55	65	80
K7	ϕ12	ϕ18	ϕ22	ϕ32	ϕ40	ϕ50	ϕ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	4	6	6	10	12	14	16
K11	13.8	20.8	24.8	35.3	43.3	53.8	59.3
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
单级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25

尺寸 Size	ZT070FH	ZT090FH	ZT110FH	ZT140FH	ZT170FH	ZT210FH	ZT240FH
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	93	103	143	172.2	248.5	318	355
双级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	114.5	137	147	208	248.5	318	355
三级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ200
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ35
C4	32.1	41.6	41.6	61.3	61.3	82	82
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ114.3
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	175
C8	138.2	168	178.3	249.8	309.5	358	399

ZTFC系列行星减速机标准尺寸

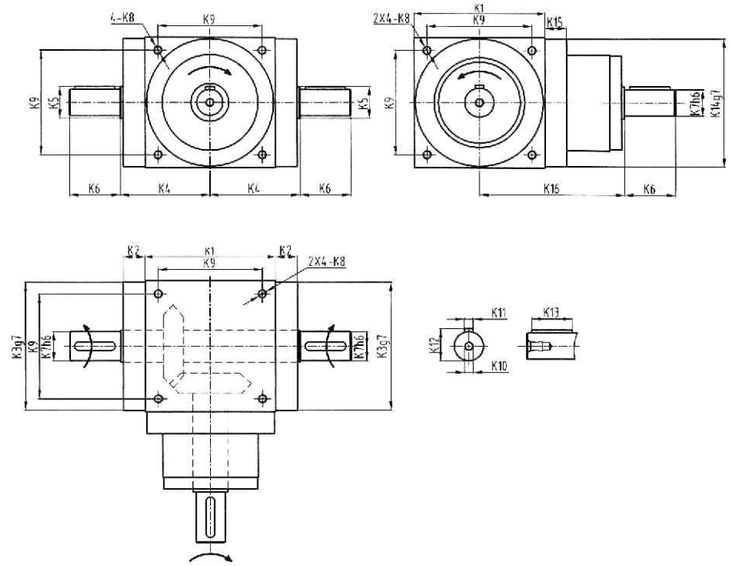
ZTFC Series Servo Planetary Gearbox Standard Size



尺寸 Size	ZT070FC	ZT090FC	ZT110FC	ZT140FC	ZT170FC	ZT210FC	ZT240FC
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	ϕ73	ϕ88	ϕ108	ϕ135	ϕ165	ϕ205	ϕ235
K4	54	62	72	87	102	127	147
K5	ϕ16	ϕ22	ϕ25	ϕ44	ϕ50	ϕ62	ϕ68
K6	14	18	18	24	26	29	29
K7	ϕ14	ϕ18	ϕ22	ϕ32	ϕ40	ϕ50	ϕ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	41	50	50	80	90	110	115
K11	18.5	23	23	29.5	31.5	34.5	34.5
K12	32	35	40	50	55	65	80
单级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25

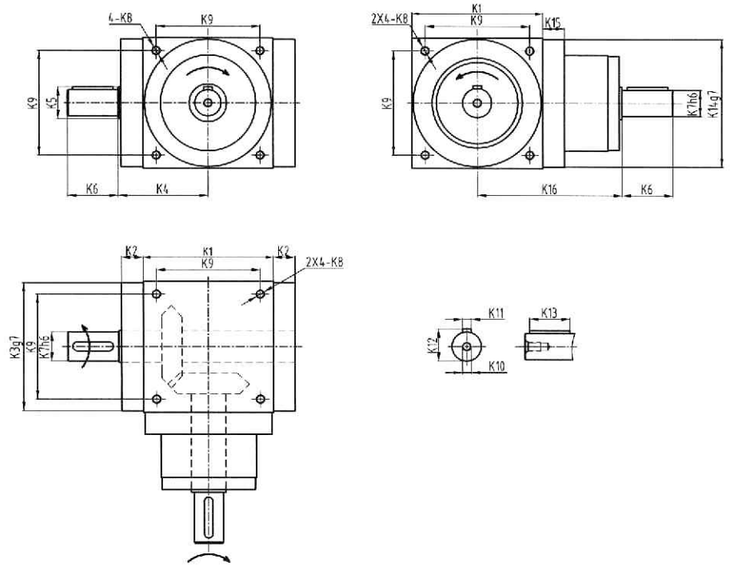
尺寸 Size	ZT070FC	ZT090FC	ZT110FC	ZT140FC	ZT170FC	ZT210FC	ZT240FC
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	93	103	143	172.2	248.5	318	355
双级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	114.5	137	147	208	248.5	318	355
三级减速电机连接尺寸							
C1	ϕ70	ϕ90	ϕ90	ϕ145	ϕ145	ϕ200	ϕ200
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	ϕ14	ϕ19	ϕ19	ϕ24	ϕ24	ϕ35	ϕ35
C4	32.1	41.6	41.6	61.3	61.3	82	82
C5	ϕ50	ϕ70	ϕ70	ϕ110	ϕ110	ϕ114.3	ϕ114.3
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	175
C8	138.2	168	178.3	249.8	309.5	358	399

ZTL系列减速机标准尺寸
ZTL Series Servo Gearbox Standard Size



尺寸 Size	ZT070L	ZT090L	ZT110L	ZT140L	ZT170L	ZT210L	ZT240L
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	ϕ73	ϕ88	ϕ108	ϕ135	ϕ165	ϕ205	ϕ235
K4	54	62	72	87	102	127	147
K5	ϕ22	ϕ25	ϕ30	ϕ47	ϕ55	ϕ75	ϕ85
K6	30	35	40	50	60	75	85
K7	ϕ16	ϕ18	ϕ22	ϕ32	ϕ40	ϕ50	ϕ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
K14	73	88	108	135	165	205	235
K15	15	15	15	15	15	20	25
K16	90	100	115	130	155	195	225

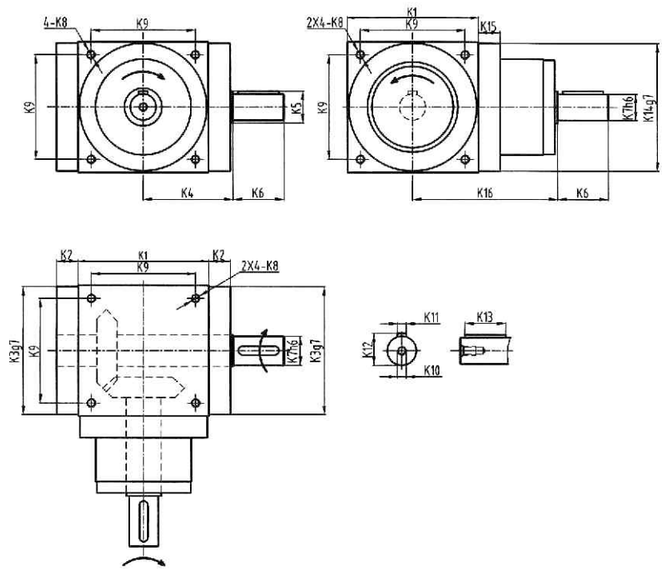
ZTL1系列减速机标准尺寸
ZTL1 Series Servo Gearbox Standard Size



尺寸 Size	ZT070L1	ZT090L1	ZT110L1	ZT140L1	ZT170L1	ZT210L1	ZT240L1
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	ϕ73	ϕ88	ϕ108	ϕ135	ϕ165	ϕ205	ϕ235
K4	54	62	72	87	102	127	147
K5	ϕ22	ϕ25	ϕ30	ϕ47	ϕ55	ϕ75	ϕ85
K6	30	35	40	50	60	75	85
K7	ϕ16	ϕ18	ϕ22	ϕ32	ϕ40	ϕ50	ϕ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
K14	73	88	108	135	165	205	235
K15	15	15	15	15	15	20	25
K16	90	100	115	130	155	195	225

ZTR1系列减速机标准尺寸

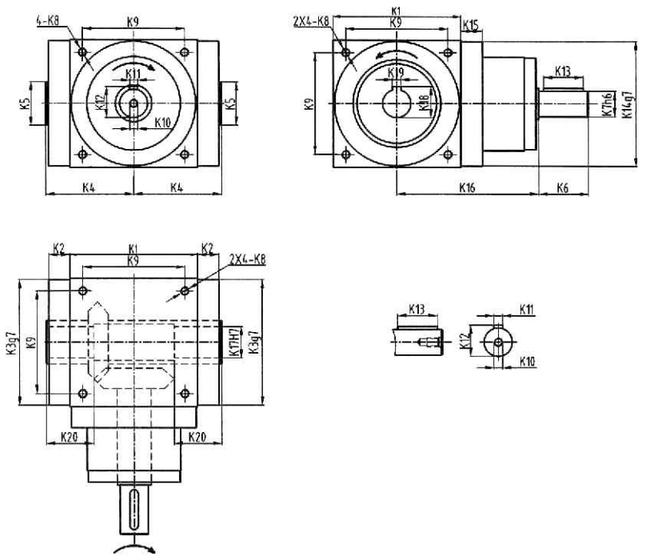
ZTR1 Series Servo Gearbox Standard Size



尺寸 Size	ZT070R1	ZT090R1	ZT110R1	ZT140R1	ZT170R1	ZT210R1	ZT240R1
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	ϕ73	ϕ88	ϕ108	ϕ135	ϕ165	ϕ205	ϕ235
K4	54	62	72	87	102	127	147
K5	ϕ22	ϕ25	ϕ30	ϕ47	ϕ55	ϕ75	ϕ85
K6	30	35	40	50	60	75	85
K7	ϕ16	ϕ18	ϕ22	ϕ32	ϕ40	ϕ50	ϕ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
K14	73	88	108	135	165	205	235
K15	15	15	15	15	15	20	25
K16	90	100	115	130	155	195	225

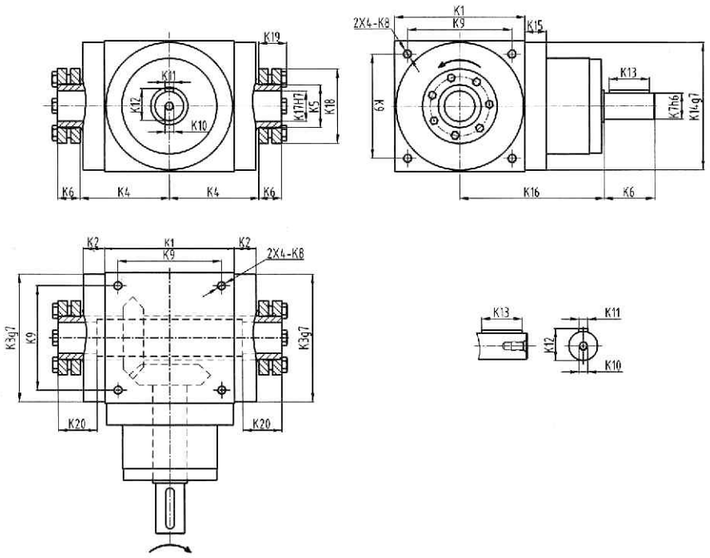
ZTH系列减速机标准尺寸

ZTH Series Servo Gearbox Standard Size



尺寸 Size	ZT070H	ZT090H	ZT110H	ZT140H	ZT170H	ZT210H	ZT240H
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	ϕ73	ϕ88	ϕ108	ϕ135	ϕ165	ϕ205	ϕ235
K4	54	62	72	87	102	127	147
K5	ϕ22	ϕ28	ϕ33	ϕ47	ϕ55	ϕ75	ϕ85
K6	30	35	40	50	60	75	85
K7	ϕ10	ϕ16	ϕ18	ϕ32	ϕ40	ϕ50	ϕ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
K14	73	88	108	135	165	205	235
K15	15	15	15	15	15	20	25
K16	90	100	115	130	155	195	225
K17	ϕ12	ϕ18	ϕ22	ϕ32	ϕ40	ϕ50	ϕ55
K18	13.8	20.8	24.8	35.3	43.3	53.8	59.3
K19	4	6	6	10	12	14	16
K20	32	35	40	50	55	65	80

ZTC系列减速机标准尺寸
ZTC Series Servo Gearbox Standard Size



尺寸 Size	ZT070C	ZT090C	ZT110C	ZT140C	ZT170C	ZT210C	ZT240C
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	ϕ73	ϕ88	ϕ108	ϕ135	ϕ165	ϕ205	ϕ235
K4	54	62	72	87	102	127	147
K5	ϕ16	ϕ22	ϕ25	ϕ44	ϕ50	ϕ62	ϕ68
K6	14	18	18	24	26	29	29
K7	ϕ16	ϕ18	ϕ22	ϕ32	ϕ40	ϕ50	ϕ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
K14	73	88	108	135	165	205	235
K15	15	15	15	15	15	20	25
K16	90	100	115	130	155	195	225
K17	ϕ14	ϕ18	ϕ22	ϕ32	ϕ40	ϕ50	ϕ55
K18	41	50	50	80	90	110	115
K19	18.5	23	23	29.5	31.5	34.5	34.5
K20	32	35	40	50	55	65	80

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 choosen 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. 运转过程中出现异音、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 / nosie 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 reassemblying.

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

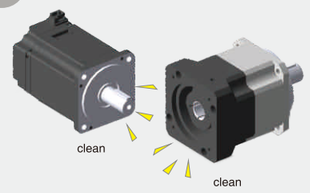
减速机规格 Reducer Specifications	螺丝规格 Screw Size	六角头规格 Hexagon Head Size	扭力值（12.9级螺丝） Strength 12.9 Tightening Torque	
		mm	Nm	In-lbs
040-Series	M4	3	4.9	44
060 Series	M5	4	9.8	87
090 Series	M6	5	17	151
120/140 Series	M8	6	41	364
180 Series	M10	8	80	709
220 Series	M12	10	139	1232

表Ⅱ 马达螺丝锁紧扭力
TableⅡ 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

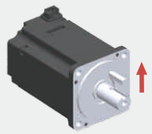
1



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.

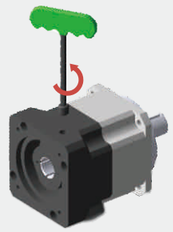
2



取下马达轴键。

Remove motor key.

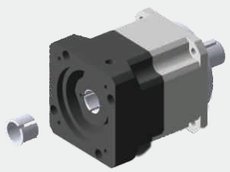
3



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.

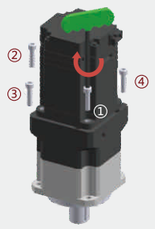
4



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.

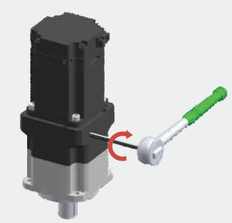
5



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.

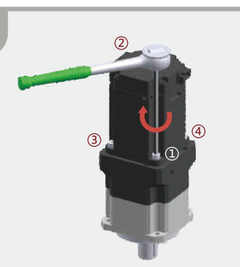
6



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.

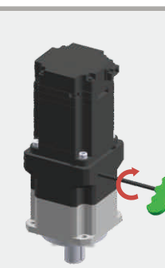
7



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.

减速机专业名词 Reducer Glossary

速比
Gear Ratio i

输入转速与输出转速的比值，减速比=输入转速÷输出转速。

Ratio of input speed and output speed,Gear Ratio = input speed / output speed.

额定输出扭矩
Nominal Output Torque T_{2N}

减速机承载能力的一个标准。当减速机输入转速在额定输入转速范围内，为保证减速机工作寿命，所允许使用的最大输出扭矩。

A standard for load-carrying capacity of reducer.To ensure the working life of reducer,the Max.limit of output torque when inputspeed is in the range of nominal speed.

急停扭矩
Emergency Stop Torque T_{2NOT}

减速机瞬间所能承受之最大扭矩，是使减速机内部机械结构产生变形、损坏的临界值。

The Max.torque which the reducer could bear instantaneously, is the critical value which could make the internal mechanical structure of reducer deformed or even destroyed.

额定输入转速
Nominal Input Speed n_{1N}

为保证减速机工作寿命，所允许使用的转速。

The speed which could ensure the working life of reducer.

最大输入转速
Max. Input Speed n_{1B}

减速机所能承受之最大转速（仅适用于周期运转模式，连续运转模式下请将转速降至额定输入转速范围内）。

The Max. speed which reducer could bear. (Only suitable under cycle operation mode, please change the speed in the range of nominal input speed under continuous operation.)

周期运转模式
Cycle Operation S5

工作周期ED＜60%、连续工作时间＜20分钟则为周期运转模式。

Working period Ed＜ 60%, consecutive working time＜20min, is called cycle operation mode.

连续运转模式
Continuous Operation S1

工作周期ED＞60%、连续工作时间＞20分钟，则为连续运转模式。

Working period Ed＞ 60%, consecutive working time＞20min, is called continuous operation mode.

背隙
Backlash

减速机输出轴与输入轴的最大偏差角，测量时先将输入轴固定住，然后输出轴加载一定力矩（060系列：0.31Nm，090系列：0.8Nm，120系列：2.5Nm，140系列：5.7Nm，180系列：12.5Nm，220系列：16.5Nm），减速机输出端处出现的微小角位移便是背隙值。

The backlash is the maximum twist angle of the output shaft relative to the input. Backlash is measured with the input shaft locked, the output is then loaded with a defined test torque(060Series:0.31Nm,090Series:0.8Nm,120Series:2.5Nm,140Series:5.7Nm, 180Series:12.5Nm, 220Series:16.5Nm.) In order to overcome the internal gearhead friction, the small angular displacement at the output of the gear unit is the backlash value.

扭转刚性
Torsional Rigidity

减速机在额定输出扭矩范围内，由于受负载力矩作用，各零部件会产生微量的弹性变形（扭转）。在各零部件弹性变形的共同作用下，减速机输入轴与输出轴之间产生微量的响应迟滞（详情可看迟滞曲线图），致使输入轴与输出轴产生转角误差。当负载力矩消失，弹性变形随之消失，转角误差亦同时消失。产生转角误差所需要加载的扭矩与转角误差的比值，即为扭转刚性值。

When the reducer is in the range of nominal output torque, due to the loading moment working, all components could have traces amount elastic deformation (torsion). Under the combined action of the elastic deformation, there is traces amount hysteresis between input shaft and output shaft of reducer (Please refer to the Hysteresis Curve.), which could bring the rotating angle error of input and output shafts. When loading moment disappears, elastic deformation would disappear, meanwhile the rotating angle error. The ratio of the loading torque and rotating angle error, is called torsional rigidity value.

减速机专业名词 Reducer Glossary

容许径向力
Max. Radial Load F_{2rB}

在保证减速机工作寿命状态下，减速机所能承受垂直于输出轴轴向的最大作用力（0.5L处）。

To keeping the reducer working life, the Max. working load which is perpendicular to the axial direction of output shaft.（1/2 L postion.）

容许轴向力
Max. Axial Load F_{2aB}

在保证减速机工作寿命状态下，减速机输出端所能承受之最大轴向作用力。

To keeping the reducer working life, the Max. axial working load which the output end of reducer could bear.

使用寿命
Service Life

减速机在额定输入转速、额定输出扭矩、工作温度范围内周期运转模式下，正常使用之寿命（连续运转模式下寿命减半）。

Life which under the conditions of nominal input speed, nominal output torque, periodical operation mode in working temperature. （Half-life under continuous operation mode.）

噪音值
Noise

减速机在空载、输入转速为3000rpm状态下，测量仪距减速机1m所测之值。

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

转动惯量
Mass Moments of Inertia J_1

减速机输入轴尽力保持其转动或禁止状态之值。

The value which reducer input shaft try to keep itself rotating or still.

效率
Efficiency η

减速机在额定负载状态下，输出功率与输入功率之比率。

Reducer under nominal loading status, the ratio of output power and input power.

迟滞曲线
Hysteresis Curve

将减速机输入轴固定住，然后输出端的两个旋转方向分别持续加载最大加速扭矩（1.8倍额定输出扭矩），继而逐步卸载，用仪器记录下扭矩的仿差角，得到的曲线是一条闭合曲线，从中可以计算出减速机的扭转刚性值。

If input shaft is locked, then two direction of rotation of output for loading maximum acceleration torque (1.8 times the nominal output torque), and then gradually unloading. Use instrument to record the torque difference Angle, the curve is a closed curve, we can calculate the torsional rigidity value ofthe speed reducer.

扭转刚性 Torsional Rigidity $= \frac{\triangle T}{\triangle \emptyset}$

