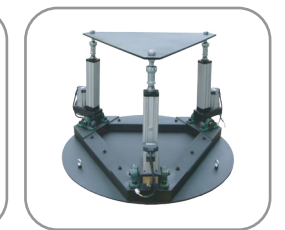
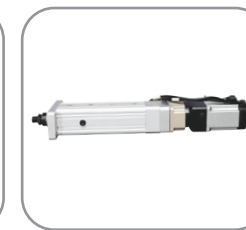


伺服电动缸产品样册

Sample booklet of servo electric cylinder products

2025版



直线运动系统方案专业生产服务商

Professional manufacturer and service provider of linear Motor system scheme



晟奇科技（上海）有限公司
ZEQI TECHNOLOGY(SHANGHAI)GO.,LTD



晟奇公众号



技术支持

晟奇科技(上海)有限公司

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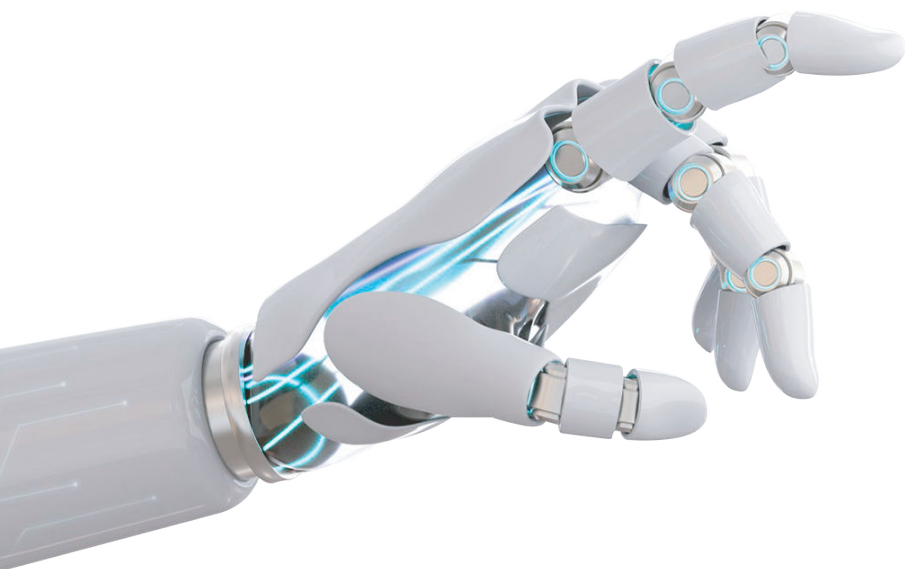
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致力将您的科技梦想变成现实

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FOCUSING ON YOUR NEEDS

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COMPANY PROFILE

公司简介

昊奇科技(上海)有限公司是一家集研发、生产、销售、服务于一体的动力传动装置专业制造商。总部位于中国上海。一直坚持“想客户之所想，急客户之所急”的企业理念，致力于打造世界一流的中国传动品牌。

公司自主产品有:伺服电动缸、行星减速机、多自由度运动平台、HK线性模组等。公司始终视品质为生命，分工细致，职责明确，快速反应，衔接有序，严把质量关。从每个零件的最初进料到装配完成品的运转，都检测测试，以完全符合客户要求及公司的品质标准。

公司长期以来致力于动力传动行业的不断发展。并与众多知名品牌企业建立了良好、稳固的合作伙伴关系，形成了一个具有强大生命力，相互依存，共同发展的合作机制。信奉：“品质第一，顾客至上”的原则，凭借领先的技术、丰富的行业应用经验以及优良的产品品质、专业规范的售后服务与现代化的市场管理理念，迅速发展壮大。产品被广泛用于工业机器人、新能源、工程机械、印刷机械、医疗机械、纺织机械、包装机械、激光切割设备、汽车制造等领域。获得了各界广泛的认可。

让客户享受到质量可靠、性价比高、服务完善的传动装置产品是我们的奋斗目标，公司坚持以客户的需求为中心，持续改进，为客户提供经济、可靠的动力传动方案。让科技转化为生产力，用专业化的服务帮助客户创造更高的价值！

企业文化:创新、合作、共赢！

经营理念:以实为本,以诚取信;以技术为主,以服务取胜。



Zeqi Technology (Shanghai) Co., Ltd. is a professional manufacturer of power transmission devices that integrates research and development, production, sales, and service. The headquarters is located in Shanghai, China. We have always adhered to the corporate philosophy of "thinking about what customers want and being anxious about what customers need", and are committed to creating a world A first-class Chinese transmission brand.

The company's independent products include servo electric cylinders, planetary reducers, multi degree of freedom motion platforms, HK linear modules, etc. The company always regards quality as its life, with meticulous division of labor, clear responsibilities, quick response, orderly connection, and strict quality control. From the initial feeding of each component to the operation of the assembled product, testing is conducted to fully meet customer requirements and company quality standards.

The company has long been committed to the continuous development of the power transmission industry. And we have established good and stable partnerships with numerous well-known brand enterprises, forming a strong vitality, interdependence, and common development cooperation mechanism. Believing in the principle of "quality first, customer first", with leading technology, rich industry application experience, excellent product quality, professional and standardized after-sales service, and modern market management philosophy, we have rapidly developed and grown. The products are widely used in industrial robots, new energy, engineering machinery, printing machinery, medical machinery, textile machinery, packaging machinery, laser cutting equipment, automotive manufacturing and other fields. It has gained widespread recognition from all walks of life.

Our goal is to provide customers with reliable quality, cost-effective, and comprehensive service transmission products. The company adheres to customer-centered needs, continuous improvement, and provides customers with economical and reliable power transmission solutions. Transform technology into productivity, and use professional services to help customers create higher value!

Corporate culture: innovation, cooperation, and win-win situation!

Business philosophy: Taking practicality as the foundation and honesty as the foundation: focusing on technology and winning through service.

传动未来 是无穷贷

一站式服务体验，让您全程安心、放心无忧



可根据客户的需求进行**设计订制**
为客户提供全方位、多元化的**个性化服务**



合作热线：**18930904889**

40系列伺服电动缸	40 series servo electric cylinder	20
50系列伺服电动缸	50 series servo electric cylinder	24
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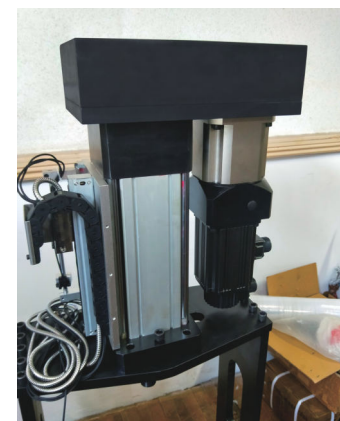
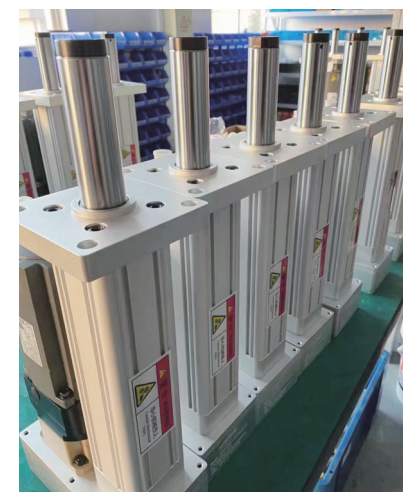
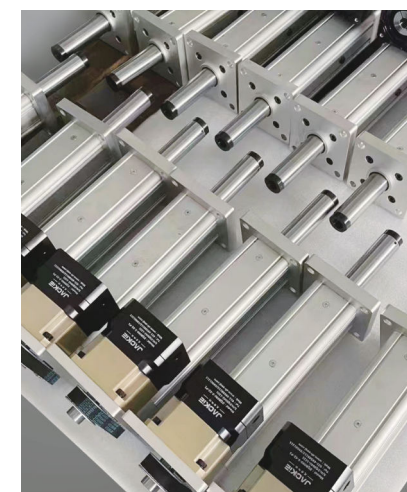
OUR PRODUCTS

我们的产品

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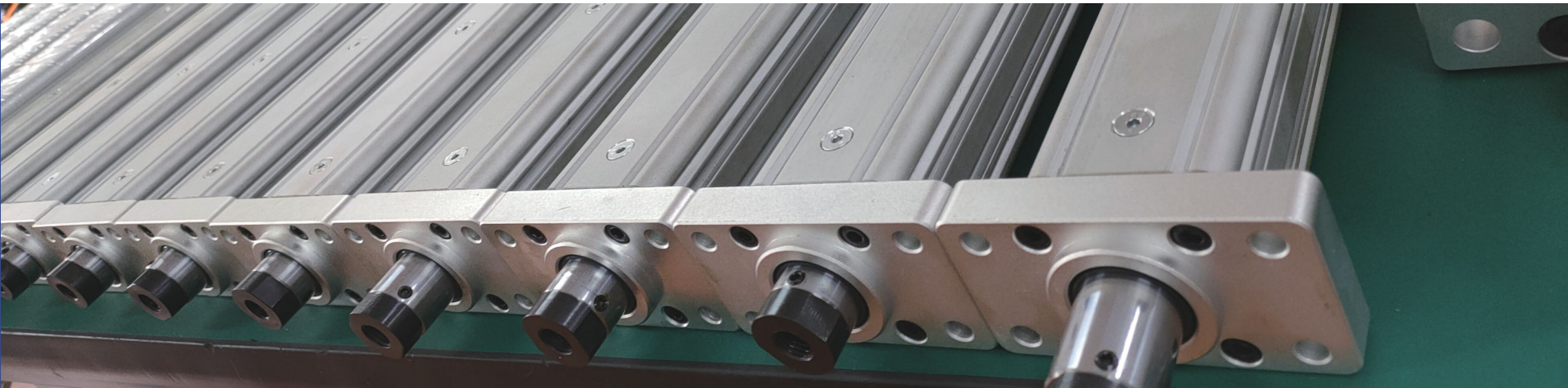
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**PRODUCT
PHOTOGRAPH**
产品实拍



PRODUCT FEATURES AND STRUCTURE PRINCIPLES

产品特点及结构原理



伺服电动缸是一种高精度线性执行器,可以简单的看成是一款做往复直线运动的产品,由于伺服电动缸的出现,目前很多使用传统液压缸和气缸的设备都换成了伺服电动缸。

您可以享受到:自由编程并实现复杂的运动曲线。整个行程中力、位置和速度实现自由参数化。

Servo electric cylinder is a high-precision linear actuator, which can be simply seen as a reciprocating linear motion product. Due to the emergence of servo electric cylinder, many devices that use traditional hydraulic cylinder and cylinder have been replaced by servo electric cylinder.
You can enjoy: programming freely and implementing complex motion curves. Free parameterization of force, position, and speed throughout the entire stroke.

一、产品特点 Product features

- 1、机械结构紧凑、外形尺寸小、效率高、响应速度快、惯量低、噪音低、设计原理简单；
- 2、精确的位置控制，重复定位精度可达0.01mm，增加外部位移传感器(如光栅尺)，控制精度可达0.005mm；
- 3、精确的速度控制，可以任意设定速度波形，实现高速平稳无冲击运行，控制精度可达0.5%；
- 4、精确的推力控制，增加推拉力传感器后，控制精度可达0.05%；
- 5、可采用滚珠丝杆的传动方式；
- 6、可采用伺服电机、步进电机、直流电机、三相异步电机的驱动方式进行伺服和变频控制；
- 7、性能可靠、保护功能完善、使用寿命长、节能环保；

1. Compact mechanical structure, small external size, high efficiency, fast response speed, low inertia, low noise, simple design principle;
2. Accurate position control, repeated positioning accuracy up to 0.01mm, increased external displacement sensor (such as grating ruler) control accuracy up to 0.005mm;
3. Accurate speed control, the speed waveform can be set arbitrarily, to achieve high-speed and stable operation without impact, control accuracy up to 0.5%;
4. Accurate thrust control, with the addition of thrust and tension sensors, the control accuracy can reach 0.05%;
5. Ball screw transmission can be used;
6. Servo motor, stepper motor, DC motor and Three-phase asynchronous motor can be used for servo and frequency conversion control;
7. Reliable performance, perfect protection function, long service life, energy saving and environmental protection;

二、结构原理 Structure principle

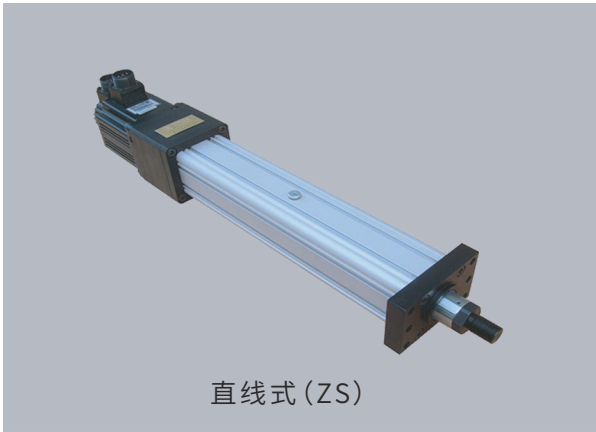
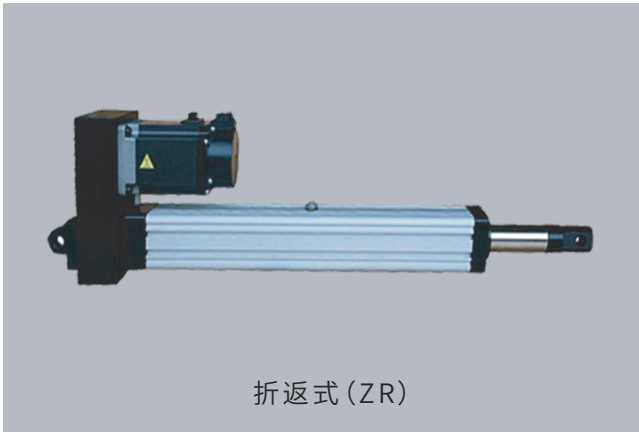
伺服电动缸是将电机正反旋转运动通过丝杠和丝杠副的机械运动转换为往返直线运动。利用伺服电机的闭环控制特性，可以很方便的实现对推力、速度和位置的精密控制；利用现代运动控制技术、数控技术及总线(网络)技术，实现程序化、总线(网络)化控制。由于其控制、使用的方便性，将实现气缸和液压缸传动所不能实现的精密运动控制。
电缸中的丝杠传动将马达扭矩转换为线性传动。连接在丝杆传动螺母上的活塞杆，根据电机旋转的方向，会缩回或伸出。螺母和活塞杆都通过电缸壳体导向。

The servo motor cylinder converts the forward and backward rotation motion of the motor through the mechanical motion of the lead screw and the lead screw pair into a round trip linear motion. With the closed-loop control characteristic of servo motor, the precise control of thrust, speed and position can be realized conveniently. By using modern motion control technology, numerical control technology and bus (network) technology, the programmed and bus (network) control is realized. Because of its control, the use of convenience, cylinder and hydraulic cylinder transmission can not achieve precision motion control.
The screw drive in the electric cylinder converts the motor torque into linear transmission. The piston rod connected to the screw drive nut will retract or extend according to the direction of motor rotation. The nut and piston rod are guided through the electric cylinder housing.

三、同步带折返式电动缸 Synchronous belt retractable electric cylinder

折返式电动缸由于电机与电动缸平行安装，电机通过同步带带动丝杆传动，使整体长度缩短，适用于安装位置比较小的场合。同时本产品选用的同步带，具有强度高、间隙小、寿命长的特点，使整个电动缸具有较高的控制精度。伺服电机与电动缸配合灵活、安装容易、设定简单、使用方便。电动缸的主要零部件均采用国外名牌产品，性能稳定、故障率低、可靠性高。

Due to the parallel installation of the motor and the electric cylinder, the motor drives the screw drive through the synchronous belt, which shortens the overall length and is suitable for small installation positions. At the same time, the synchronous belt selected by this product has the characteristics of high strength, small clearance and long life, so that the whole electric cylinder has a higher control accuracy. The servo motor is flexible with the electric cylinder, easy to install, simple to set up and easy to use. The main components of the electric cylinder are made of famous foreign products with stable performance, low failure rate and high reliability.



四、同轴直线式电动缸 Coaxial linear electric cylinder

直线式电动缸集成了交流伺服电机、直流伺服驱动器、高精度滚珠丝杠、模块化设计等技术，使整个电动缸具有结构紧凑、惯性小、响应快、低噪音和长寿命等优点。伺服电机与电动缸的传动丝杠直接相连接，使伺服电机的编码器直接反馈电动缸移动活塞的位移量，减少了中间环节的惯量和间隙，提高了控制性、控制刚度和控制精度。伺服电机与电动缸整体相连，安装容易、设计简单、使用方便。电动缸的主要零部件均采用国外名牌产品，性能稳定、故障率低、可靠性高。

Linear electric cylinder integrated AC servo motor, DC servo driver, high precision ball screw, modular design technology, so that the whole electric cylinder has a compact structure, small inertia, quick response, low noise and long life, and other advantages. The servo motor is directly connected with the driving lead screw of the electric cylinder, so that the encoder of the servo motor can directly feedback the displacement of the moving piston of the electric cylinder, reduce the inertia and clearance of the intermediate link, and improve the control, control stiffness and control accuracy. The servo motor is connected with the electric cylinder, which is easy to install, simple in design and easy to use. The main components of the electric cylinder are made of famous foreign products with stable performance, low failure rate and high reliability.

伺服电动缸和传统液压缸、气缸的对比

The comparison between servo electric cylinder and traditional hydraulic cylinder and cylinder

				
	项目project	电动缸 electric cylinder	液压缸 hydraulic cylinder	气缸 Pneumatic cylinder
成本对比 Cost comparison	操作方式 Operation mode	简单，即插即用 Operation mode	复杂 complex	复杂 complex
	环境影响 environmental impact	无污染，环保 environmental impact	经常漏油 Often the spill	噪音较大 High noise
	安全隐患 Safety hazards	安全，几乎无隐患 Safety hazards	有油泄露 There are oil leakage	有气泄露 Gas leakage
	能源应用 Energy Applications	节约能源 Energy Applications	损耗大 High loss	损耗大 High loss
	寿命 life	超长 life	较长（维护得当） Long (properly maintained)	较长（维护得当） Long (properly maintained)
	维护保养 Maintenance	几乎免维护 Maintenance	运行高成本维护 High operating costs maintenance	定期高成本维护 Regular high cost maintenance
	性价比 prices	高 prices	较低 Lower	较低 Lower
功能对比 Functional comparison	速度 speed	很高 speed	中等 secondary	很高 Very high
	加速度 acceleration	很高 acceleration	较高 higher	很高 Very high
	刚性 rigid	超高 rigid	较低且不稳定 Low and unstable	很低 Very low
	承载能力 bearing capacity	很强 bearing capacity	很强 Very strong	中等 secondary
	抗冲击载荷能力 shock load	很强 shock load	很强 Very strong	较强 Strong
	传递效率 Transfer efficiency	>90%	<50%	<50%
	定位控制 Positioning control	非常简单 Positioning control	复杂 complex	复杂 complex
	定位精度 positioning accuracy	很高 positioning accuracy	一般 commonly	一般 commonly

液压缸和气缸的最佳替代品：伺服电动缸可以完全替代液压缸和气缸，并且实现环境更环保、更节能、更干净的优点，很容易与PLC等控制系统连接，实现高精密运动控制。

配置灵活性：可以提供非常灵活的安装配置，全系列的**安装组件：**安装前法兰，后法兰，侧面法兰，尾部铰接，耳轴安装，导向模块等；可以与伺服电机直线安装或者平行安装；

可以增加各式附件：限位开关，行星减速机，预紧螺母等；驱动可以选择交流制动电机，直流电机，步进电机，伺服电机。

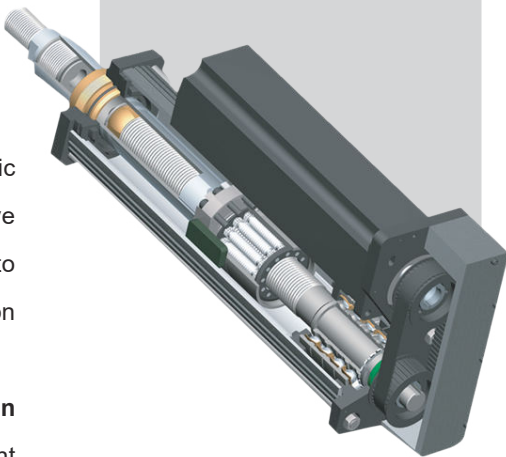
The best substitute for hydraulic cylinder and cylinder: servo electric cylinder can completely replace hydraulic cylinder and cylinder, and achieve environmental protection, more energy saving, cleaner advantages, easy to connect with PLC and other control systems, to achieve high precision motion control.

Flexibility of configuration: can provide very flexible installation configuration, full series of installation components: installation of front flange, rear flange, side flange, tail hinge, trunnion installation, guide module, etc.It can be installed in line or in parallel with the servo motor;

Various accessories can be added: limit switch, planetary reducer, preload nut, etc.Drive can choose ac brake motor, DC motor, stepper motor, servo motor.

电动缸的优势

ADVANTAGES
OF ELECTRIC
CYLINDERS



随着自动化技术在工业制造业的应用，制造业逐步实现传统制造向智能制造的质的飞跃。其中，电动缸作为普遍应用的一种辅助设备，在工业应用中随处可见。

军事装备：雷达、导弹起竖架、装甲车摇摆台、特种设备等战舰与飞机的舱门开启，座位高低调节，武器随动系统执行机构，实验升降支架、坦克的火炮高低向动作调节，火箭燃料推送、炉门开启等。

专用设备：工业自动化生产线、装配线、物流传送、升降台、调偏控制、阀门控制、坐标机械手、机械设备、CT咖啡机、食品医药行业、数控机床、行业包装机、汽车电子压装机、纺织设备卷绕机分度、模具位置控制、夹紧、钻孔、定位。

实验设备：仿真平台、试验台、造波机、检测设备等。

With the application of automation technology in the industrial manufacturing industry, the manufacturing industry has gradually realized a qualitative leap from traditional manufacturing to intelligent manufacturing.Among them, electric cylinder as a common application of auxiliary equipment, can be seen everywhere in industrial applications.

Military equipment: open the hatches of warships and aircraft such as radar, missile risers, armoured wagons and special equipment, adjust the height and height of the seats, implement the weapon follow-up system, adjust the height and direction of the artillery of the experimental lifting bracket and tank, push the rocket fuel and open the furnace door, etc.

Special equipment: industrial automation production line, assembly line, logistics delivery, lift platform, adjusting control, valve control, coordinate manipulator, mechanical equipment, CT coffee machine, food, pharmaceutical industry, CNC machine, packaging machine industry, auto electronic pressure machine, textile equipment winding machine dividing, mould position control, clamping, drilling, positioning.

特殊制作【可选配】

SPECIALLY MADE (OPTIONAL)

- 1、特殊安装、防护、防尘、防潮

2、高低温环境

3、海上防水、防爆作业

4、配线性位移传感器

5、配压力传感器

6、可抗回转机构

7、配行星减速机

8、电机：伺服电机、直流伺服电机、步进电机、直流电机、交流变频电机等
1. Special installation, protection, dustproof and moisture-proof

2. High and low temperature environment

3. Waterproof and explosion-proof operations at sea

4. Equipped with linear displacement sensor

5. Equipped with pressure sensors

6. Anti-turning mechanism

7. Equipped with planetary reducer

8. Click: servo motor, DC servo motor, stepper motor, DC motor, AC variable frequency motor, etc

材料及表面处理 Material and surface treatment	1、外壳：高强度铝合金。光滑处理, 美观大方。 2、活塞杆：镀铬合金钢。耐腐蚀性, 高强度。 1. Shell: High strength aluminum alloy. Smooth treatment, beautiful and elegant. 2. Piston rod: chrome plated alloy steel. Corrosion resistance, high strength.
导向机构及定位精度 Guiding mechanism and positioning accuracy	1、一般情况下按重复考虑选择, 同时考虑电机的精度。直线度不应以电动缸的推杆作为导向, 客户应设计自己的导向机构。 2、电机并联比直连精度会降低, 因为中间经过同步带或减速机。 1. Generally, the selection is based on repeated considerations, while also considering the accuracy of the motor. Straightness should not be measured by electric cylindersAs a guide, customers should design their own guiding mechanism. 2. The accuracy of parallel connection of motors will be reduced compared to direct connection, as it passes through a synchronous belt or reducer in the middle.
速度 speed	高速运行 (大于200mm/s) 时需要特别考虑寿命, 同时承载能力和精度都会有所下降。 When operating at high speeds (greater than 200mm/s), special consideration needs to be given to lifespan, while bearing capacity and accuracy may decrease.
行程 trip	电动缸选型时的行程应比实际使用的有效行程大20mm-50mm, 为活塞杆碰到限位开关后减速停下留出一定的空间, 速度要求越快, 空间相应加大。 The actual effective stroke of the coin used during the selection of the electric cylinder is 20mm to 50mm, Leave a certain amount of space for the piston rod to slow down and stop when it touches the limit switch, and the faster the speed requirement, the larger the space accordingly.
推力 thrust	电机并联时, 选择齿轮传动要比同步带传动时推力更大。 When motors are connected in parallel, choosing gear transmission has a greater thrust than synchronous belt transmission.
运行周期 Operating cycle	使用滚珠丝杠可频繁运行 (大于50%) 或连续运行。 The use of ball screws can operate frequently (greater than 50%) or continuously.
电机选择 motor selection	1、交流伺服电机精度高、速度快、推力大、不丢步； 2、步进电机精度较高, 速度慢, 推力不太大 (小于600KG) ； 3、普通直流电机可以调速, 不能定位； 4、普通异步交流电机不能调速和定位。 1. AC servo motor has high accuracy, fast speed, large thrust, and no loss of step; 2. The stepper motor has high accuracy, slow speed, and low thrust (less than 600KG); 3. Ordinary DC motors can adjust speed but cannot be positioned; 4. Ordinary asynchronous AC motors cannot adjust speed and position.

电机输出扭矩与电动缸输出力的关系

RELATIONSHIP BETWEEN OUTPUT TORQUE OF MOTOR AND OUTPUT FORCE OF ELECTRIC CYLINDER

$$F=T\times\eta\times2\pi\times R/L$$

F：电动缸输出力，单位：KN千牛

T：电机输出扭矩，单位：Nm 牛.米

R：减速比

L：丝杠导程，单位：mm

η：效率（一般选择电动缸的总效率85%，但是效率根据实际使用工况会有变化）

F: Output force of electric cylinder, unit: KN/KN

T: Motor output torque, unit: Nm n. M

R: Deceleration ratio

L: lead of lead screw, unit: mm

η: Efficiency (Generally 85% of the total efficiency of the electric cylinder is selected, but the efficiency varies according to the actual operating conditions)

电动缸的寿命计算

Life calculation of 2 electric cylinder

电动缸的寿命一般是指电动缸内部使用的丝杠寿命，可分为两部分，一是丝杠的疲劳寿命，它可以通过计算得出；另一个是使用寿命，取决于使用条件（如温度、灰尘、使用润滑的种类和定期保养的频率等等）。

使用寿命往往通过经验得出。以下是电动缸的疲劳寿命计算方法：

The life of the electric cylinder generally refers to the life of the lead screw used inside the electric cylinder, which can be divided into two parts. One is the fatigue life of the lead screw, which can be calculated;The other is service life, depending on service conditions (such as temperature, dust, type of lubrication used, frequency of regular maintenance, etc.).

Service life is often inferred by experience.The fatigue life calculation method of electric cylinder is as follows:

$$L10=(Ca/Fm)^3\times L$$

L10：电动缸的寿命，单位：km

Fm：电动缸承受的平均负载，单位：kn

Ca：丝杠螺母的基本额定动负载，单位：kn(可通过丝杠样本查出)

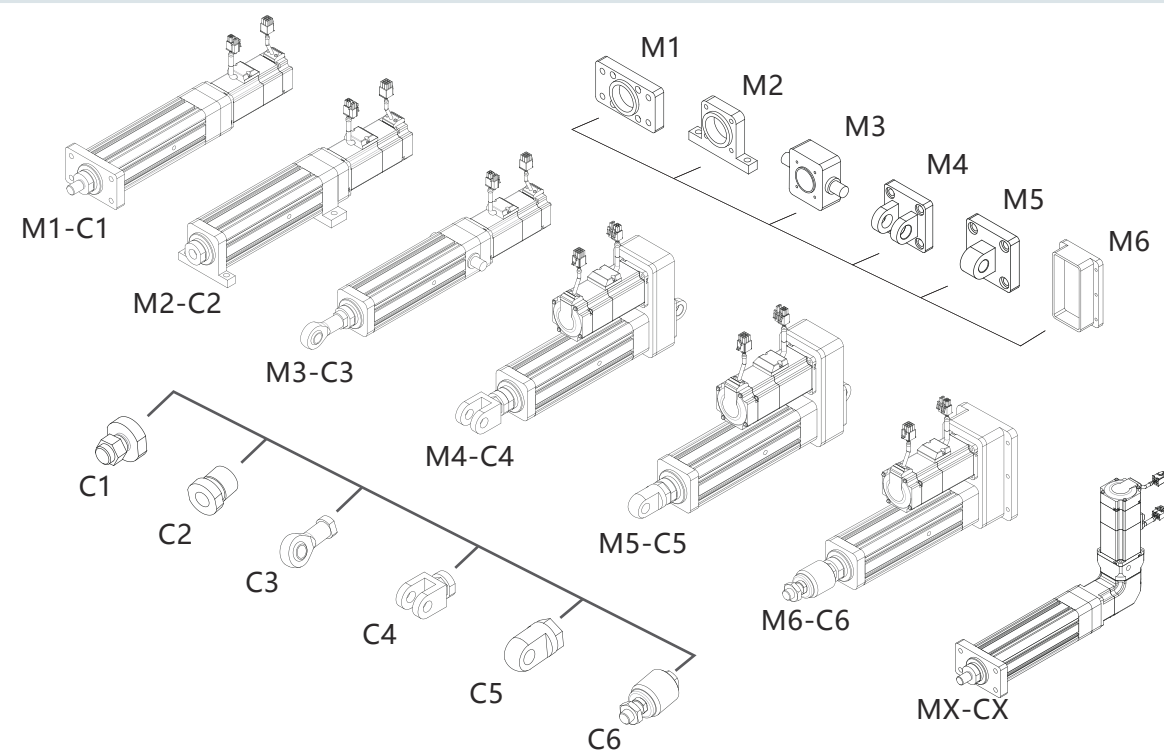
L：丝杠导程，单位：mm

L10： Life of electric cylinder, unit: km

Fm： Average load borne by the electric cylinder, unit: kN

Ca： Basic nominal dynamic load of screw nut, kn(detectable by screw sample)

L： lead of lead screw, unit: mm



FULL RANGE SECURITY COMPONENTS

全系列安全组件



外螺纹输出连接
Male output connection



内螺纹输出连接
Female output connection



鱼眼轴承连接
Fish-eye bearing connection



双耳轴连接
Trunnion connection



单耳轴连接
Single trunnion connection



浮动螺纹接头
Floating nipple



前输出法兰
Front output flange



卧式底座
The horizontal base



后法兰耳轴
Rear flange lug shaft



尾部双耳轴
Caudal trunnion



尾部单耳轴
Tail trunnion

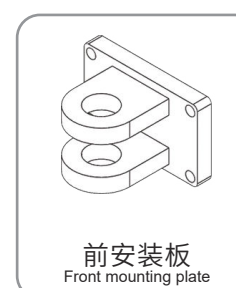
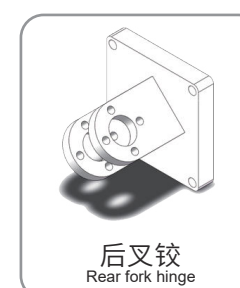
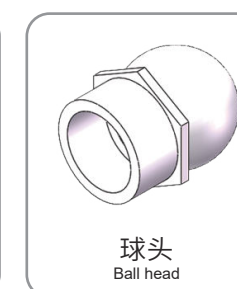
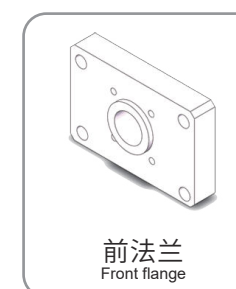
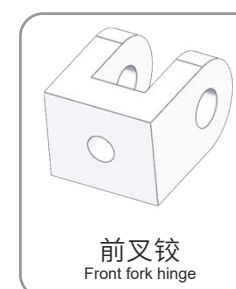
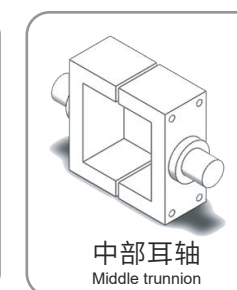
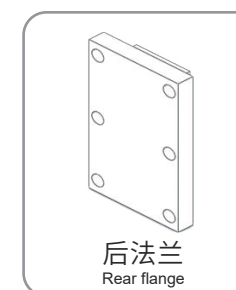
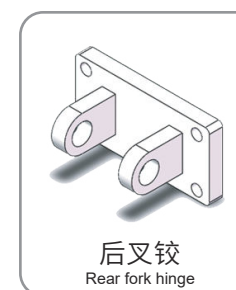
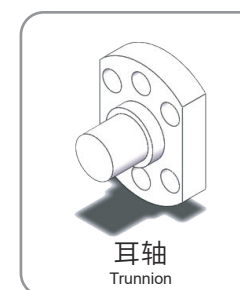


尾部法兰
The tail of the flange



用户自定义
User defined

[安装方式可自由搭配]
[Installation method can be freely matched]



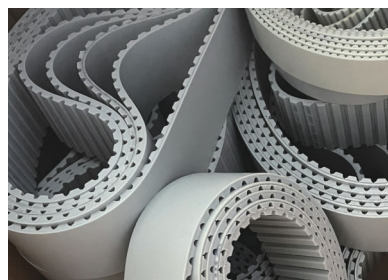
PRODUCT ADVANTAGES 产品优势



进口滚珠丝杆

Imported ball screw

- 使用寿命长
- 性能稳定
- Long service life
- Stable performance



进口同步带

Imported synchronous belt

- 最大程度减轻冲击和震动
- 噪音比较小
- Minimize impact and vibration
- The noise is relatively low



台湾/日本防尘垫

Taiwan/Japan Dust Pad

- 耐磨性好，抗挤出，易安装
- 耐冲击，压缩变形小
- Good wear resistance, anti extrusion, easy to install
- Impact resistance, low compression deformation



进口润滑脂

Import grease

- 润滑性能好
- 粘度指数高
- 使用安全，寿命长
- Good lubrication performance
- High viscosity index
- Safe to use and long service life



进口轴承

Imported bearings

- 寿命长
- 噪音较低
- 耐负荷较高
- 极限转速较高
- Long lifespan
- Low noise
- High load resistance
- High limit speed



开模压铸

Die-casting

- 铸件尺寸精准
- 铸件表面光滑
- 生产速度快
- 抗拉强度高
- 避免二次机械加工
- Accurate casting size
- Smooth surface of castings
- Fast production speed
- High tensile strength
- Avoiding secondary mechanical processing

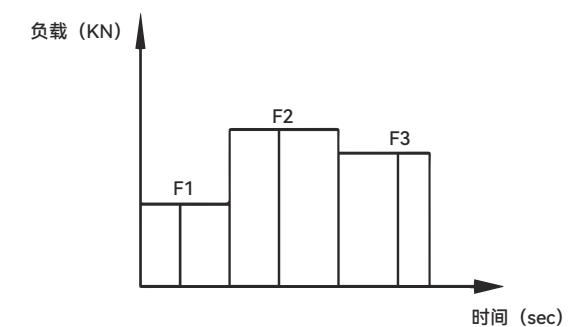
SELECTION GUIDE 电动缸选型指南

平均负载的计算 The calculation of the average load

平均负载是指电动缸在一个工作循环中，综合在各个不同工作区间的力、速度和时间后得出的立方平均值。

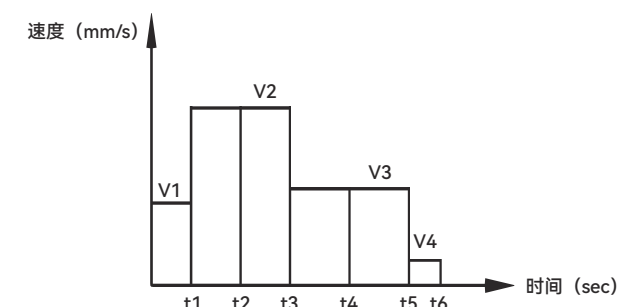
电动缸的负载
变化如右图所示 ▶

The change in load of the
electric cylinder As shown
on the right



电动缸的运行
速度变化
如右图所示 ▶

Changes in the runing
speed of the electric cylinder
As shown on the right



电动缸的平均负载的计算公式如下：

The averae load of the electric cylinder is calcauted as follows:

$$F_m = 3 \sqrt{\frac{F_1^3 \times V_1 \times t_1 + F_1^3 \times V_2 \times t_2 + F_2^3 \times V_2 \times t_3 + F_2^3 \times V_3 \times t_4 + F_2^3 \times V_3 \times t_4 + F_3^3 \times V_3 \times t_5 + F_3^3 \times V_4 \times t_6}{V_1 \times t_1 \times V_2 \times t_2 + V_2 \times t_3 + V_3 \times t_4 + V_3 \times t_5 + V_4 \times t_6}}$$

电动缸公差：

The averae load of the electric cylinder is calcauted as follows:

产品型号	40	50	65	75	95	110	145	190	250
活塞杆允许旋转角度 (°)	±0.4	±0.4	±0.4	±0.4	±0.4	±0.5	±0.5	±0.5	±0.5
轴向间隙 (mm)	±0.02	±0.02	±0.02	±0.02	±0.03	±0.03	±0.03	±0.04	±0.04
重复定位精度 (mm)	±0.01	±0.01	±0.01	±0.01	±0.02	±0.02	±0.02	±0.03	±0.03

选型参数表

Table of selection parameters

序号 Serial Number	电动缸型号 Electric cylinder model	例：ZR50-S50-T-R5-M1-C1-P2	
1	电机连接方式 Motor connection method	直线式 (ZS) / 折返式 (ZR) Linear (ZS)/Turnback (ZR)	
2	外形图号 Outline drawing number	ZR50.../ZS50...	
3	有效行程 (MM) Effective stroke	0-3000	
4	额定出力 (KN) Rated Speed	0-500	
5	额定速度 (MM/S) Rated speed	0-3000	
6	重复定位精度 (MM) Repetitive positioning accuracy	±0.01	
7	内部防转机构 Internal anti rotation mechanism	防转/不防转 Anti rotation/non rotation	默认防转 Default anti rotation
8	限位开关数量 Number of limit switches	按需 On demand	
9	电动缸安装方式 Electric cylinder Installation method	根据工况决定 Determined by operating conditions	默认M1前法兰安装 Default M1 front flange installation
10	负载连接方式 Load connection method	根据工况决定 Determined by operating conditions	默认C1外螺纹 Default C1 external thread
11	减速机速比 Reducer speed ratio	按需 On demand	
12	丝杆导程 Screw lead	根据技术参数选择 Select based on technical parameters	
13	丝杆类型 Screw type	滚珠丝杆 ball screw	
14	电缸防尘套 Electric cylinder dust cover	按需 On demand	
15	伺服电机 servo motor	品牌/型号/电机线 (米) Brand/Model/Motor Wire	
16	压力传感器 Pressure sensor	按需 On demand	
17	位移传感器 Displacement sensor	按需 On demand	
备注: Note:			

40 SERIES

SERVO ELECTRIC CYLINDER

40系列伺服电动缸

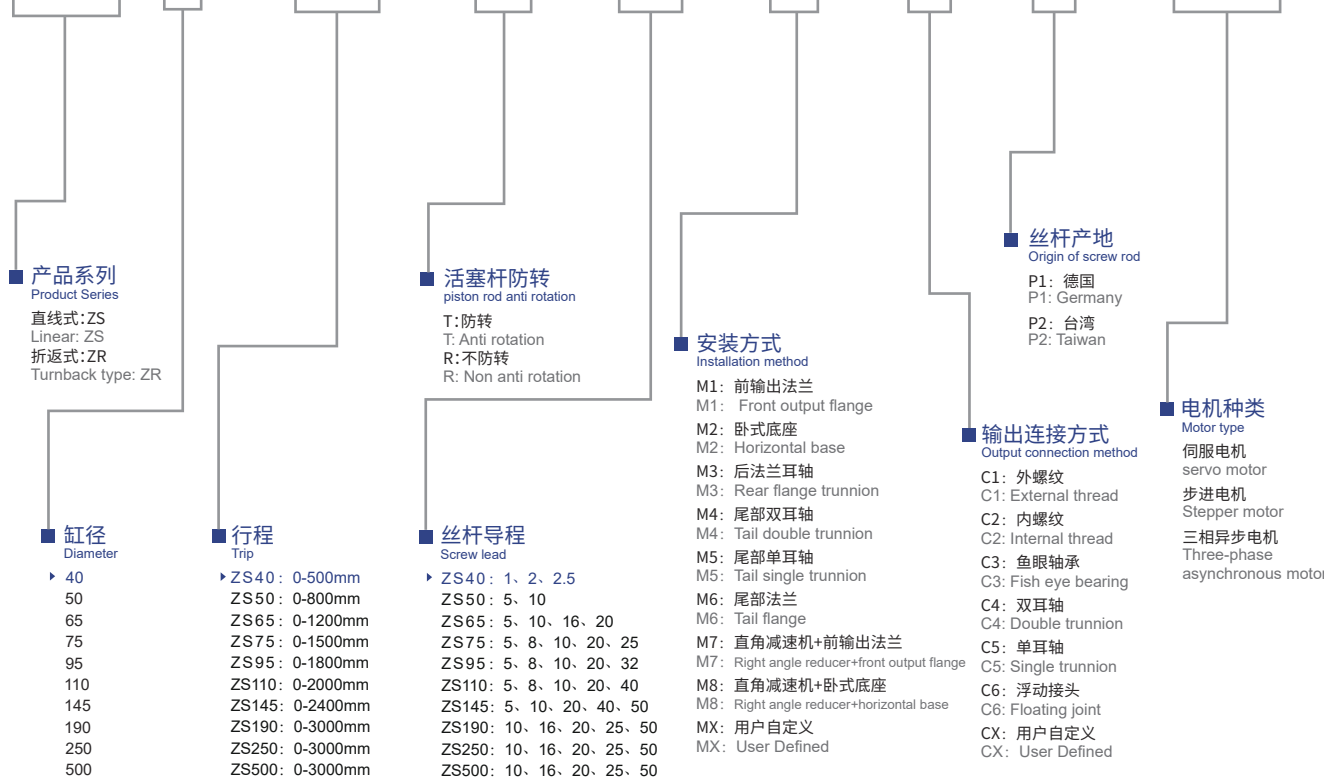


最大行程 maximum Stroke	500mm	丝杆直径 Screw diameter	8mm	电机额定转速 motor speed	3000rpm	最大承受推力 Maximum thrust bearing	0.8KN
------------------------	-------	------------------------	-----	-----------------------	---------	----------------------------------	-------

型号表示方式

Model representation

ZS / ZR 40 - S100 - T / R - R10 - M1 - C1 - P2 - 电机类型



※注：1、为保证有效行程，两端的极限各留5mm的间隙；
2、并联安装时，传感器不能与电机同侧；

40 系列

50 系列

65 系列

75 系列

95 系列

110 系列

145 系列

190 系列

250 系列

250 系列

多级电动缸

选型参数表

Table of selection parameters

型号	丝杆导程 (mm)	丝杆直径 (mm)	电机功率 (KW)	电机额定转速 (rpm)	可选速比	额定推力 (KN)	最大承受力 (KN)	电缸额定速度 (mm/s)	电缸最大行程 (mm)
40系列	次选 1	8	0.2	3000	1:1	0.8	0.8	50	500
	优选 2					0.8		100	
	2.5					0.8		125	

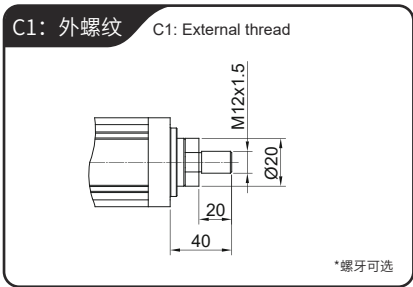
(以上减速比仅供参考，具体请联系技术)

40折返 40 turn back	行程mm	50	100	150	200	250	300	350	400	450	500
	重量KG	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3
40直线 40 straight lines	行程mm	50	100	150	200	250	300	350	400	450	500
	重量KG	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8

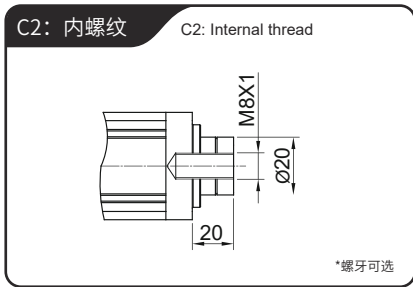
轴端安装方式

Shaft end installation method

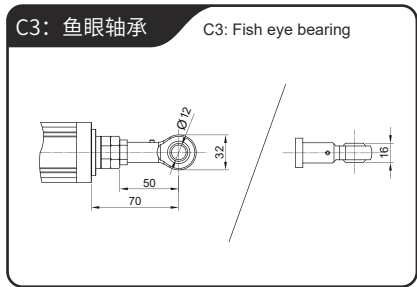
C1: 外螺纹 C1: External thread



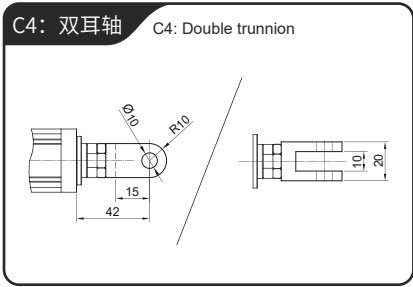
C2: 内螺纹 C2: Internal thread



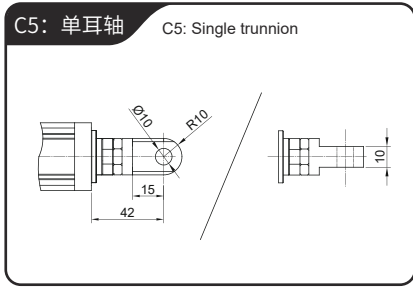
C3: 鱼眼轴承 C3: Fish eye bearing



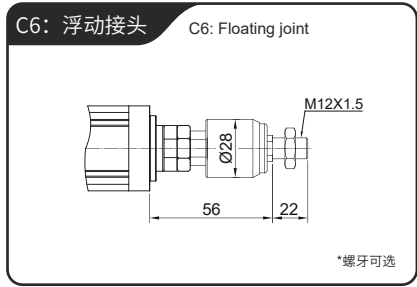
C4: 双耳轴 C4: Double trunnion



C5: 单耳轴 C5: Single trunnion



C6: 浮动接头 C6: Floating joint

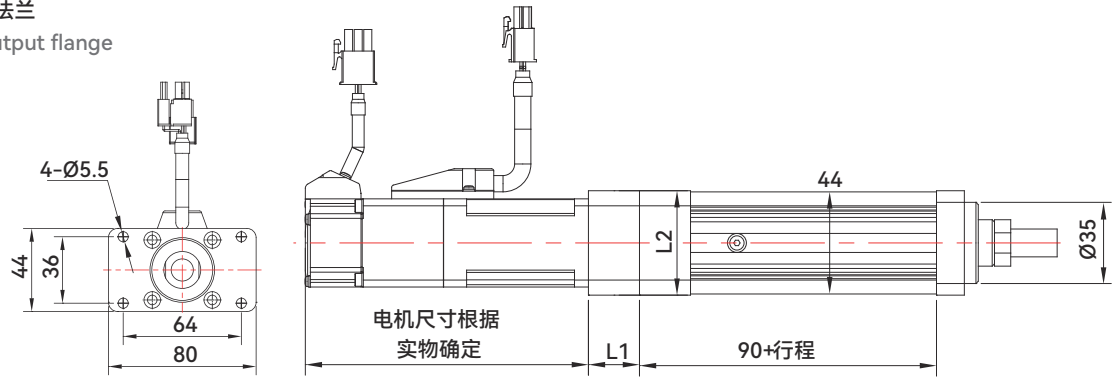


直线式外形图

Linear Outline Drawing

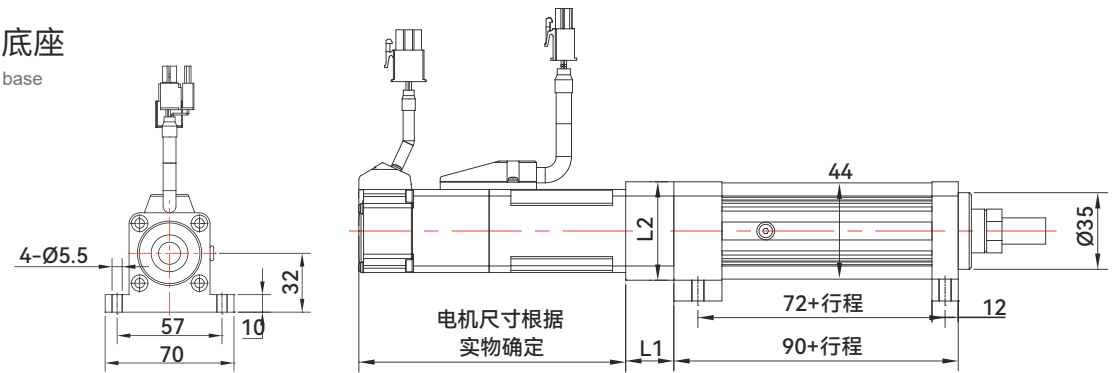
M1: 前输出法兰

M1: Front output flange



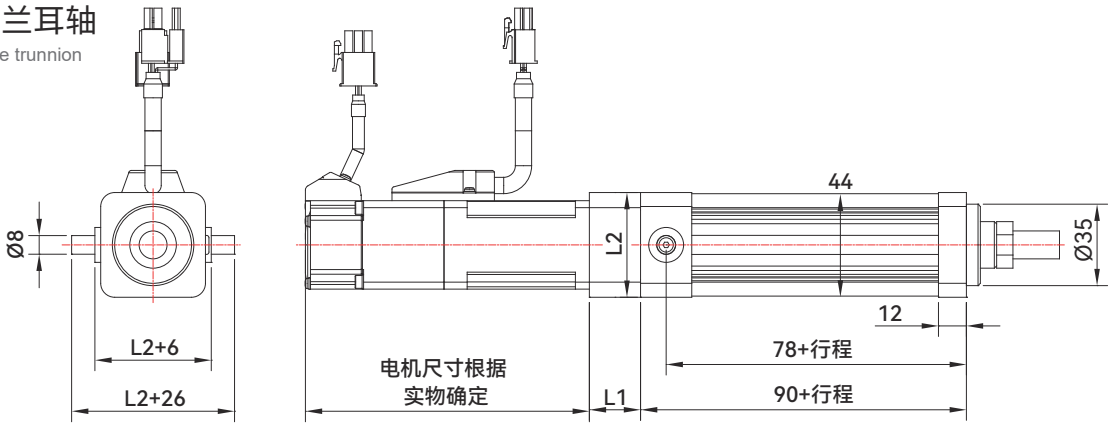
M2: 卧式底座

M2: Horizontal base



M3: 后法兰耳轴

M3: Rear flange trunnion



电机法兰 Motor flange	L1	L2
40	22	44

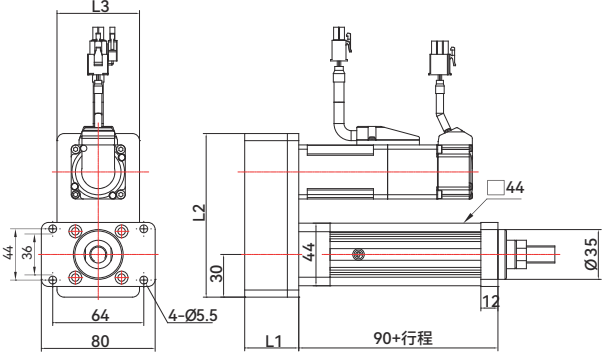
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的，如需具体尺寸图，请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

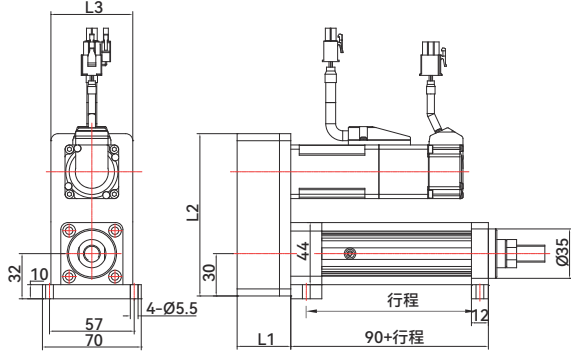
M1:前输出法兰

M1: Front output flange



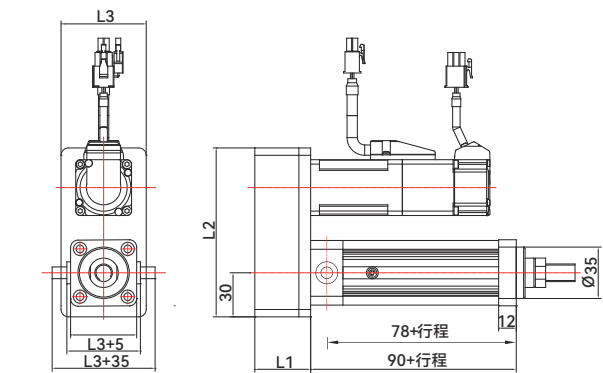
M2:卧式底座

M2: Horizontal base



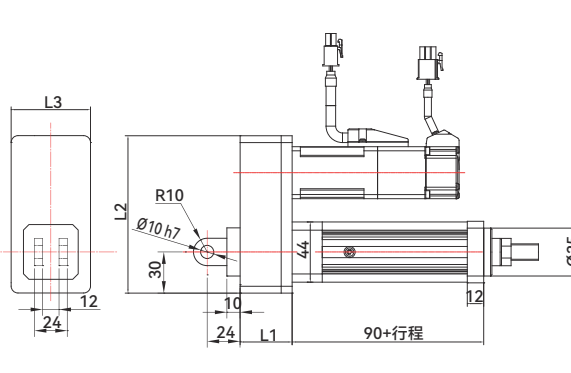
M3:后法兰耳轴

M3: Rear flange trunnion



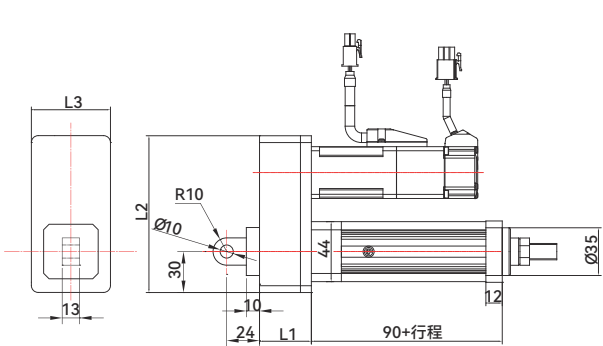
M4:尾部双耳轴

M4: Tail double trunnion



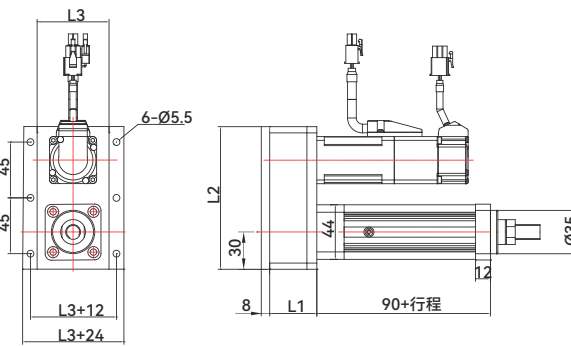
M5:尾部单耳轴

M5: Tail single trunnion



M6:尾部法兰

M6: Tail flange



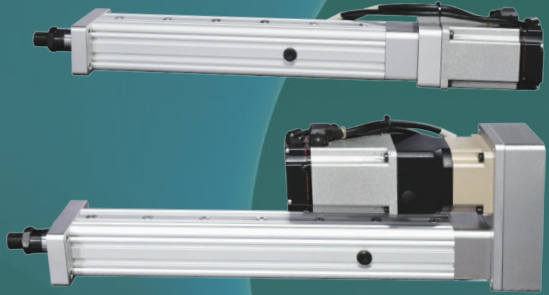
电机法兰 Motor flange	L1	L2	L3
40	38	115	58

※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

50 SERIES

SERVO ELECTRIC CYLINDER

50系列伺服电动缸



最大行程
maximum Stroke 800mm

丝杆直径
Screw diameter 12mm

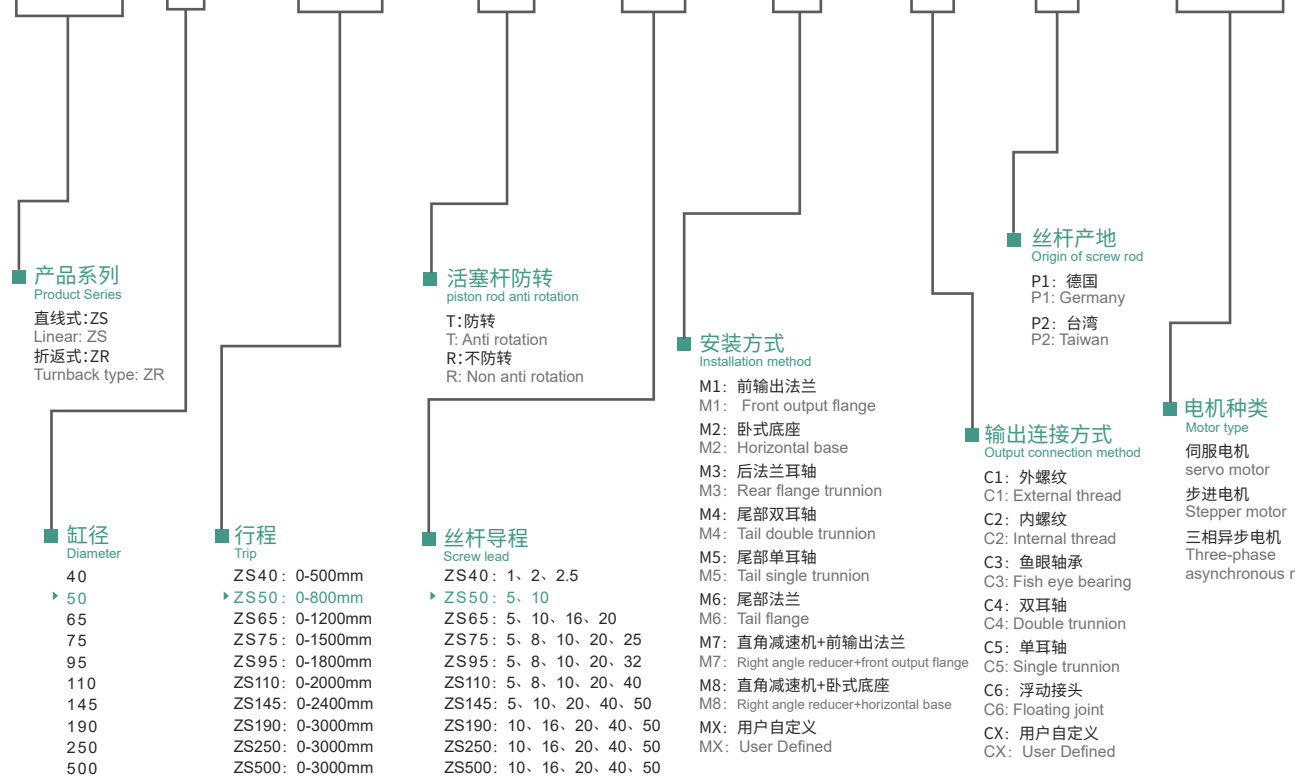
电机额定转速
motor speed 3000rpm

最大承受推力
Maximum thrust bearing 3KN

型号表示方式

Model representation

ZS/ZR 50 - S100 - T/R - R 5 - M1 - C1 - P2 - 电机类型



※注: 1、为保证有效行程, 两端的极限各留5mm的间隙;
In order to ensure effective stroke, 5mm gap is reserved for each limit at both ends;
2、并联安装时, 传感器不能与电机同侧;
When installed in parallel, the sensor shall not be on the same side with the motor;

选型参数表

Selection Parameter Table

型号	丝杆导程 (mm)	丝杆直径 (mm)	电机功率 (KW)	电机额定转速 (rpm)	可选速比	额定推力 (KN)	最大承受力 (KN)	电缸额定速度 (mm/s)	电缸最大行程 (mm)
50系列	优选	12	0.4	3000	1:1	1.36	3	250	800
	5				1:3	3		83	
	次选				1:1	0.68		500	
	10				1:3	2		166	
					1:5	3		100	

(以上减速比仅供参考，具体请联系技术)

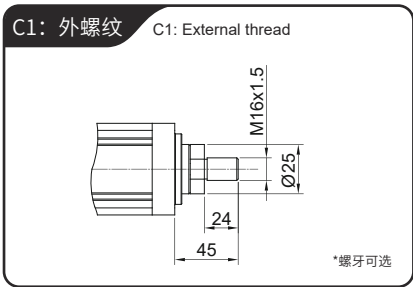
50折返 50 turn back	行程mm	50	100	150	200	300	400	500	600	700	800
	重量KG	2.1	2.4	2.7	3	3.6	4.2	4.8	5.4	6	6.6

50直线 50 straight lines	行程mm	50	100	150	200	300	400	500	600	700	800
	重量KG	1.7	2	2.3	2.6	3.2	3.8	4.4	5	5.6	6.2

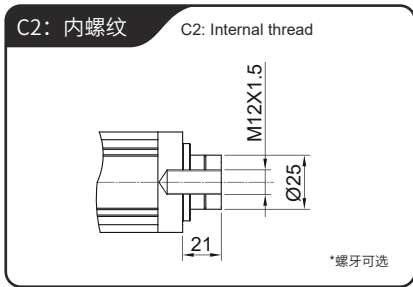
轴端安装方式

Shaft end installation method

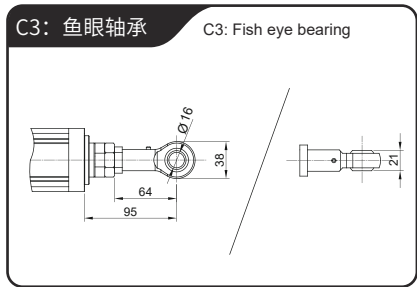
C1: 外螺纹 C1: External thread



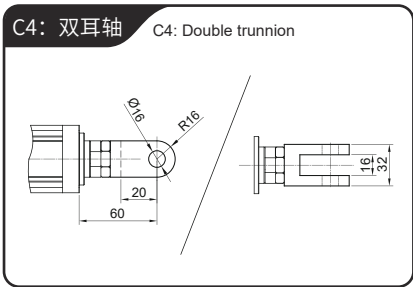
C2: 内螺纹 C2: Internal thread



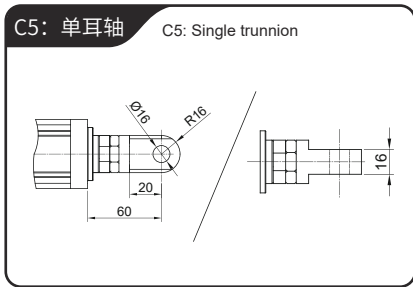
C3: 鱼眼轴承 C3: Fish eye bearing



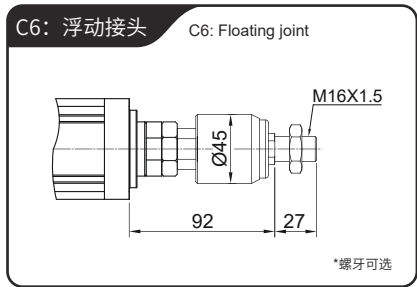
C4: 双耳轴 C4: Double trunnion



C5: 单耳轴 C5: Single trunnion



C6: 浮动接头 C6: Floating joint

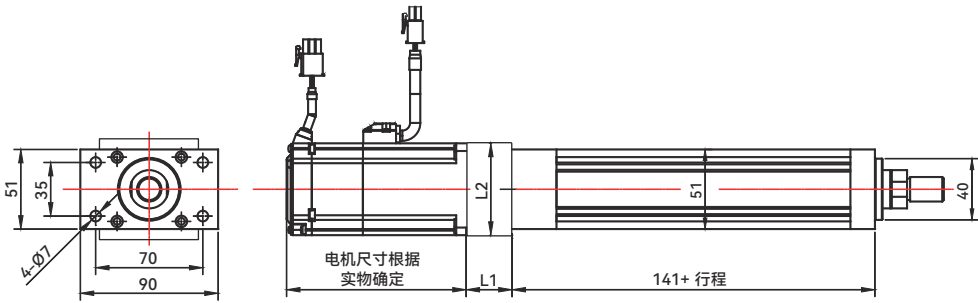


直线式外形图

Linear Outline Drawing

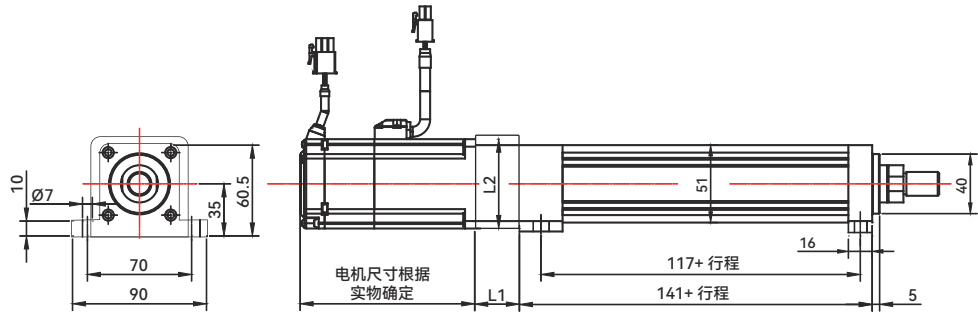
M1:前输出法兰

M1: Front output flange



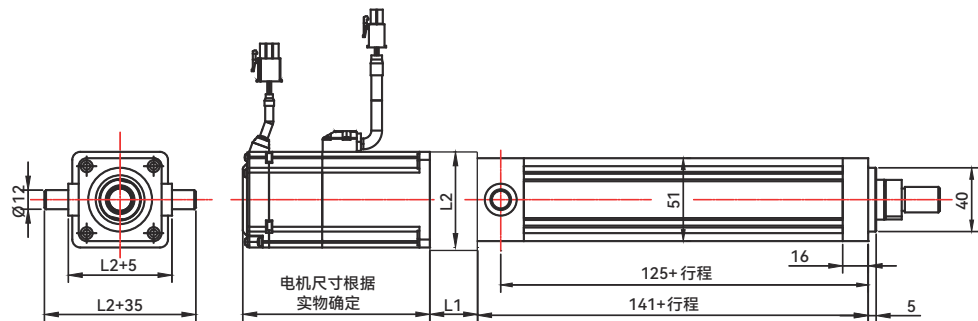
M2:卧式底座

M2: Horizontal base



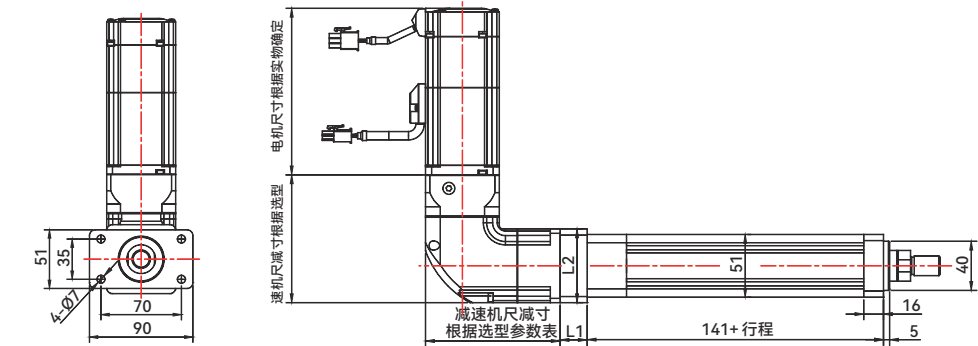
M3:后法兰耳轴

M3: Rear flange trunnion



MX:用户自定义

MX: User Defined



电机法兰 Motor flange	L1	L2
60	22	60
80	35	80

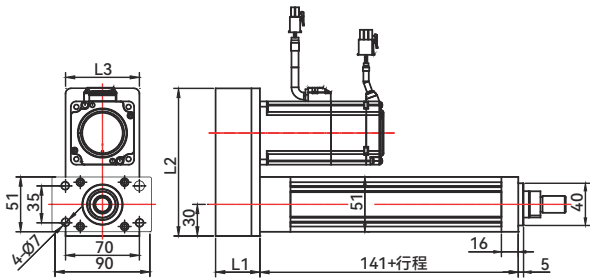
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的，如需具体尺寸图，请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

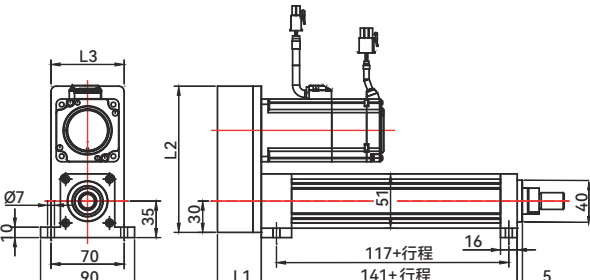
M1:前输出法兰

M1: Front output flange



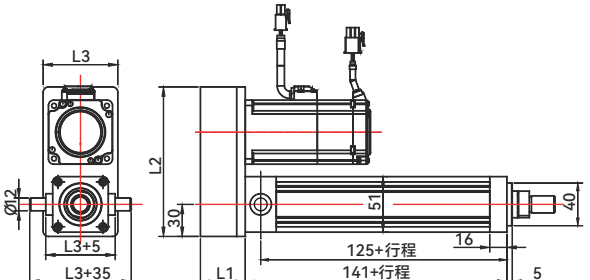
M2:卧式底座

M2: Horizontal base



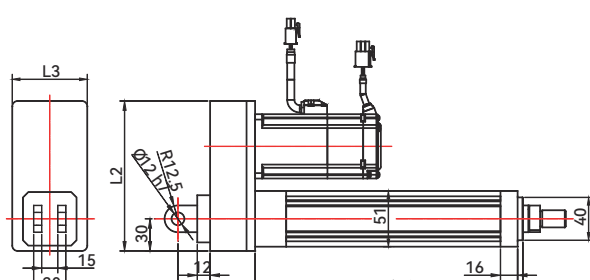
M3:后法兰耳轴

M3: Rear flange trunnion



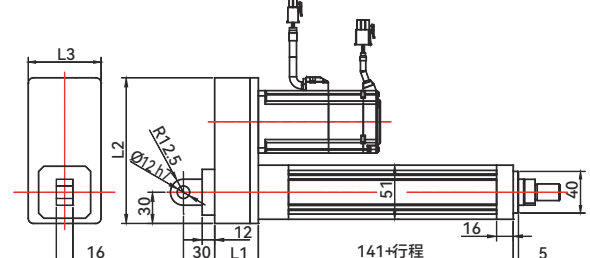
M4:尾部双耳轴

M4: Tail double trunnion



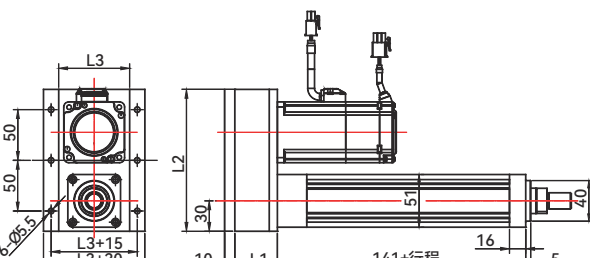
M5:尾部单耳轴

M5: Tail single trunnion



M6:尾部法兰

M6: Tail flange



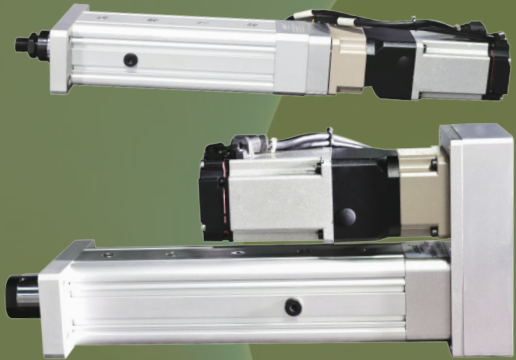
电机法兰 Motor flange	L1	L2	L3
60	42	140	70
80	60	160	90

※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

65 SERIES

SERVO ELECTRIC CYLINDER

65系列伺服电动缸



最大行程
maximum Stroke 1200mm

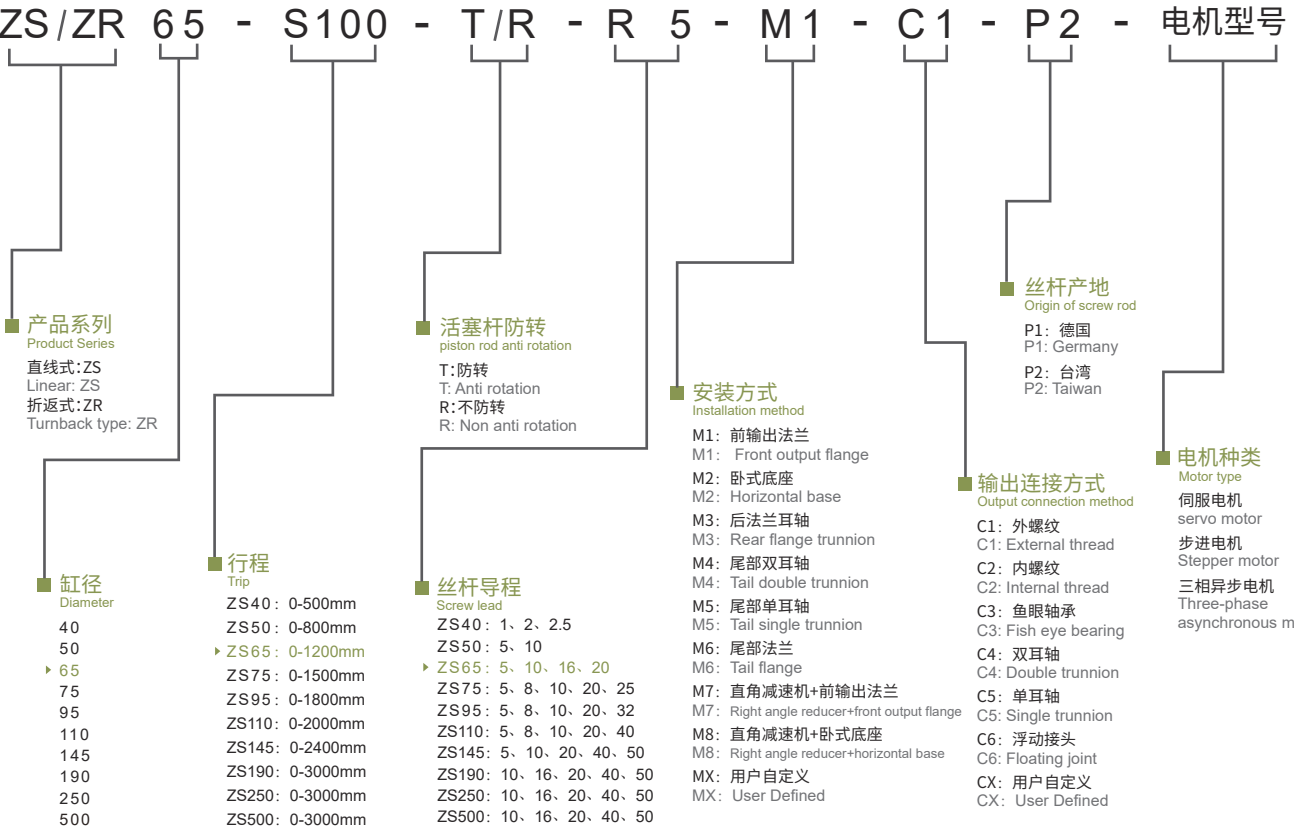
丝杆直径
Screw diameter 15mm

电机额定转速
motor speed 3000rpm

最大承受推力
Maximum thrust bearing 5KN

型号表示方式

Model representation



※注: 1、为保证有效行程, 两端的极限各留5mm的间隙;
In order to ensure effective stroke, 5mm gap is reserved for each limit at both ends;
2、并联安装时, 传感器不能与电机同侧;
When installed in parallel, the sensor shall not be on the same side with the motor;

选型参数表

Selection Parameter Table

型号	丝杆导程 (mm)	丝杆直径 (mm)	电机功率 (KW)	电机额定转速 (rpm)	可选速比	额定推力 (KN)	最大承受力 (KN)	电缸额定速度 (mm/s)	电缸最大行程 (mm)
65系列	优选	16	0.4	3000	1:1	1.36	5	250	1200
	5				1:3	4		83	
					1:5	5		50	
					次选	1:1		0.68	
	10				1:3	2		166	
					1:5	3.4		100	
					1:8	5		62	
	16				1:1	0.42		800	
					1:3	1.26		266	
					1:8	2.9		100	
					1:12	5		66	
	20				1:1	0.17		1000	
					1:5	0.85		200	
					1:20	3.4		50	
					1:35	5		28	

(以上减速比仅供参考，具体请联系技术)

65折返 65 turn back	行程mm	50	100	150	200	300	400	500	600	700	800
	重量KG	3.1	3.6	4.1	4.6	5.6	6.6	7.6	8.6	9.6	10.6
65直线 65 straight lines	行程mm	50	100	150	200	300	400	500	600	700	800
	重量KG	2.5	3	3.5	4	5	6	7	8	9	10

轴端安装方式

Shaft end installation method

C1: 外螺纹 C1: External thread

*螺牙可选

C2: 内螺纹 C2: Internal thread

*螺牙可选

C3: 鱼眼轴承 C3: Fish eye bearing

C4: 双耳轴 C4: Double trunnion

C5: 单耳轴 C5: Single trunnion

C6: 浮动接头 C6: Floating joint

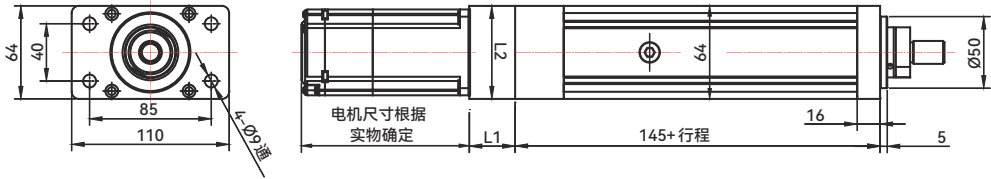
*螺牙可选

直线式外形图

Linear Outline Drawing

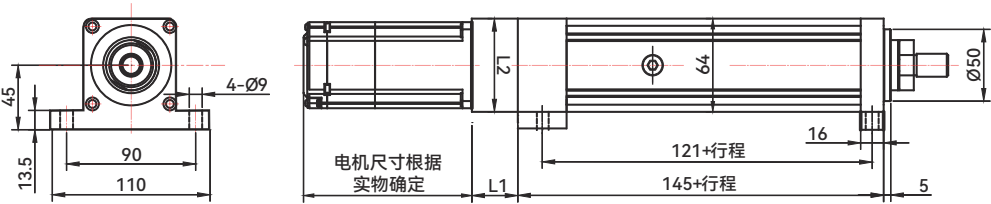
M1:前输出法兰

M1: Front output flange



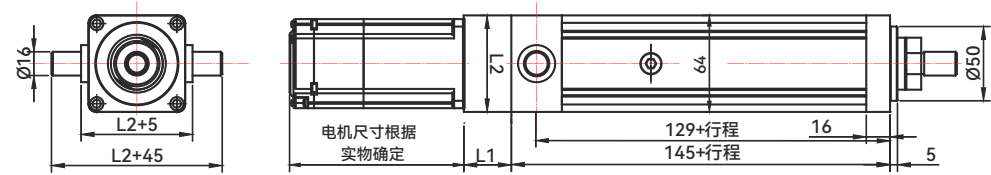
M2:卧式底座

M2: Horizontal base



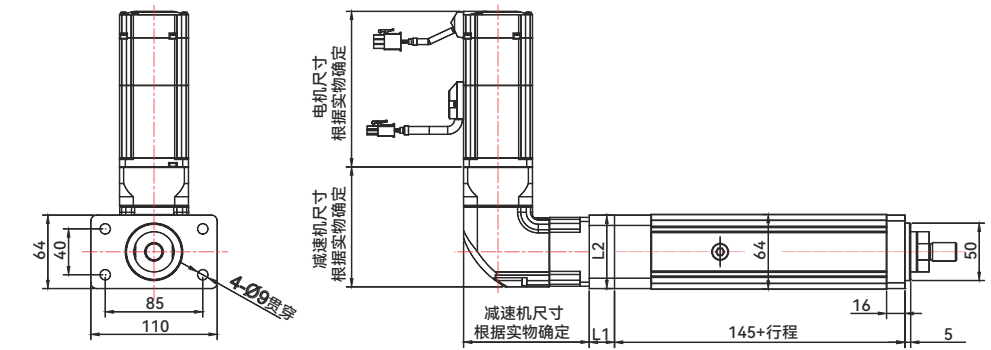
M3:后法兰耳轴

M3: Rear flange trunnion



MX:用户自定义

MX: User Defined



电机法兰 Motor flange	L1	L2
60	25	64
80	32	80
100	60	110

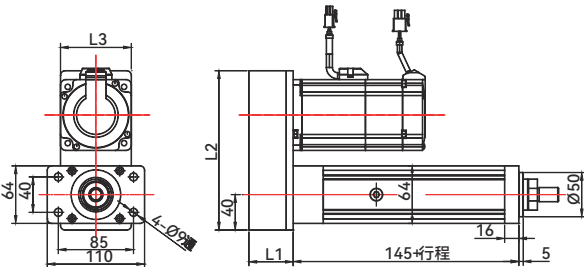
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的，如需具体尺寸图，请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

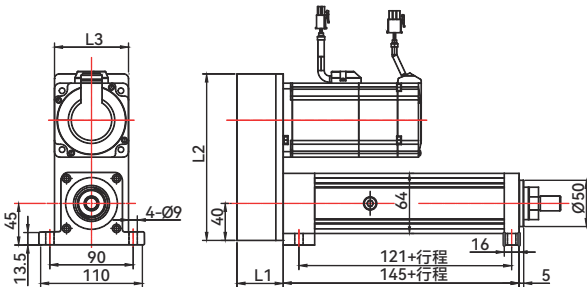
M1:前输出法兰

M1: Front output flange



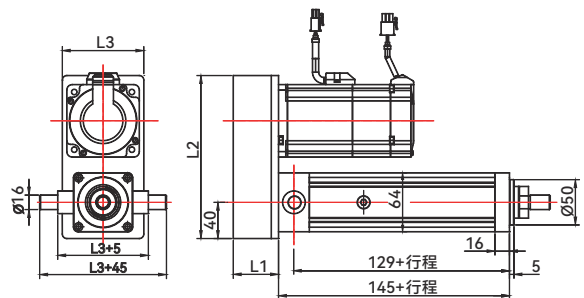
M2:卧式底座

M2: Horizontal base



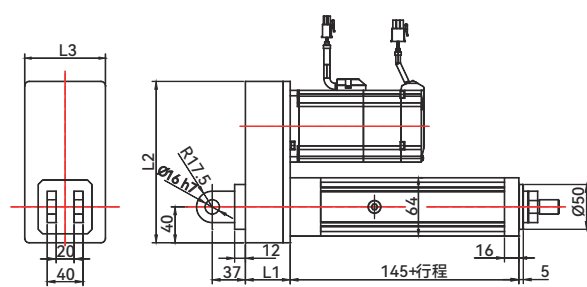
M3:后法兰耳轴

M3: Rear flange trunnion



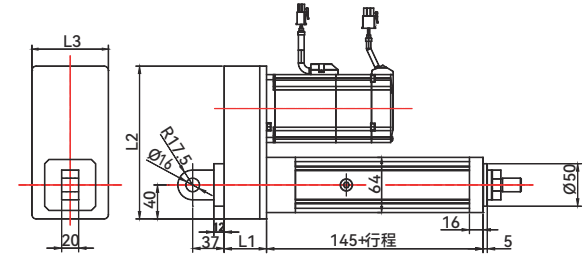
M4:尾部双耳轴

M4: Tail double trunnion



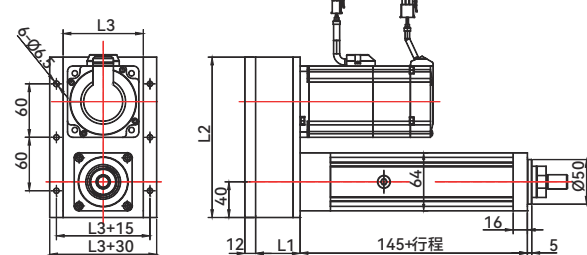
M5:尾部单耳轴

M5: Tail single trunnion



M6:尾部法兰

M6: Tail flange



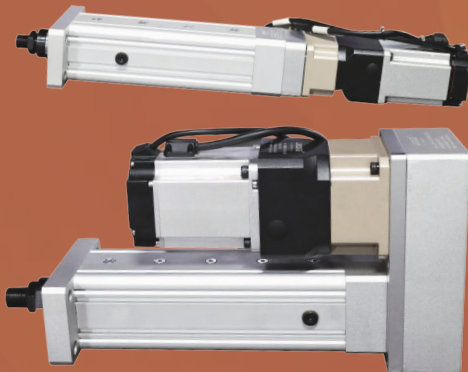
电机法兰 Motor flange	L1	L2	L3
60	43	160	80
80	60	180	100
100	75	220	120

※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

75 SERIES

SERVO ELECTRIC CYLINDER

75系列伺服电动缸



最大行程
maximum Stroke

1500mm

丝杆直径
Screw diameter

25mm

电机额定转速
motor speed

3000rpm

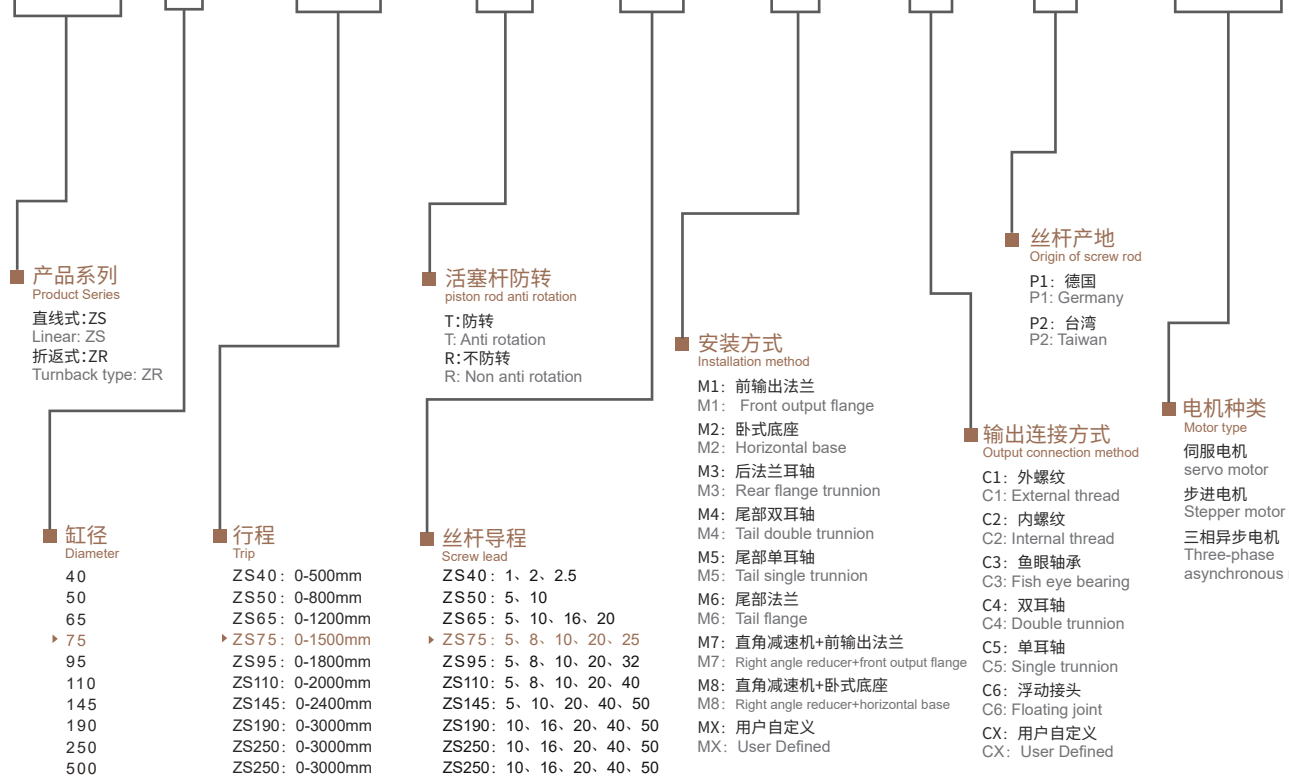
最大承受推力
Maximum thrust bearing

8KN

型号表示方式

Model representation

ZS/ZR 75 - S100 - T/R - R 5 - M1 - C1 - P2 - 电机类型



※注: 1、为保证有效行程, 两端的极限各留5mm的间隙;
In order to ensure effective stroke, 5mm gap is reserved for each limit at both ends;
2、并联安装时, 传感器不能与电机同侧;
When installed in parallel, the sensor shall not be on the same side with the motor;

选型参数表

Selection Parameter Table

型号	丝杆导程 (mm)	丝杆直径 (mm)	电机功率 (KW)	电机额定转速 (rpm)	可选速比	额定推力 (KN)	最大承受力 (KN)	电缸额定速度 (mm/s)	电缸最大行程 (mm)
75系列	优选	25	0.4	3000	1:1	1.36	8	250	1500
	5				1:3	4		83	
					1:5	6.8		50	
					1:7	8		35	
					次选	1:1		0.68	
	10				1:5	3.4		100	
					1:10	6.8		50	
					1:12	8		41	
		25	1:1	0.27	1250				
	1:10		2.7	125					
	1:20		5.4	62					
	1:35		8	35					

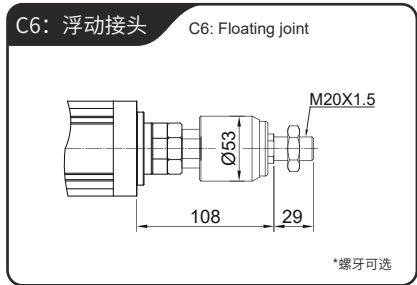
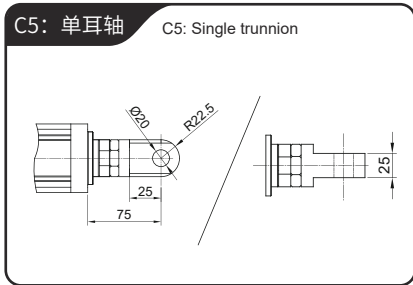
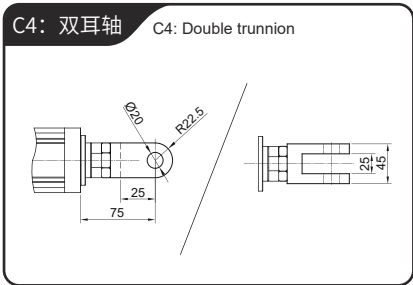
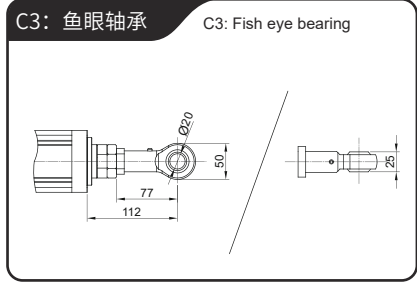
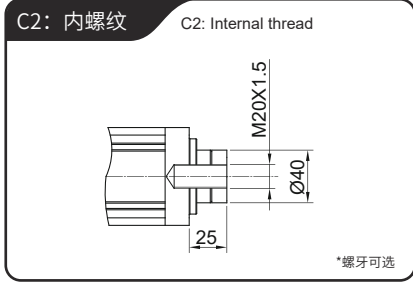
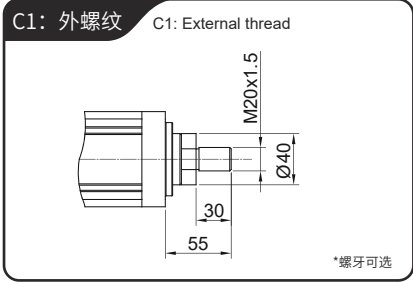
(以上减速比仅供参考，具体请联系技术)

75折返 75 turn back	行程mm	50	100	150	200	300	400	500	600	700	800
	重量KG	5.5	6.2	6.9	7.6	9	10.4	11.8	13.2	14.6	16

75直线 75 straight lines	行程mm	50	100	150	200	300	400	500	600	700	800
	重量KG	4.8	5.5	6.2	6.9	8.3	9.7	11.1	12.5	13.9	15.3

轴端安装方式

Shaft end installation method

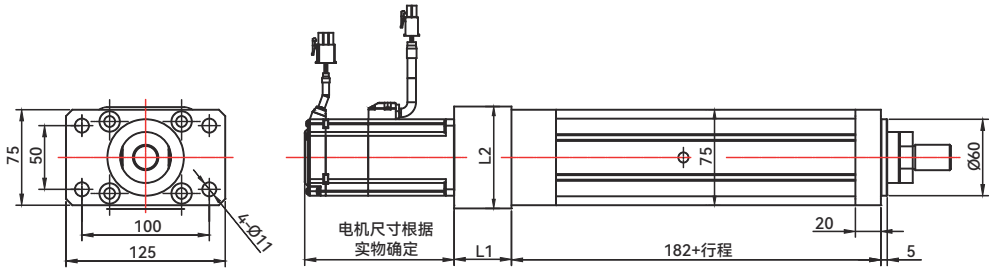


直线式外形图

Linear Outline Drawing

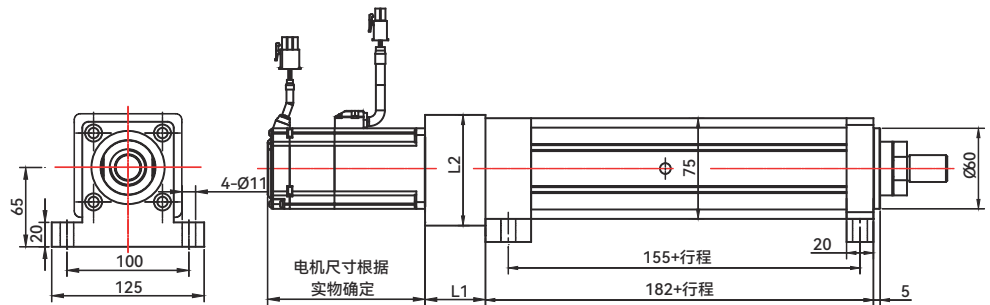
M1:前输出法兰

M1: Front output flange



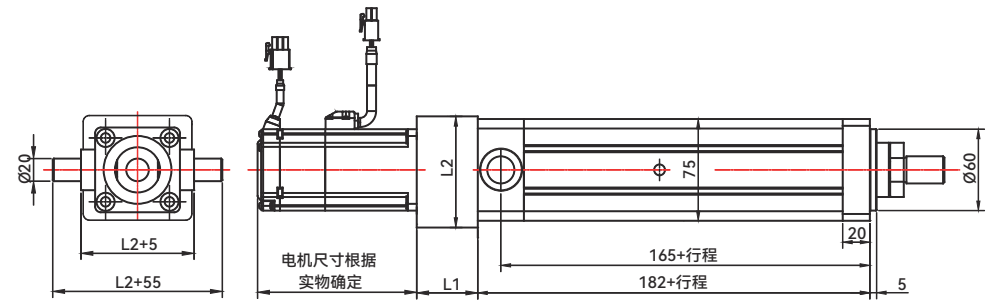
M2:卧式底座

M2: Horizontal base



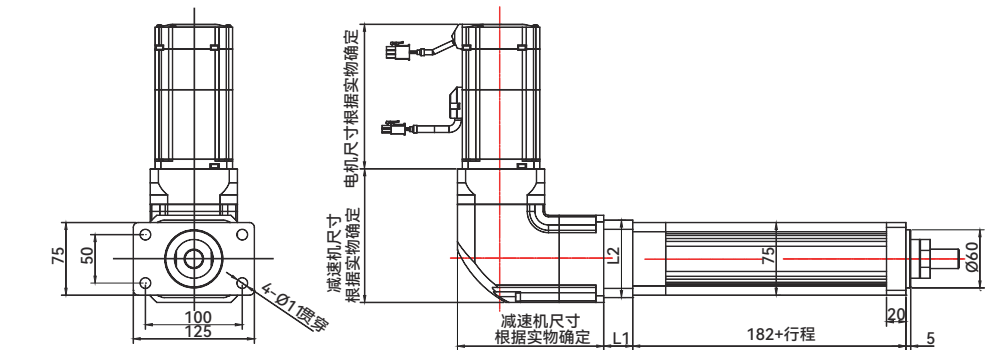
M3:后法兰耳轴

M3: Rear flange trunnion



MX:用户自定义

MX: User Defined



电机法兰 Motor flange	L1	L2
80	30	80
110	45	110
130	65	130

※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的，如需具体尺寸图，请联系厂家。

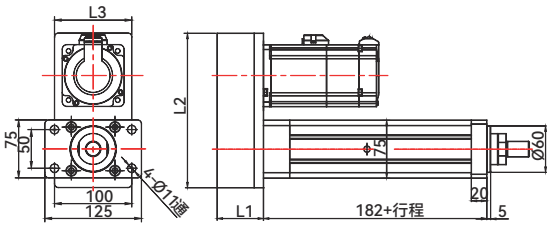
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

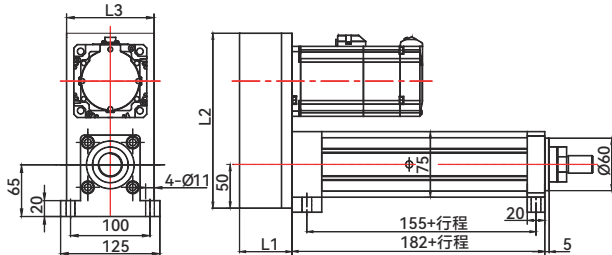
M1:前输出法兰

M1: Front output flange



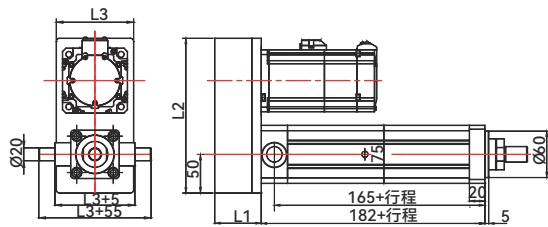
M2:卧式底座

M2: Horizontal base



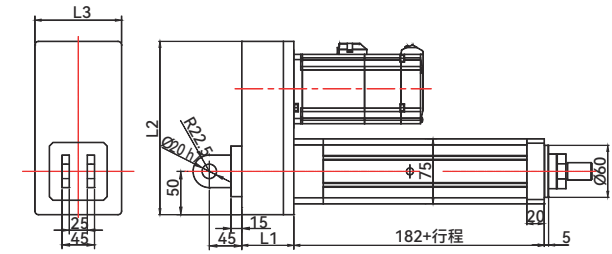
M3:后法兰耳轴

M3: Rear flange trunnion



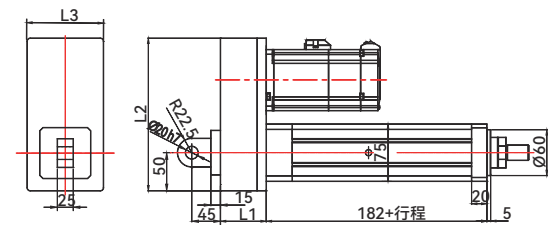
M4:尾部双耳轴

M4: Tail double trunnion



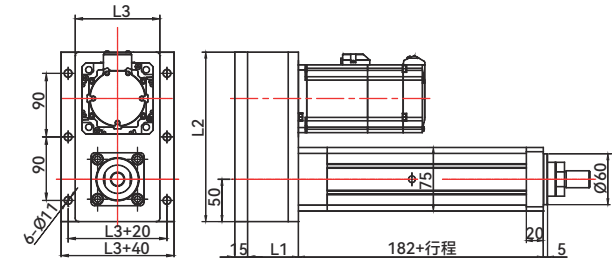
M5:尾部单耳轴

M5: Tail single trunnion



M6:尾部法兰

M6: Tail flange



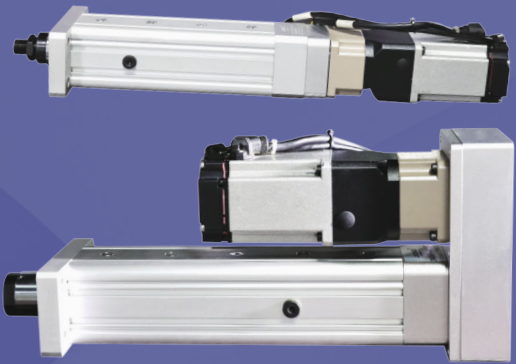
电机法兰 Motor flange	L1	L2	L3
80	60	200	100
110	65	220	120
130	75	240	140

※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

95 SERIES

SERVO ELECTRIC CYLINDER

95系列伺服电动缸



最大行程
maximum Stroke 1800mm

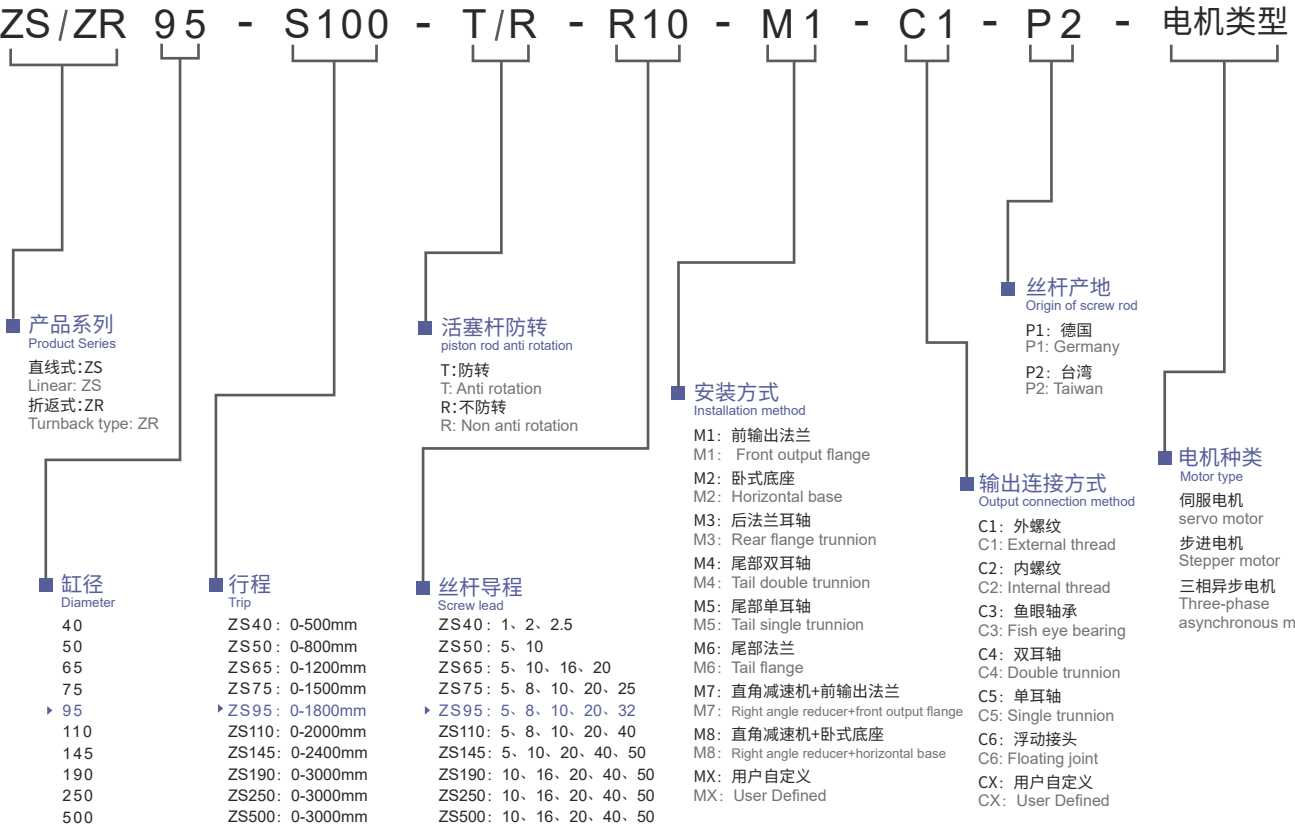
丝杆直径
Screw diameter 31/32mm

电机额定转速
motor speed 3000rpm

最大承受推力
Maximum thrust bearing 15KN

型号表示方式

Model representation



※注: 1、为保证有效行程, 两端的极限各留5mm的间隙;
In order to ensure effective stroke, 5mm gap is reserved for each limit at both ends;
2、并联安装时, 传感器不能与电机同侧;
When installed in parallel, the sensor shall not be on the same side with the motor;

选型参数表

Selection Parameter Table

型号	丝杆导程 (mm)	丝杆直径 (mm)	电机功率 (KW)	电机额定转速 (rpm)	可选速比	额定推力 (KN)	最大承受力 (KN)	电缸额定速度 (mm/s)	电缸最大行程 (mm)
95系列	次选	31/32	0.75	3000	1:1	2.55	15	250	1800
	5				1:3	7.6		83	
					1:5	12.7		50	
					1:7	15		35	
					优选	1:1		1.27	
	10				1:5	6.35		166	
					1:10	12.7		100	
					1:12	15		50	
					次选	1:1		0.64	
	20				1:5	3.2		200	
					1:16	10.2		100	
					1:25	15		50	
					32	1:1		0.4	
	1:10					4		320	
	1:20					8		160	
	1:40					15		80	

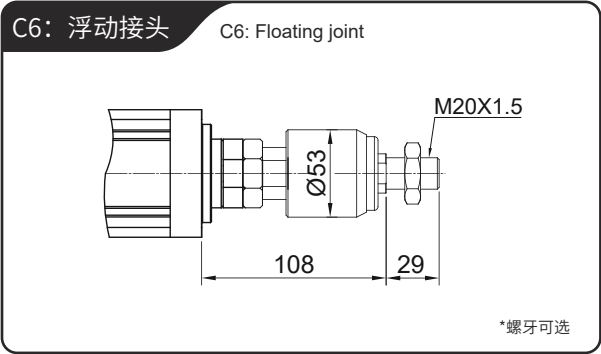
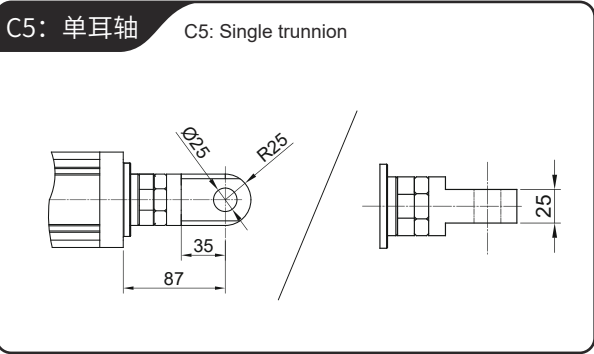
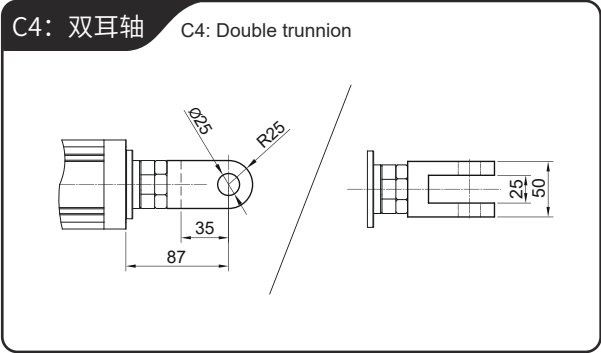
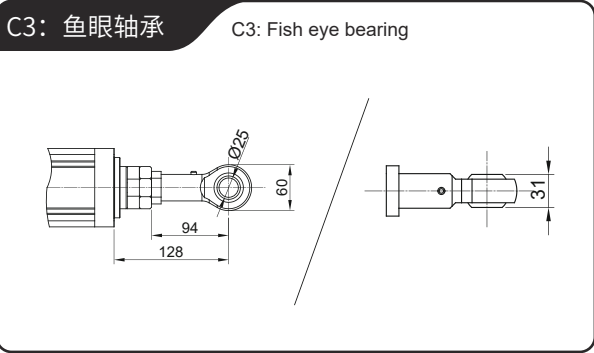
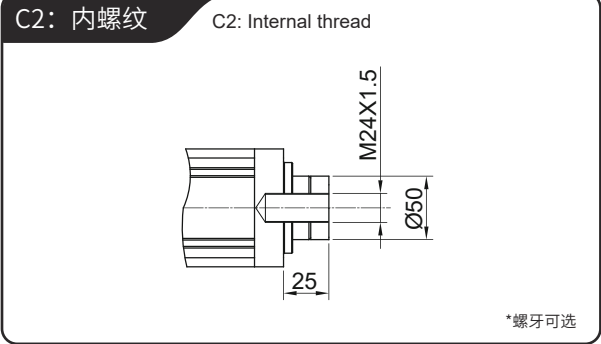
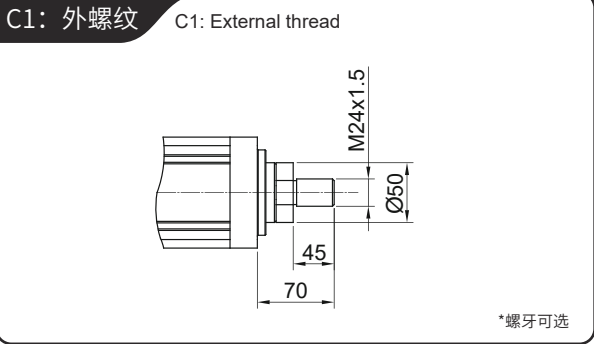
(以上减速比仅供参考，具体请联系技术)

95 折返 95 turn back	行程mm	50	100	150	200	300	400	500	600	700	800
	重量KG	25.5	26.4	27.3	28.2	30	31.8	33.6	35.4	37.2	39

95 直线 95 straight lines	行程mm	50	100	150	200	300	400	500	600	700	800
	重量KG	17.8	18.7	19.6	20.5	22.3	24.1	25.9	27.7	29.5	31.3

轴端安装方式

Shaft end installation method

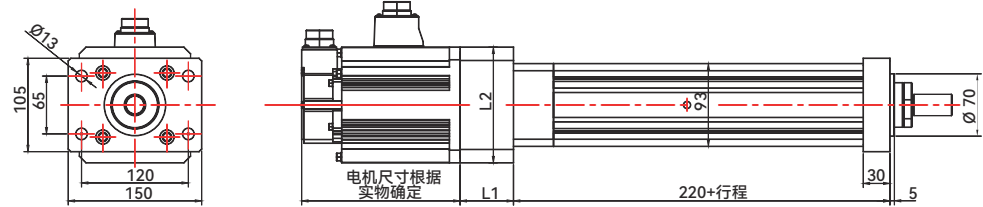


直线式外形图

Linear Outline Drawing

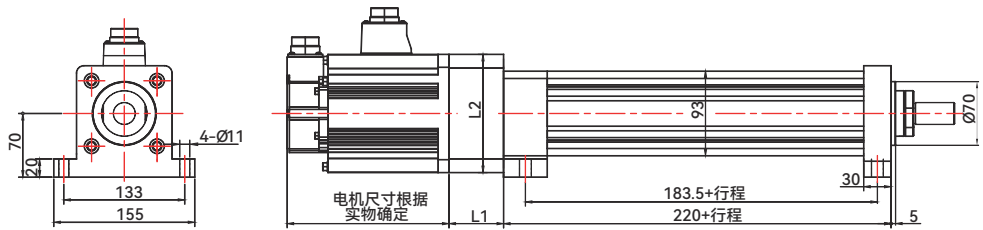
M1:前输出法兰

M1: Front output flange



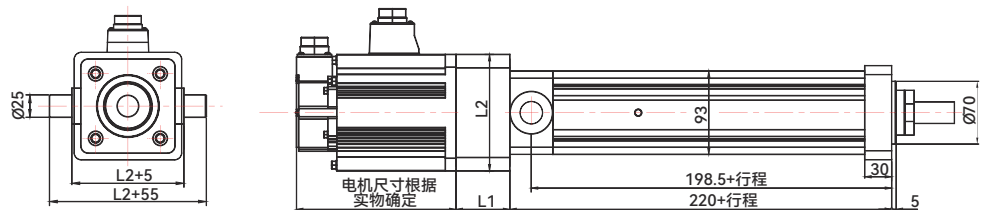
M2:卧式底座

M2: Horizontal base



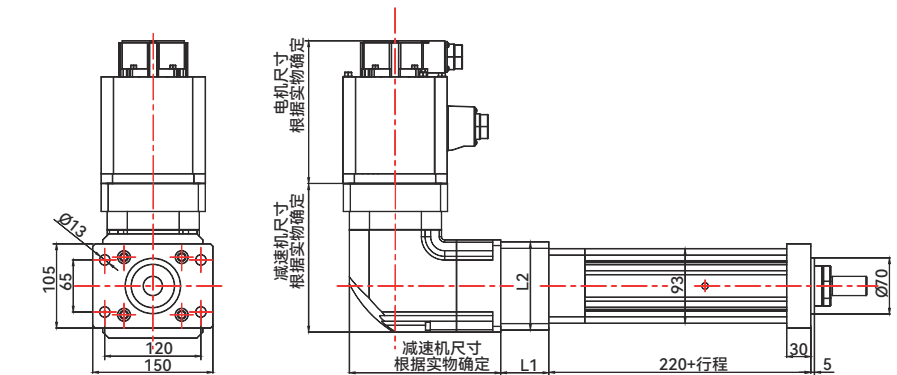
M3:后法兰耳轴

M3: Rear flange trunnion



MX:用户自定义

MX: User Defined



电机法兰 Motor flange	L1	L2
90	60	93
130	60	130
180	100	180

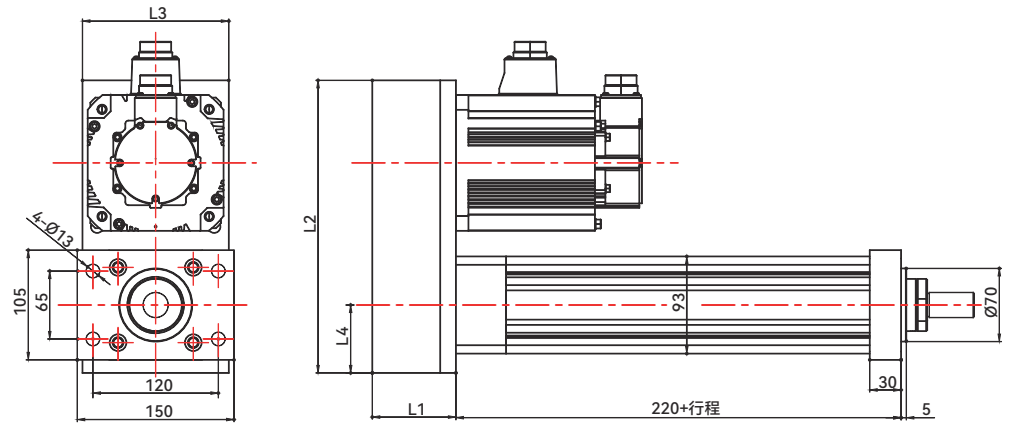
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

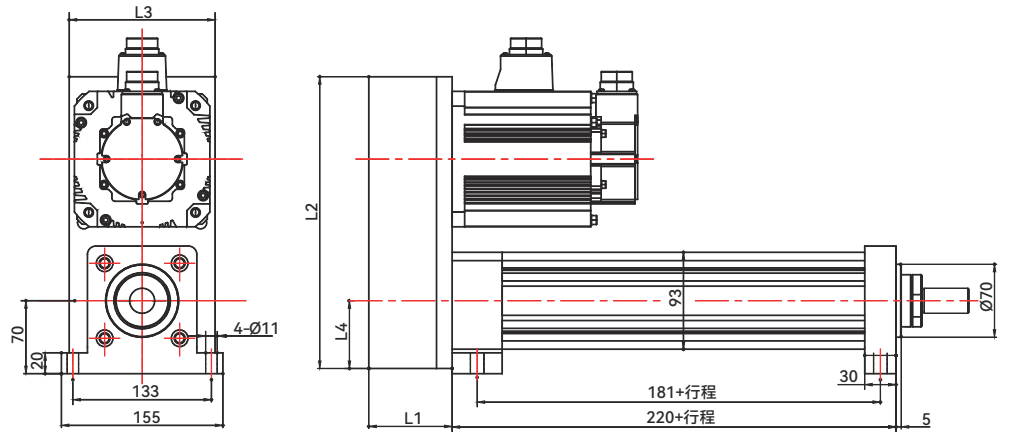
M1:前输出法兰

M1: Front output flange



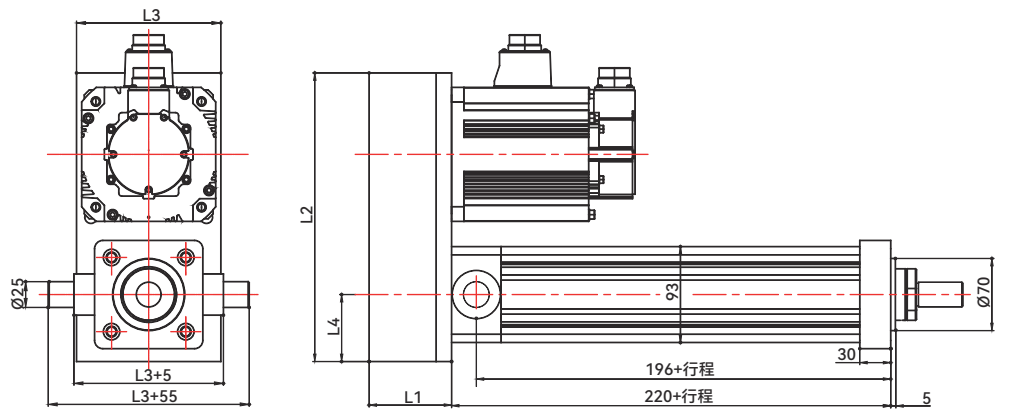
M2:卧式底座

M2: Horizontal base



M3:后法兰耳轴

M3: Rear flange trunnion



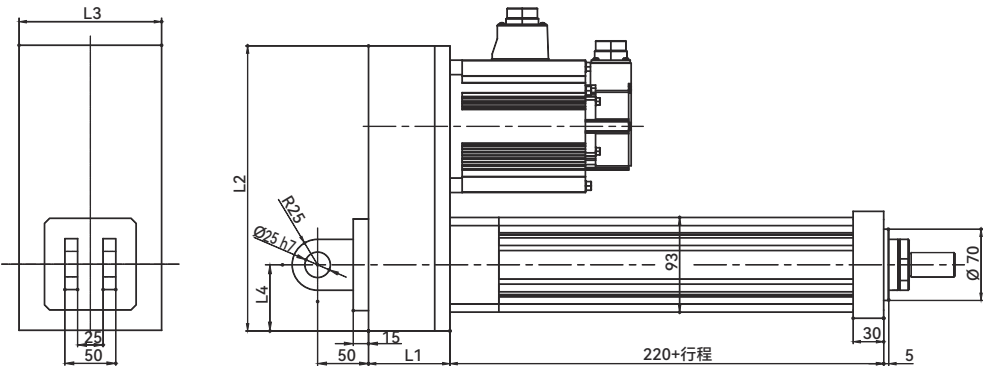
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

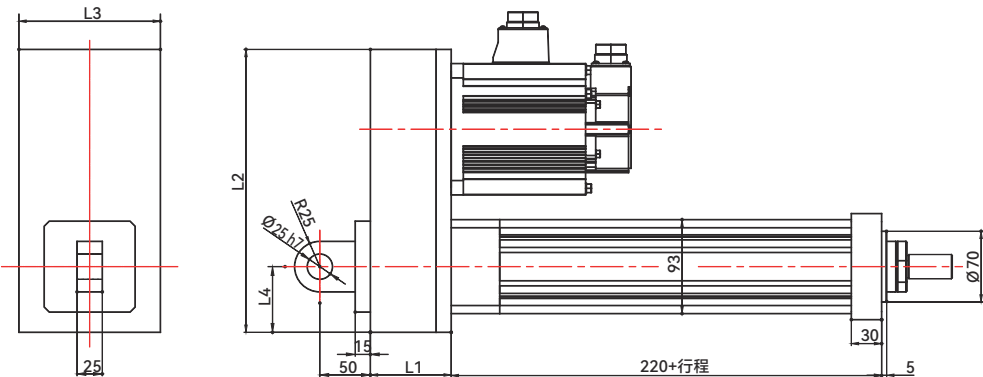
M4:尾部双耳轴

M4: Tail double trunnion



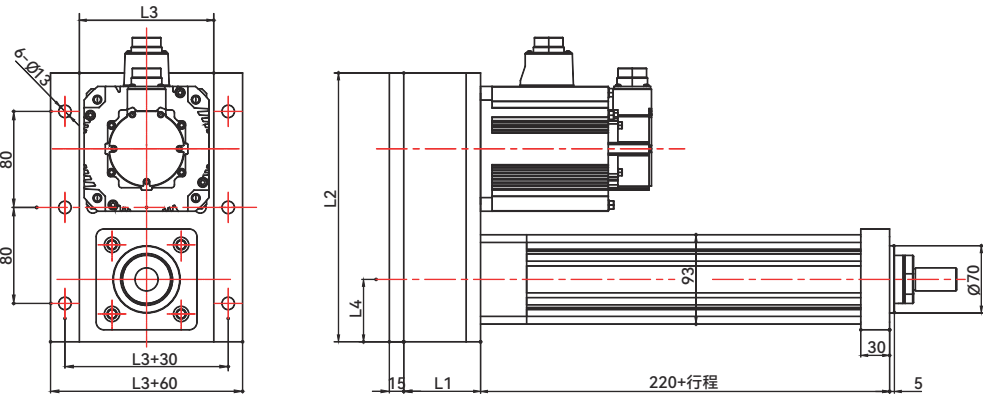
M5:尾部单耳轴

M5: Tail single trunnion



M6:尾部法兰

M6: Tail flange



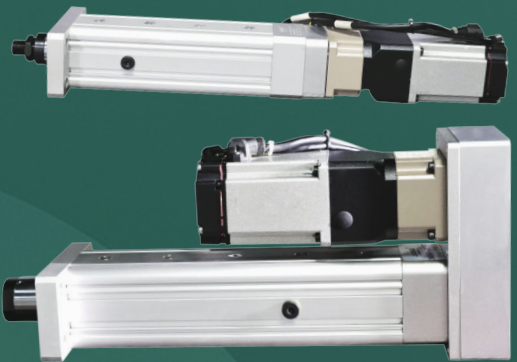
电机法兰 Motor flange	L1	L2	L3	L4
90	65	220	100	60
130	85	280	130	65
180	120	330	200	65

※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

110 SERIES

SERVO ELECTRIC CYLINDER

110系列伺服电动缸



最大行程
maximum Stroke 2000mm

丝杆直径
Screw diameter 40/38mm

电机额定转速
motor speed 1500rpm

最大承受推力
Maximum thrust bearing 30KN

型号表示方式

Model representation

ZS/ZR 110 - S100 - T/R - R10 - M1 - C1 - P2 - 电机类型

产品系列
Product Series
直线式: ZS
Linear: ZS
折返式: ZR
Turnback type: ZR

缸径
Diameter
40
50
65
75
95
110
145
190
250
500

行程
Trip
ZS40: 0-500mm
ZS50: 0-800mm
ZS65: 0-1200mm
ZS75: 0-1500mm
ZS95: 0-1800mm
ZS110: 0-2000mm
ZS145: 0-2400mm
ZS190: 0-3000mm
ZS250: 0-3000mm
ZS500: 0-3000mm

活塞杆防转
piston rod anti rotation
T: 防转
T: Anti rotation
R: 不防转
R: Non anti rotation

丝杆导程
Screw lead
ZS40: 1、2、2.5
ZS50: 5、10
ZS65: 5、10、16、20
ZS75: 5、8、10、20、25
ZS95: 5、8、10、20、32
ZS110: 5、8、10、20、40
ZS145: 5、10、20、40、50
ZS190: 10、16、20、40、50
ZS250: 10、16、20、40、50
ZS500: 10、16、20、40、50

安装方式
Installation method
M1: 前输出法兰
M1: Front output flange
M2: 卧式底座
M2: Horizontal base
M3: 后法兰耳轴
M3: Rear flange trunnion
M4: 尾部双耳轴
M4: Tail double trunnion
M5: 尾部单耳轴
M5: Tail single trunnion
M6: 尾部法兰
M6: Tail flange
M7: 直角减速机+前输出法兰
M7: Right angle reducer+front output flange
M8: 直角减速机+卧式底座
M8: Right angle reducer+horizontal base
MX: 用户自定义
MX: User Defined

丝杆产地
Origin of screw rod
P1: 德国
P1: Germany
P2: 台湾
P2: Taiwan

输出连接方式
Output connection method
C1: 外螺纹
C1: External thread
C2: 内螺纹
C2: Internal thread
C3: 鱼眼轴承
C3: Fish eye bearing
C4: 双耳轴
C4: Double trunnion
C5: 单耳轴
C5: Single trunnion
C6: 浮动接头
C6: Floating joint
CX: 用户自定义
CX: User Defined

电机种类
Motor type
伺服电机
servo motor
步进电机
Stepper motor
三相异步电机
Three-phase asynchronous motor

※注: 1、为保证有效行程, 两端的极限各留5mm的间隙;
In order to ensure effective stroke, 5mm gap is reserved for each limit at both ends;
2、并联安装时, 传感器不能与电机同侧;
When installed in parallel, the sensor shall not be on the same side with the motor;

选型参数表

Selection Parameter Table

型号	丝杆导程 (mm)	丝杆直径 (mm)	电机功率 (KW)	电机额定转速 (rpm)	可选速比	额定推力 (KN)	最大承受力 (KN)	电缸额定速度 (mm/s)	电缸最大行程 (mm)	
110系列	次选	38/40	1.5	1500	1:1	10.2	30	125	2000	
	5				1:3	30		41		
					优选	1:1		5.1		250
						10		1:3		15.3
								1:5		30
					次选			1:1		2.6
						20		1:5		13
								1:12		30
					40			1:1		1.3
						1:7		9.1		142
	1:16					20.8		62		
	1:25					30		40		

(以上减速比仅供参考，具体请联系技术)

110 折返 110 turn back	行程mm	50	100	150	200	300	400	500	600	700	800
	重量KG	29.6	30.9	32.2	33.5	36.1	38.7	41.3	43.9	46.5	49.1
110 直线 110 straight lines	行程mm	50	100	150	200	300	400	500	600	700	800
	重量KG	26.1	27.4	28.7	30	32.6	25.2	37.8	40.4	43	45.6

轴端安装方式

Shaft end installation method

C1: 外螺纹

C1: External thread

C2: 内螺纹

C2: Internal thread

C3: 鱼眼轴承

C3: Fish eye bearing

C4: 双耳轴

C4: Double trunnion

C5: 单耳轴

C5: Single trunnion

C6: 浮动接头

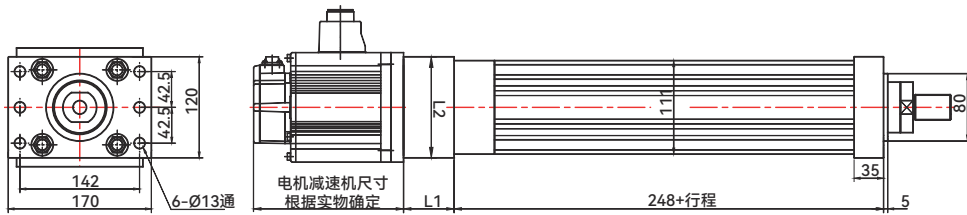
C6: Floating joint

直线式外形图

Linear Outline Drawing

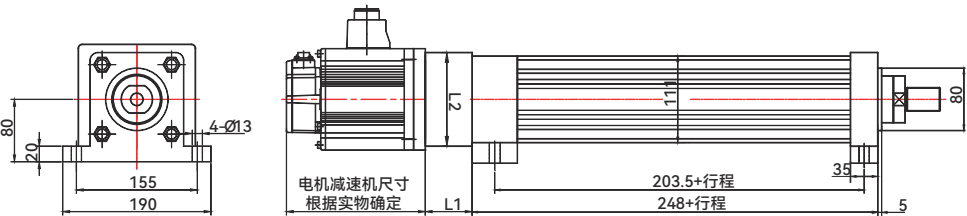
M1:前输出法兰

M1: Front output flange



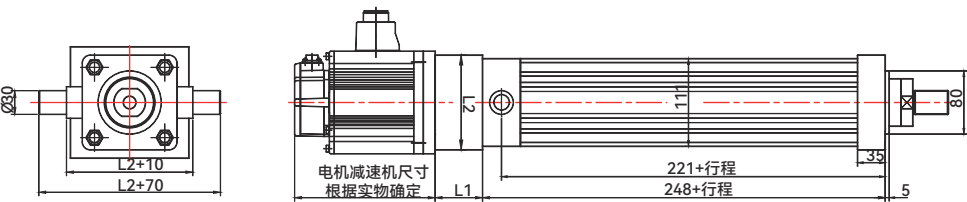
M2:卧式底座

M2: Horizontal base



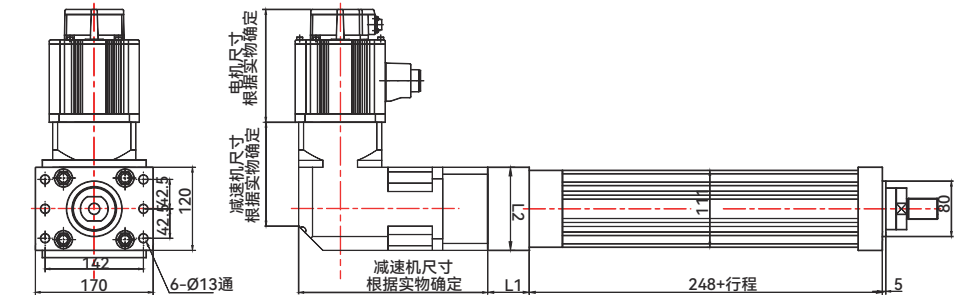
M3:后法兰耳轴

M3: Rear flange trunnion



MX:用户自定义

MX: User Defined



电机法兰 Motor flange	L1	L2
130	60	130
150	100	150
180	110	180

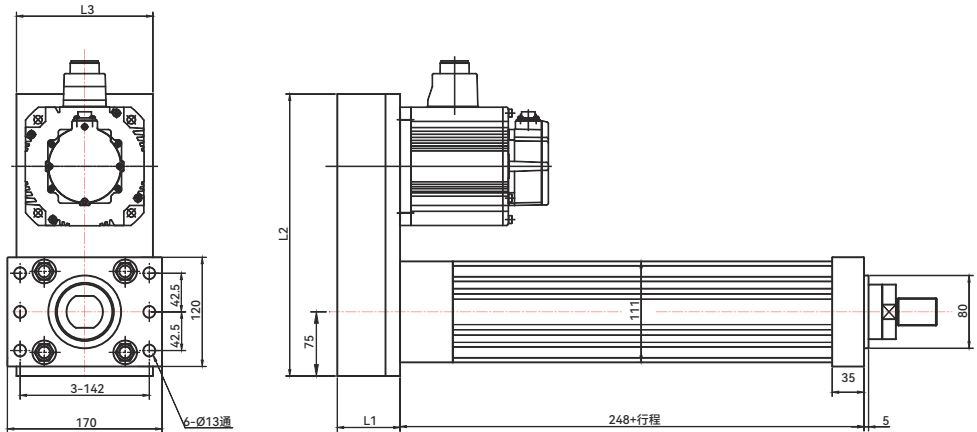
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

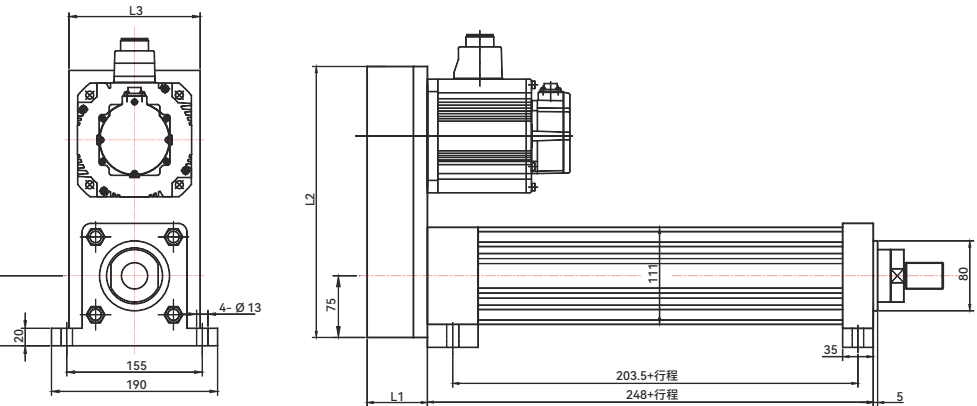
M1:前输出法兰

M1: Front output flange



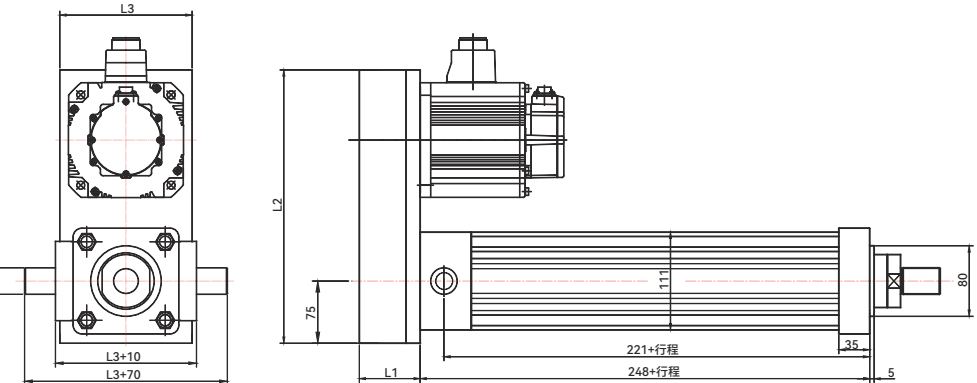
M2:卧式底座

M2: Horizontal base



M3:后法兰耳轴

M3: Rear flange trunnion



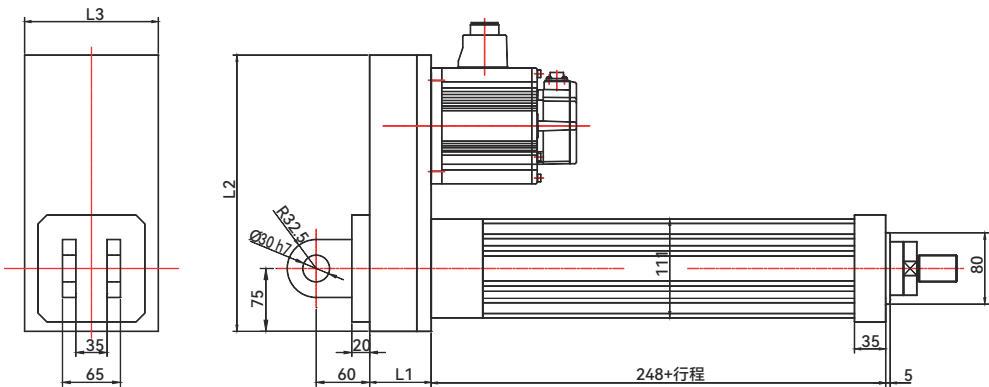
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

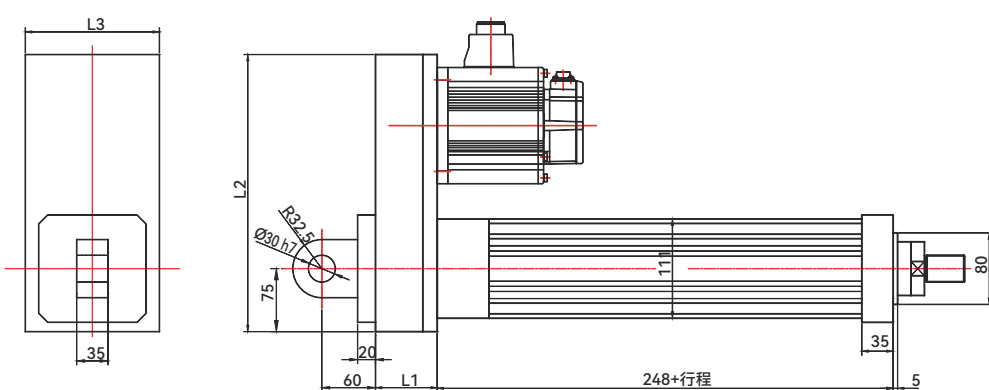
M4:尾部双耳轴

M4: Tail double trunnion



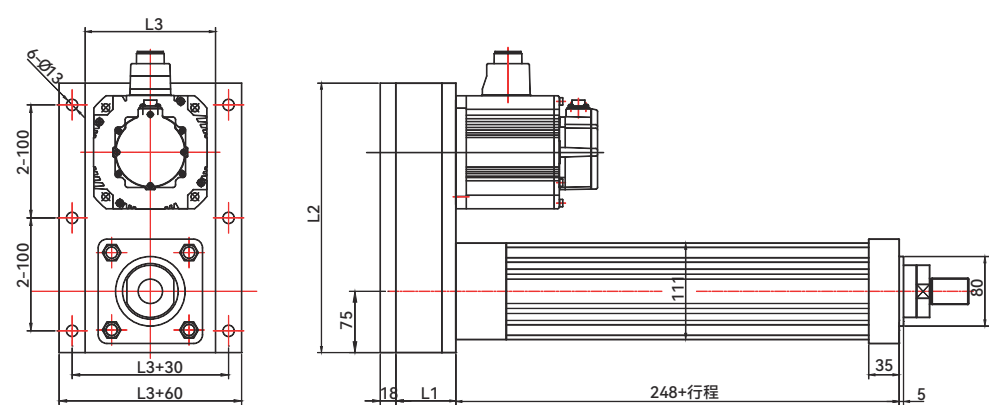
M5:尾部单耳轴

M5: Tail single trunnion



M6:尾部法兰

M6: Tail flange



电机法兰 Motor flange	L1	L2	L3
130	75	310	150
150	90	330	170
180	120	360	200

※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

145 SERIES

SERVO ELECTRIC CYLINDER

145系列伺服电动缸



最大行程
maximum Stroke 2400mm

丝杆直径
Screw diameter 48/50mm

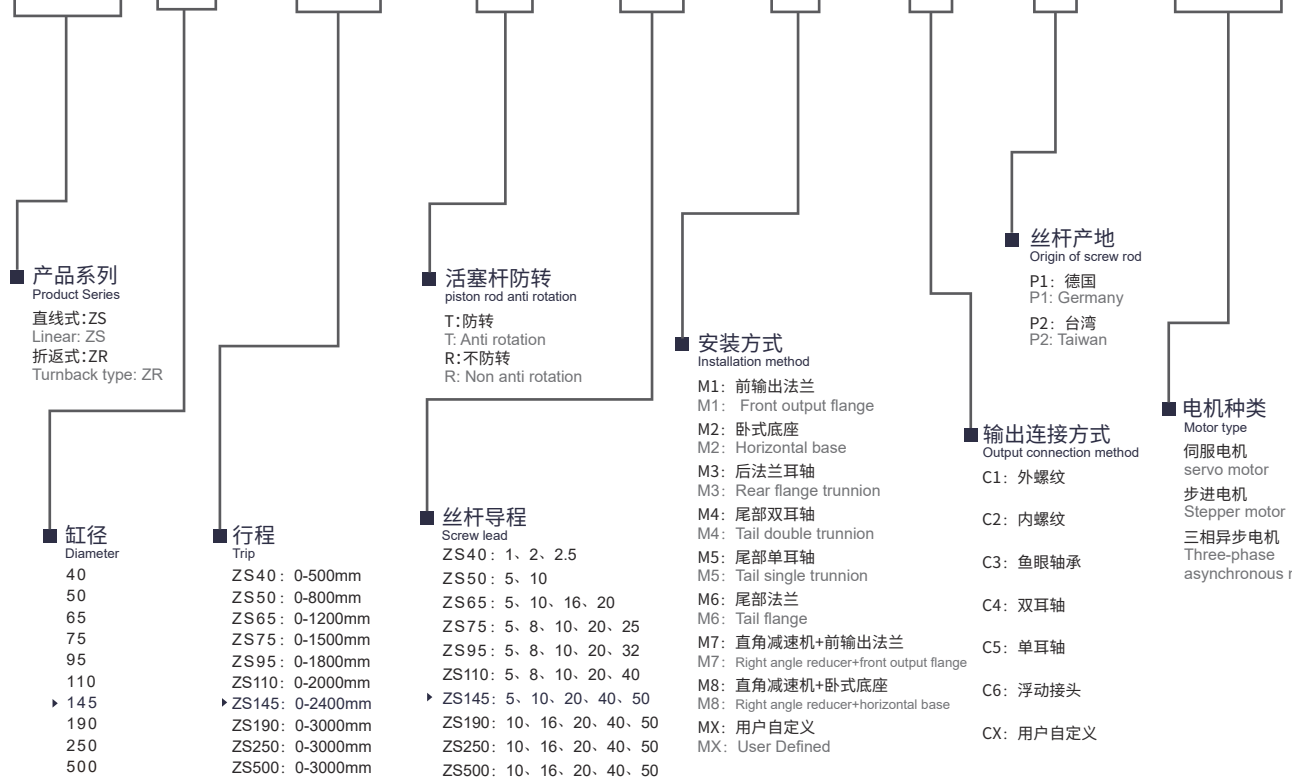
电机额定转速
motor speed 1500rpm

最大承受推力
Maximum thrust bearing 50KN

型号表示方式

Model representation

ZS/ZR 145 - S100 - T/R - R20 - M1 - C1 - P2 - 电机类型



※注: 1、为保证有效行程, 两端的极限各留5mm的间隙;
In order to ensure effective stroke, 5mm gap is reserved for each limit at both ends;
2、并联安装时, 传感器不能与电机同侧;
When installed in parallel, the sensor shall not be on the same side with the motor;

选型参数表

Selection Parameter Table

型号	丝杆导程 (mm)	丝杆直径 (mm)	电机功率 (KW)	电机额定转速 (rpm)	可选速比	额定推力 (KN)	最大承受力 (KN)	电缸额定速度 (mm/s)	电缸最大行程 (mm)	
145系列	5	48/50	3	1500	1:1	20.4	50	125	2400	
					1:3	50		41		
	次选				1:1	10.2		250		
	10				1:3	30.6		83		
					1:5	50		50		
					优选	1:1		5.1		500
					20	1:5		25.5		100
						1:10		50		50
	50					1:1		2		1000
					1:7	14		142		
					1:16	32		62		
					1:25	50		40		

(以上减速比仅供参考，具体请联系技术)

145 折返 145 turn back	行程mm	50	100	150	200	300	400	500	600	700	800
	重量KG	80.7	84.1	87.5	90.9	97.7	104.5	111.3	118.1	124.9	131.7
145 直线 145 straight lines	行程mm	50	100	150	200	300	400	500	600	700	800
	重量KG	64.1	67.5	70.9	74.3	81.1	87.9	94.7	101.5	108.3	115.1

轴端安装方式

Shaft end installation method

C1: 外螺纹
C1: External thread

C2: 内螺纹
C2: Internal thread

C3: 鱼眼轴承
C3: Fish eye bearing

C4: 双耳轴
C4: Double trunnion

C5: 单耳轴
C5: Single trunnion

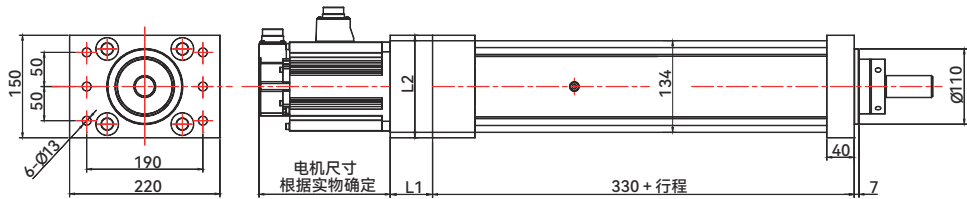
C6: 浮动接头
C6: Floating joint

直线式外形图

Linear Outline Drawing

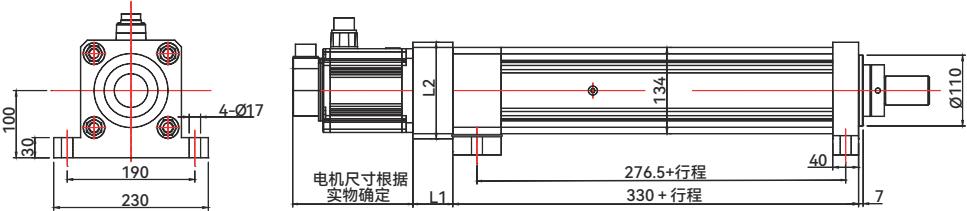
M1:前输出法兰

M1: Front output flange



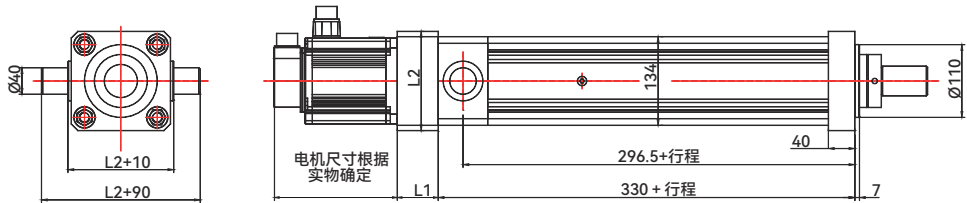
M2:卧式底座

M2: Horizontal base



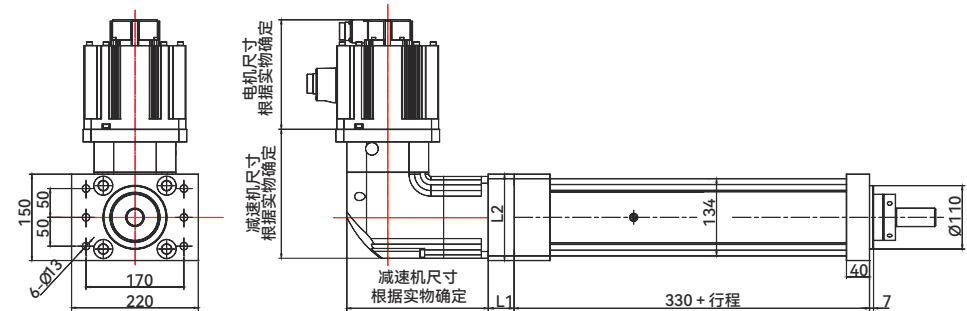
M3:后法兰耳轴

M3: Rear flange trunnion



MX:用户自定义

MX: User Defined



电机法兰 Motor flange	L1	L2
150	85	150
180	95	180

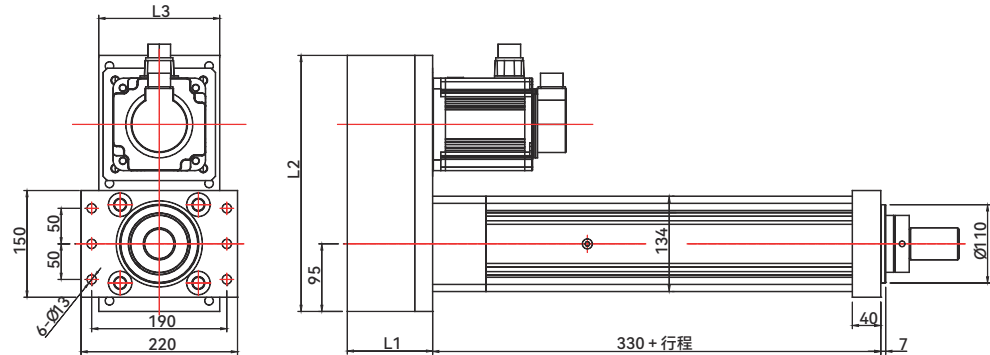
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

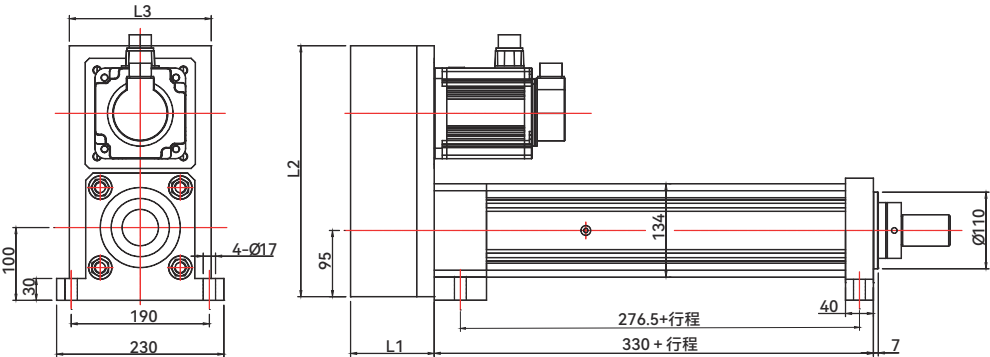
M1:前输出法兰

M1: Front output flange



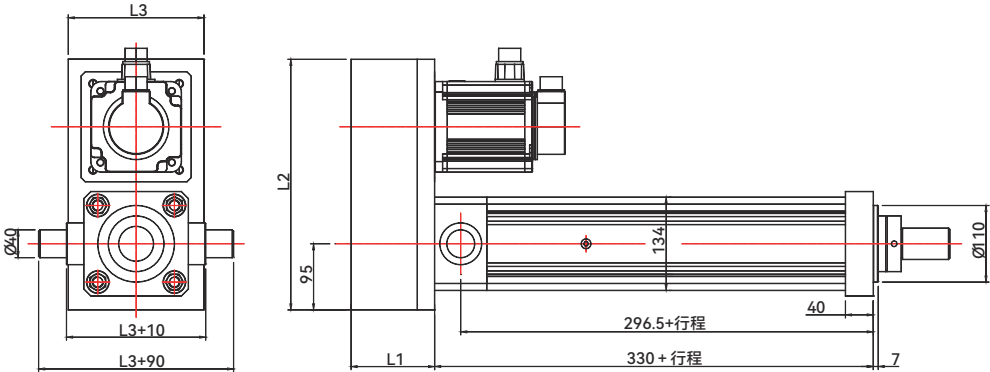
M2:卧式底座

M2: Horizontal base



M3:后法兰耳轴

M3: Rear flange trunnion



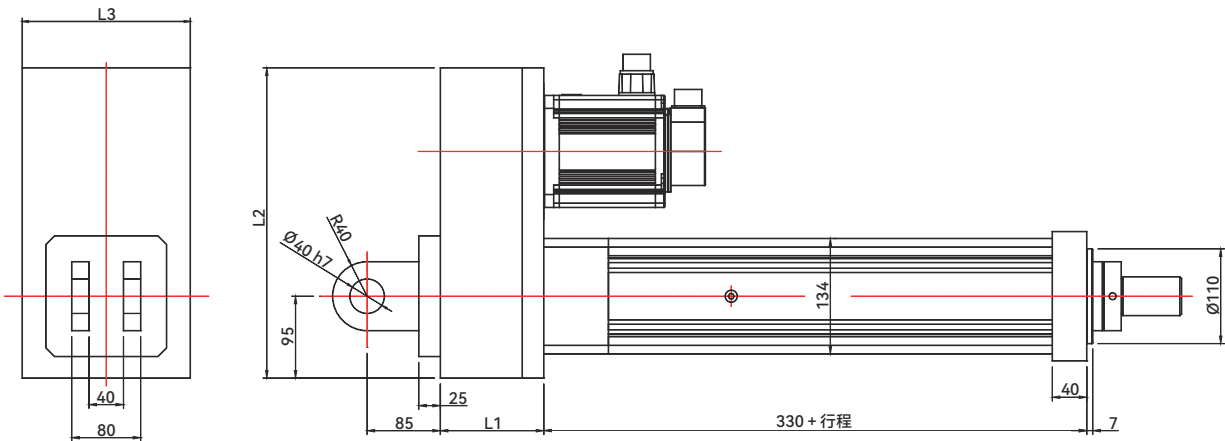
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

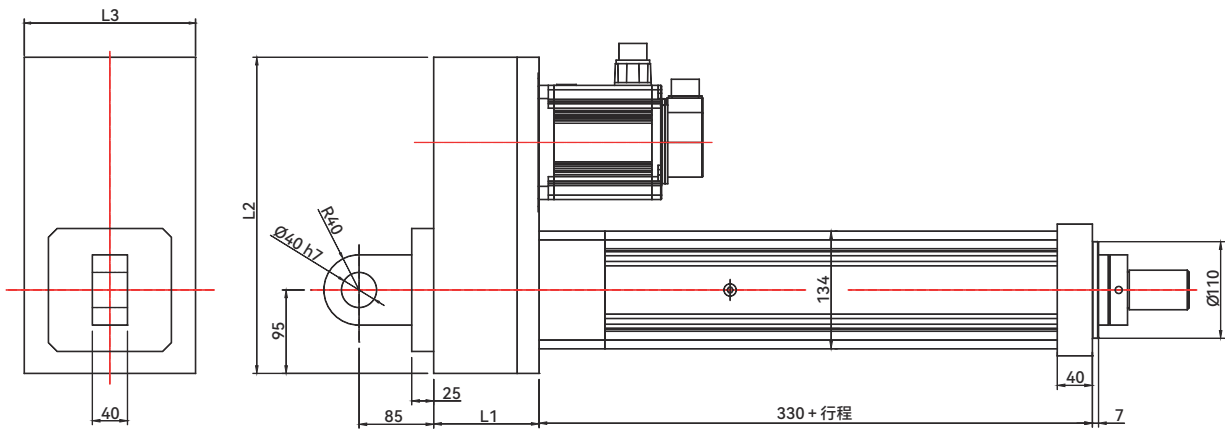
M4:尾部双耳轴

M4: Tail double trunnion



M5:尾部单耳轴

M5: Tail single trunnion



电机法兰 Motor flange	L1	L2	L3
150	120	360	170
180	120	390	200

190 SERIES
SERVO ELECTRIC CYLINDER
190系列伺服电动缸



最大行程
maximum Stroke

3000mm

丝杆直径
Screw diameter

63mm

电机额定转速
motor speed

1500rpm

最大承受推力
Maximum thrust bearing

100KN

型号表示方式

Model representation

ZS/ZR 190 - S100 - T/R - R20 - M1 - C1 - P2 - 电机类型

产品系列
Product Series
直线式: ZS
Linear: ZS
折返式: ZR
Turnback type: ZR

缸径
Diameter

40
50
65
75
95
110
145
190
250
500

行程
Trip

ZS40 : 0-500mm
ZS50 : 0-800mm
ZS65 : 0-1200mm
ZS75 : 0-1500mm
ZS95 : 0-1800mm
ZS110 : 0-2000mm
ZS145 : 0-2400mm
ZS190 : 0-3000mm
ZS250 : 0-3000mm
ZS500 : 0-3000mm

丝杆导程
Screw lead

ZS40 : 1、2、2.5
ZS50 : 5、10
ZS65 : 5、10、16、20
ZS75 : 5、8、10、20、25
ZS95 : 5、8、10、20、32
ZS110 : 5、8、10、20、40
ZS145 : 5、10、20、40、50
ZS190 : 10、16、20、40、50
ZS250 : 10、16、20、40、50
ZS500 : 10、16、20、40、50

活塞杆防转
piston rod anti rotation
T: 防转
T: Anti rotation
R: 不防转
R: Non anti rotation

安装方式
Installation method

M1: 前输出法兰
M1: Front output flange
M2: 卧式底座
M2: Horizontal base
M3: 后法兰耳轴
M3: Rear flange trunnion
M4: 尾部双耳轴
M4: Tail double trunnion
M5: 尾部单耳轴
M5: Tail single trunnion
M6: 尾部法兰
M6: Tail flange
M7: 直角减速机+前输出法兰
M7: Right angle reducer+front output flange
M8: 直角减速机+卧式底座
M8: Right angle reducer+horizontal base
MX: 用户自定义
MX: User Defined

丝杆产地
Origin of screw rod
P1: 德国
P1: Germany
P2: 台湾
P2: Taiwan

输出连接方式
Output connection method

C1: 外螺纹
C1: External thread
C2: 内螺纹
C2: Internal thread
C3: 鱼眼轴承
C3: Fish eye bearing
C4: 双耳轴
C4: Double trunnion
C5: 单耳轴
C5: Single trunnion
C6: 浮动接头
C6: Floating joint
CX: 用户自定义
CX: User Defined

电机种类
Motor type

伺服电机
servo motor
步进电机
Stepper motor
三相异步电机
Three-phase asynchronous motor

※注: 1、为保证有效行程, 两端的极限各留5mm的间隙;
In order to ensure effective stroke, 5mm gap is reserved for each limit at both ends;
2、并联安装时, 传感器不能与电机同侧;
When installed in parallel, the sensor shall not be on the same side with the motor;

※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

选型参数表

Selection Parameter Table

型号	丝杆导程 (mm)	丝杆直径 (mm)	电机功率 (KW)	电机额定转速 (rpm)	可选速比	额定推力 (KN)	最大承受力 (KN)	电缸额定速度 (mm/s)	电缸最大行程 (mm)
190系列	次选	63	4.5	1500	1:1	15.3	100	250	3000
	10				1:3	45.9		83	
					1:5	76.5		50	
					1:7	100		35	
					优选	1:1		7.6	
	20				1:7	53.2		71	
					1:16	100		31	

(以上减速比仅供参考，具体请联系技术)

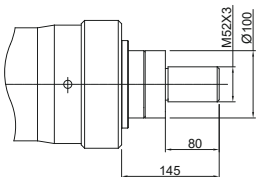
190折返 190 turn back	行程mm	50	100	150	200	250	300	350	400	450	500
	重量KG	134.3	140	145.7	151.4	157.1	162.8	168.5	174.2	179.9	185.6

190直线 190 straight lines	行程mm	50	100	150	200	250	300	350	400	450	500
	重量KG	119.7	125.4	131.1	136.8	142.5	148.2	153.9	159.6	165.3	171

轴端安装方式

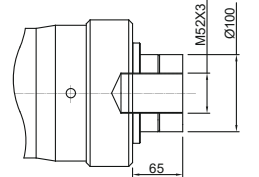
Shaft end installation method

C1: 外螺纹
C1: External thread



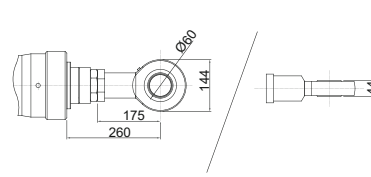
*螺牙可选

C2: 内螺纹
C2: Internal thread

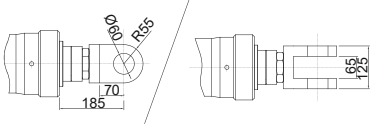


*螺牙可选

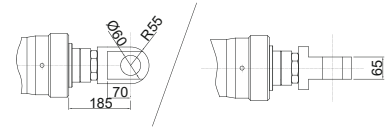
C3: 鱼眼轴承
C3: Fish eye bearing



C4: 双耳轴
C4: Double trunnion



C5: 单耳轴
C5: Single trunnion

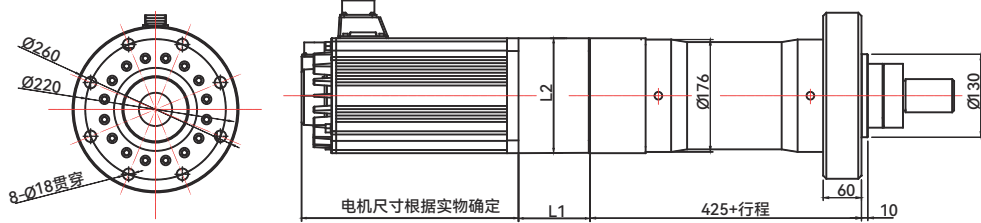


直线式外形图

Linear Outline Drawing

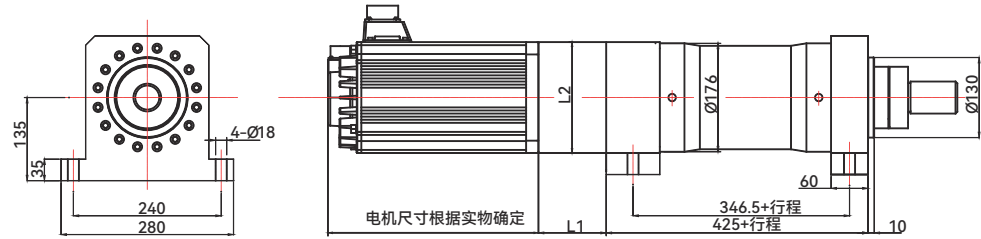
M1:前输出法兰

M1: Front output flange



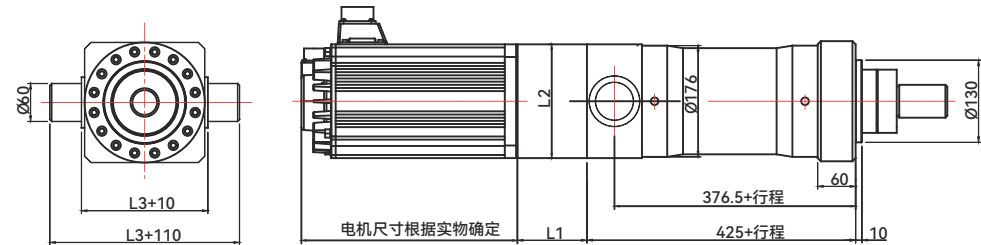
M2:卧式底座

M2: Horizontal base



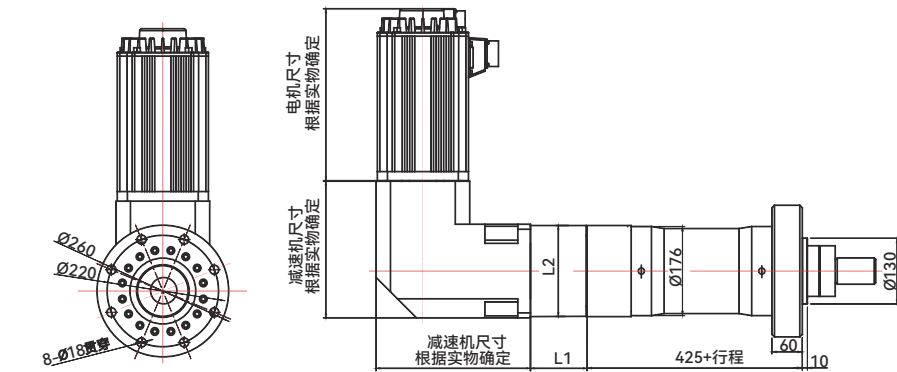
M3:后法兰耳轴

M3: Rear flange trunnion



MX:用户自定义

MX: User Defined



电机法兰 Motor flange	L1	L2
180	220	180
220	260	220

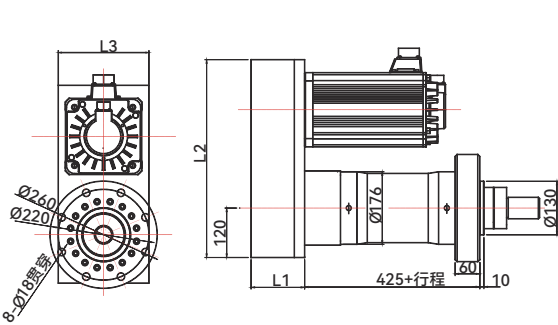
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的，如需具体尺寸图，请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

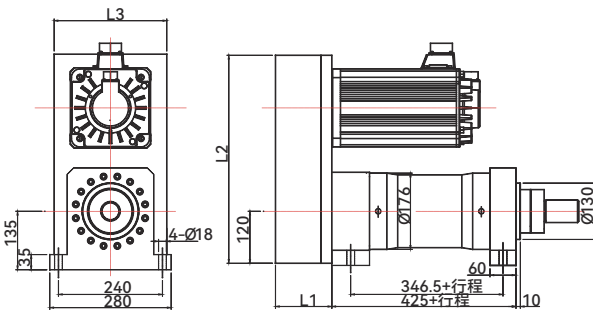
M1:前输出法兰

M1: Front output flange



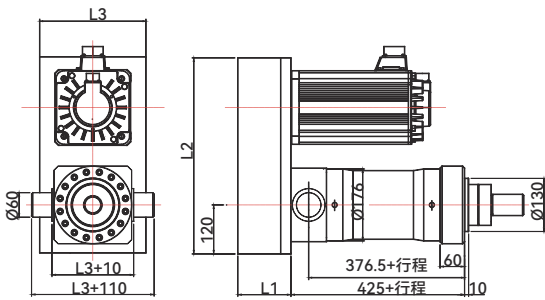
M2:卧式底座

M2: Horizontal base



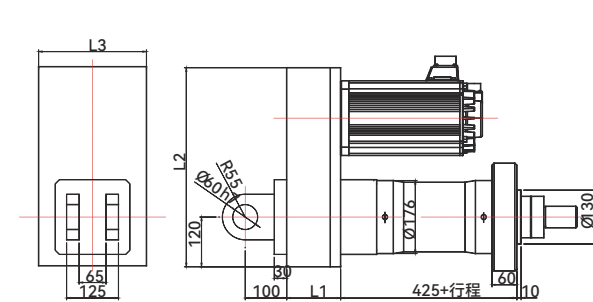
M3:后法兰耳轴

M3: Rear flange trunnion



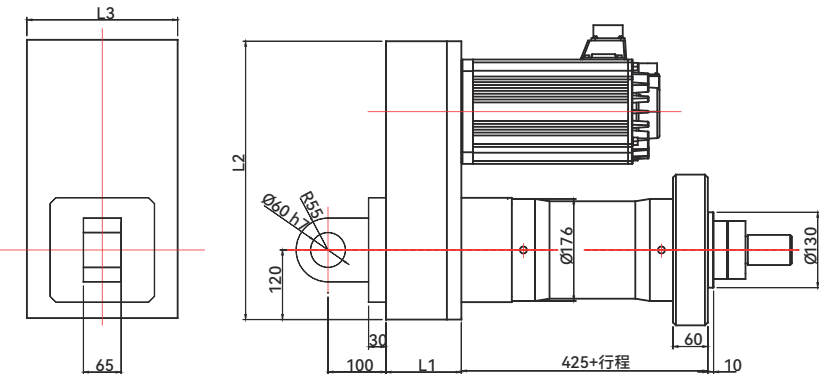
M4:尾部双耳轴

M4: Tail double trunnion



M5:尾部单耳轴

M5: Tail single trunnion



电机法兰 Motor flange	L1	L2	L3
180	130	480	260
220	155	480	260

※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
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250 SERIES
SERVO ELECTRIC CYLINDER
250系列伺服电动缸



最大行程
maximum Stroke 3000mm

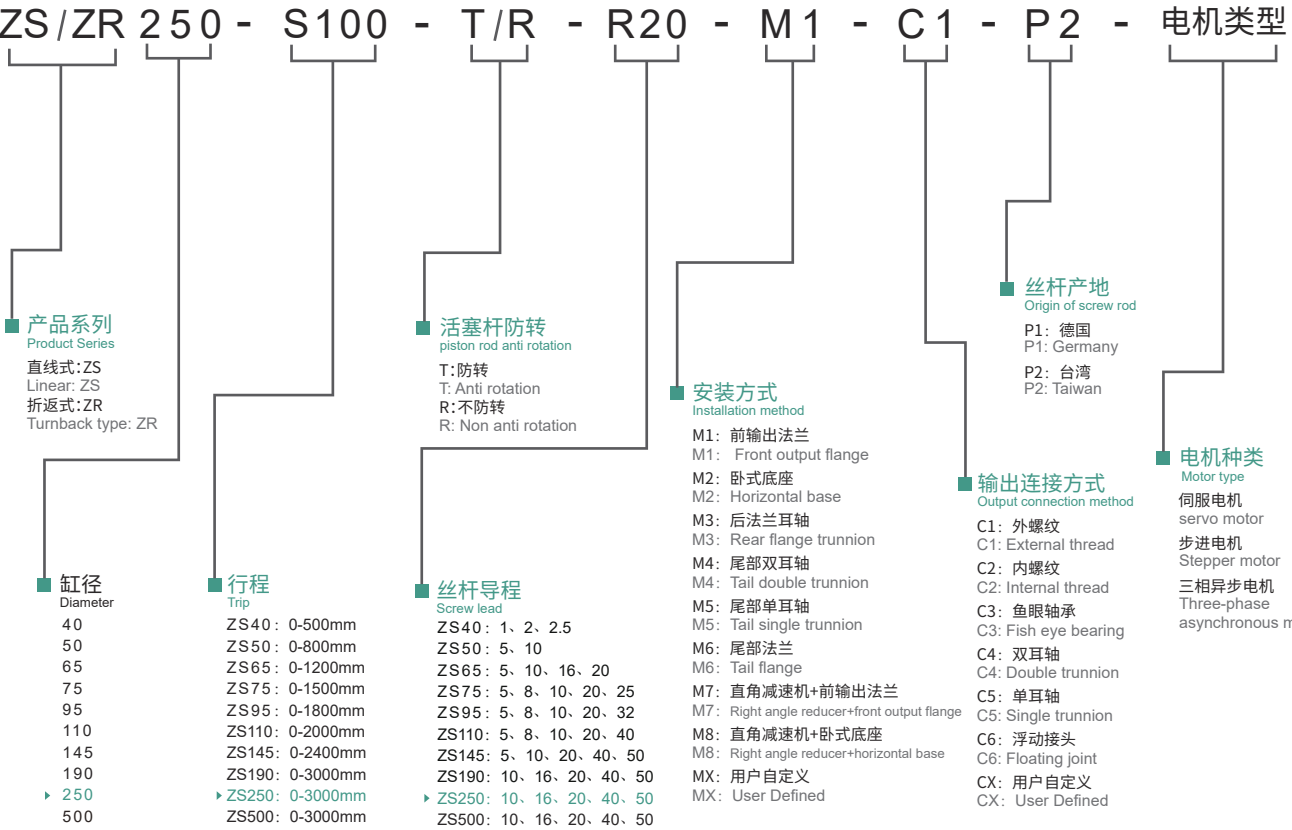
丝杆直径
Screw diameter 100mm

电机额定转速
motor speed 1000rpm

最大承受推力
Maximum thrust bearing 500KN

型号表示方式

Model representation



※注: 1、为保证有效行程, 两端的极限各留5mm的间隙;
In order to ensure effective stroke, 5mm gap is reserved for each limit at both ends;
2、并联安装时, 传感器不能与电机同侧;
When installed in parallel, the sensor shall not be on the same side with the motor;

选型参数表

Selection Parameter Table

型号	丝杆导程 (mm)	丝杆直径 (mm)	电机功率 (KW)	电机额定转速 (rpm)	可选速比	额定推力 (KN)	最大承受力 (KN)	电缸额定速度 (mm/s)	电缸最大行程 (mm)
250系列	优选 20	100	7.5	1000	1:1	19.1	500	333	3000
					1:3	57.3		111	
					1:5	95.5		66	
					1: 10	191		33	
					1:20	382		16	
					1:35	500		9	

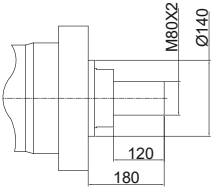
250折返 250 turn back	行程mm	50	100	150	200	250	300	350	400	450	500
	重量KG	159	171	183	195	207	219	231	243	255	267

250直线 250 straight lines	行程mm	50	100	150	200	250	300	350	400	450	500
	重量KG	114	126	138	150	162	174	186	198	210	222

轴端安装方式

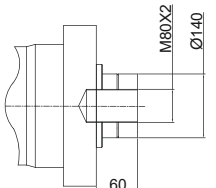
Shaft end installation method

C1: 外螺纹 C1: External thread



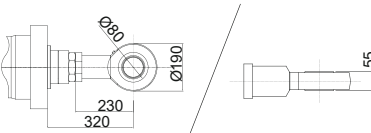
*螺牙可选

C2: 内螺纹 C2: Internal thread

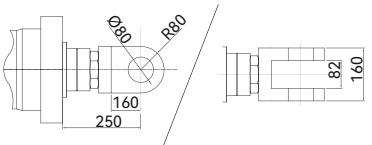


*螺牙可选

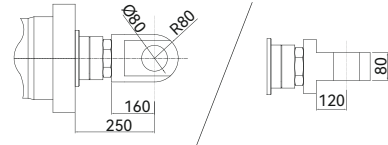
C3: 鱼眼轴承 C3: Fish eye bearing



C4: 双耳轴 C4: Double trunnion



C5: 单耳轴 C5: Single trunnion

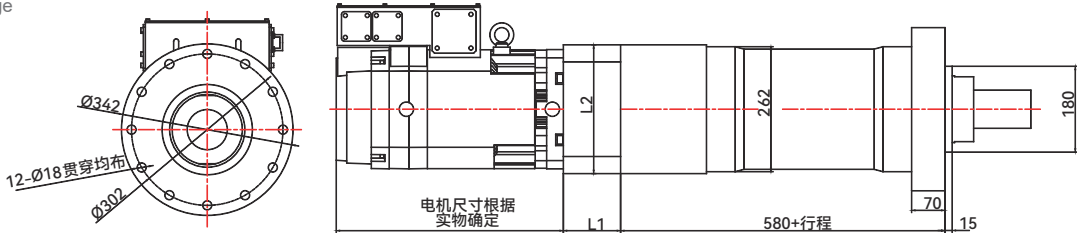


直线式外形图

Linear Outline Drawing

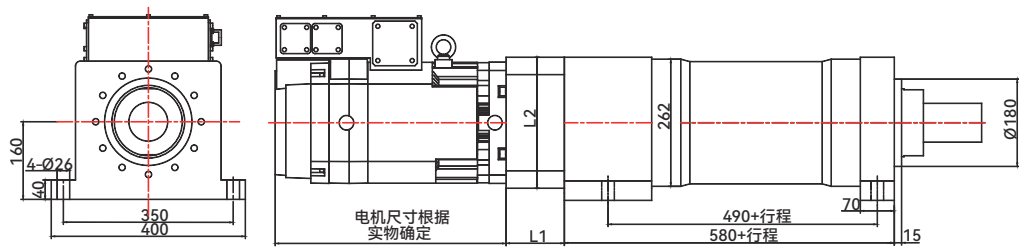
M1:前输出法兰

M1: Front output flange



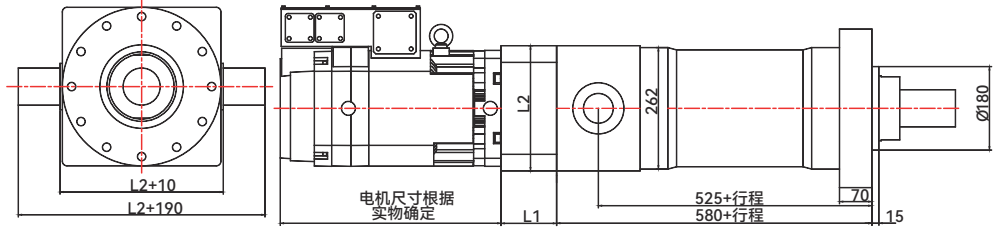
M2:卧式底座

M2: Horizontal base



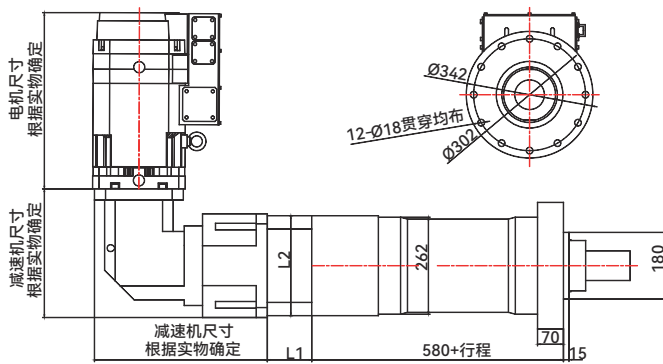
M3:后法兰耳轴

M3: Rear flange trunnion



MX:用户自定义

MX: User Defined



电机法兰 Motor flange	L1	L2
220	290	220
250	330	250

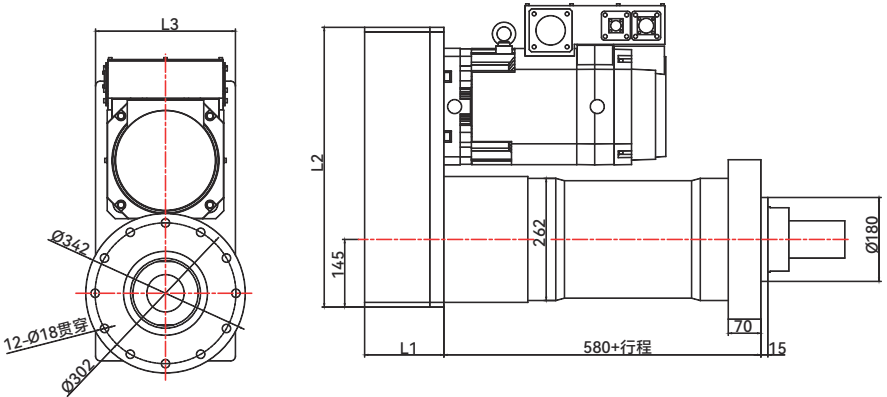
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

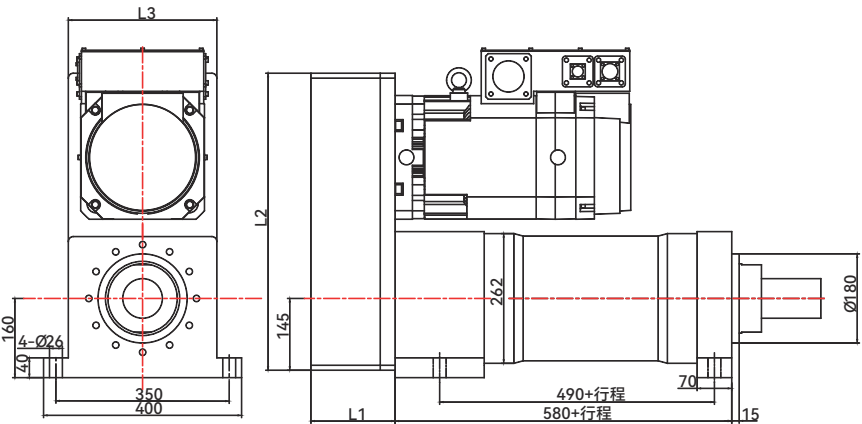
M1:前输出法兰

M1: Front output flange



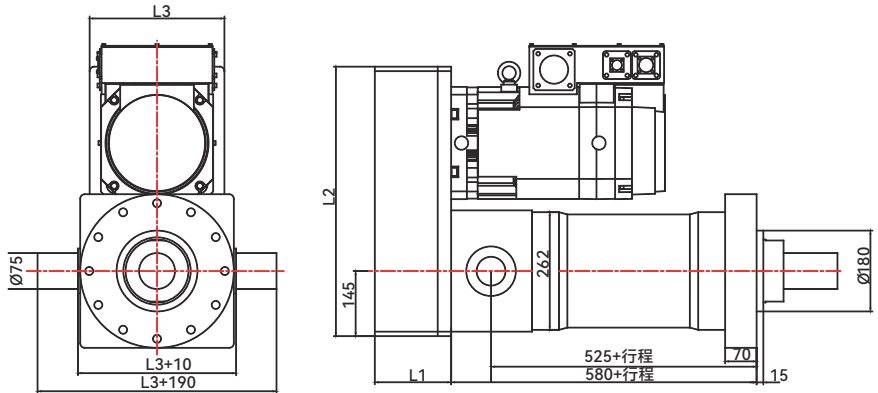
M2:卧式底座

M2: Horizontal base



M3:后法兰耳轴

M3: Rear flange trunnion



电机法兰 Motor flange	L1	L2	L3
220	160	540	280
250	175	600	300

※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
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500 SERIES

SERVO ELECTRIC CYLINDER

500系列伺服电动缸



最大负载1500KN
可支持非标订制

最大行程
maximum Stroke

3000mm

丝杆直径
Screw diameter

120mm

电机额定转速
motor speed

1000rpm

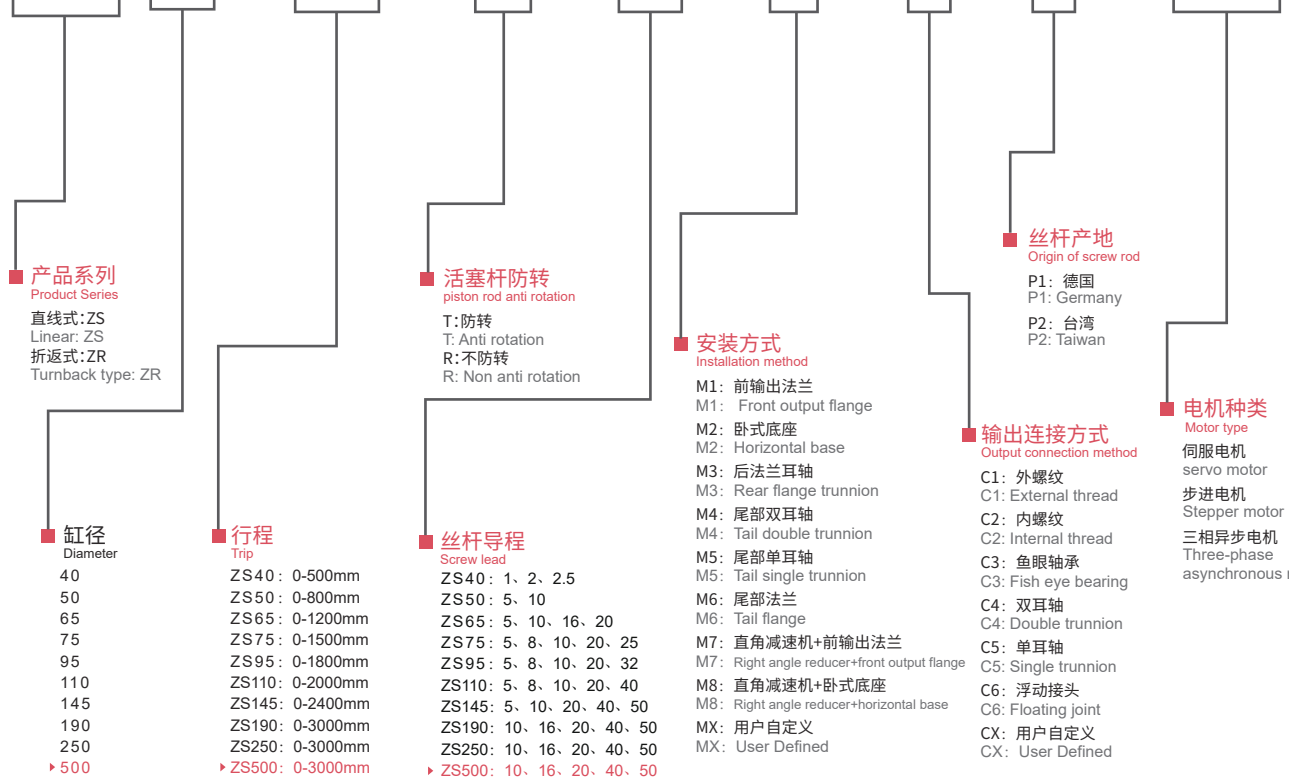
最大承受推力
Maximum thrust bearing

1500KN

型号表示方式

Model representation

ZS/ZR 500 - S100 - T/R - R40 - M1 - C1 - P2 - 电机类型



※注: 1、为保证有效行程, 两端的极限各留5mm的间隙;
In order to ensure effective stroke, 5mm gap is reserved for each limit at both ends;
2、并联安装时, 传感器不能与电机同侧;
When installed in parallel, the sensor shall not be on the same side with the motor;

选型参数表

Selection Parameter Table

型号	丝杆导程 (mm)	丝杆直径 (mm)	电机功率 (KW)	电机额定转速 (rpm)	可选速比	额定推力 (KN)	最大承受力 (KN)	电缸额定速度 (mm/s)	电缸最大行程 (mm)
500系列	次选	120	15	1500	1:1	25.5	1500	500	3000
	30				1:10	255		50	
					1:35	892.5		14	
					1:64	1500		7	
					优选	1:1		19.1	
	40				1:10	191		66	
					1:50	955		13	
					1: 100	1500		66	

(以上减速比仅供参考，具体请联系技术)

500折返 500 turn back	行程mm	1530	1556	1582	1608	1634	1660	1686	1712	1738	1764
	重量KG	1880	1906	1932	1958	1984	2010	2036	2062	2088	2114

500直线 500 straight lines	行程mm	50	100	150	200	250	300	350	400	450	500
	重量KG	114	126	138	150	162	174	186	198	210	222

轴端安装方式

Shaft end installation method

C1: 外螺纹 C1: External thread

*螺牙可选

C2: 内螺纹 C2: Internal thread

*螺牙可选

C3: 鱼眼轴承 C3: Fish eye bearing

Ø80 230 320 Ø190 55

C4: 双耳轴 C4: Double trunnion

Ø100 Ø100 200 320

C5: 单耳轴 C5: Single trunnion

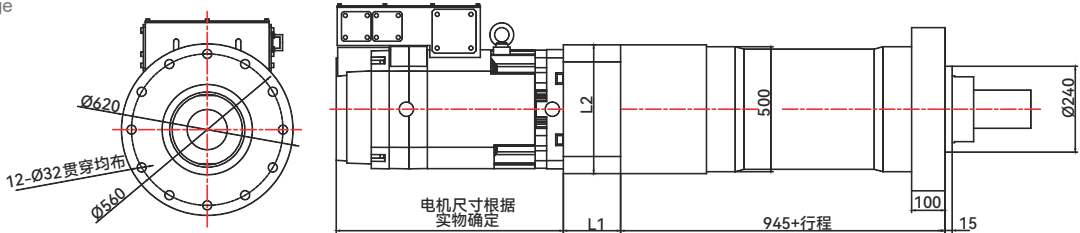
Ø100 Ø100 100 320

直线式外形图

Linear Outline Drawing

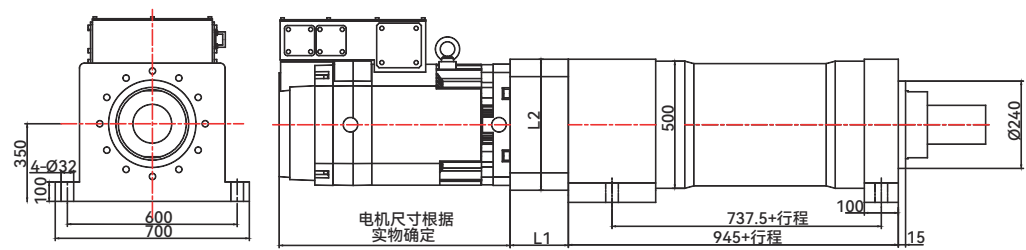
M1:前输出法兰

M1: Front output flange



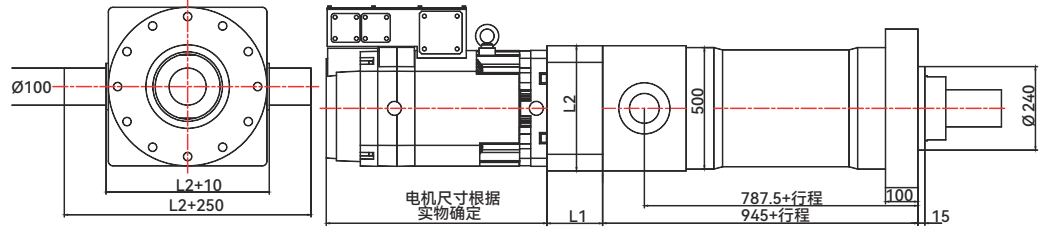
M2:卧式底座

M2: Horizontal base



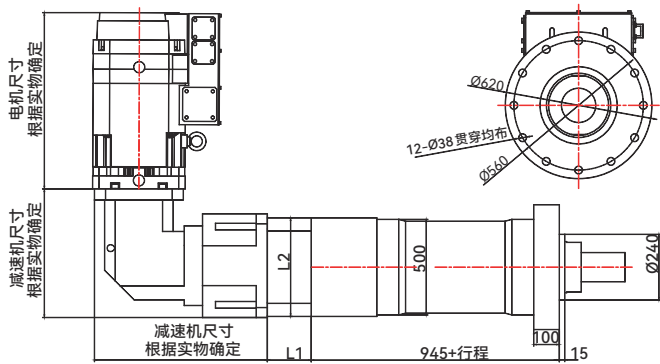
M3:后法兰耳轴

M3: Rear flange trunnion



MX:用户自定义

MX: User Defined



电机法兰 Motor flange	L1	L2
330	200	500

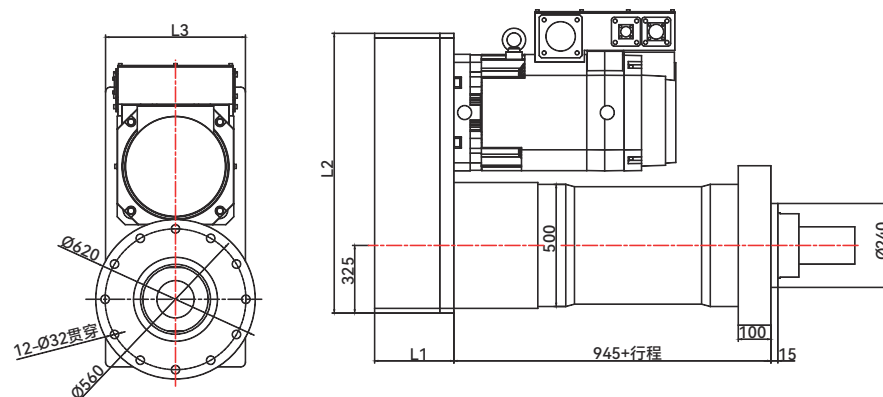
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的，如需具体尺寸图，请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

折返式外形图

Foldback Outline Drawing

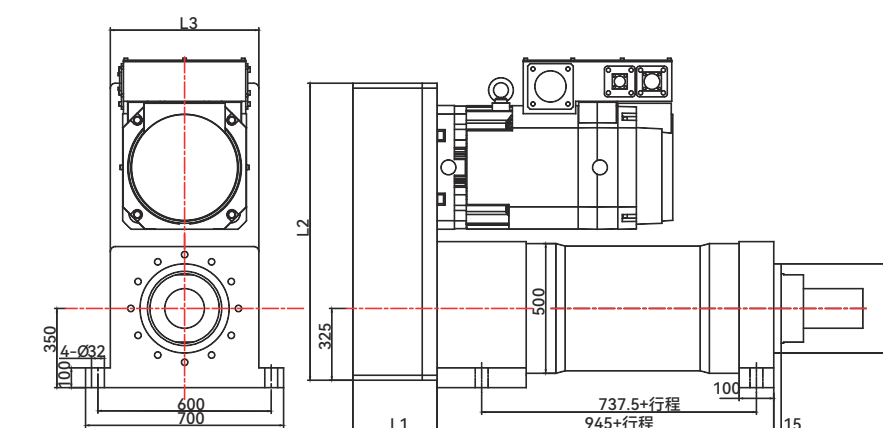
M1: 前输出法兰

M1: Front output flange



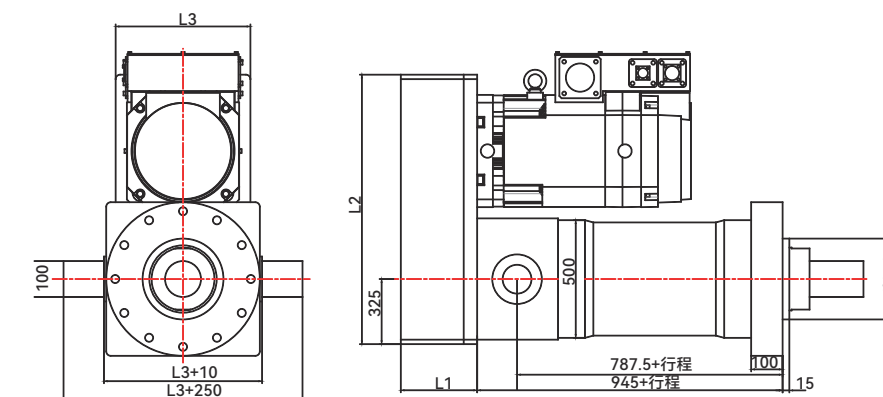
M2: 卧式底座

M2: Horizontal base



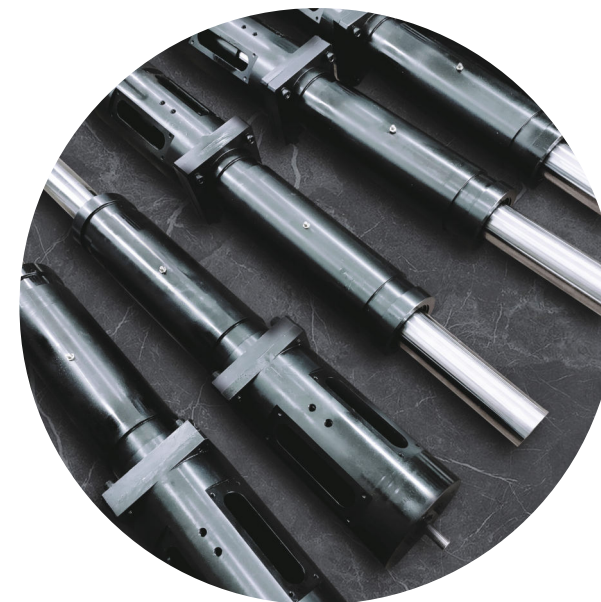
M3: 后法兰耳轴

M3: Rear flange trunnion



电机法兰 Motor flange	L1	L2	L3
230	350	1200	620

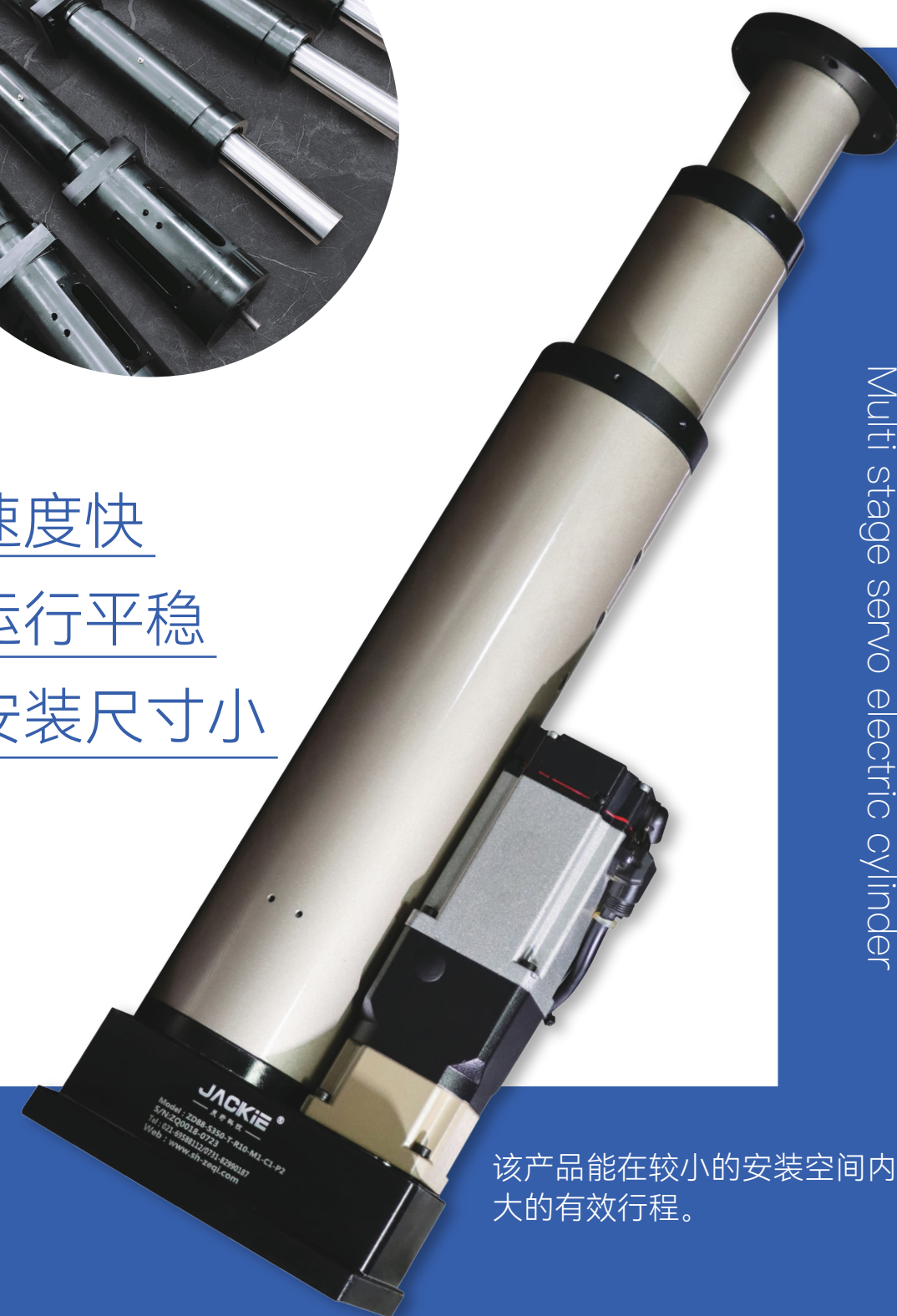
※注: 伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的, 如需具体尺寸图, 请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.



快 速度快

稳 运行平稳

小 安装尺寸小



该产品能在较小的安装空间内满足更大的有效行程。

多级伺服电动缸
Multi stage servo electric cylinder

PRODUCT
CHARACTERISTICS

产品特点



折返式电动缸与液压、气缸传动相比，响应速度更快，定位精度更高，轴承稳定性更好。驱动系统易于保护，传动系统布局更紧凑。

型号表示方式

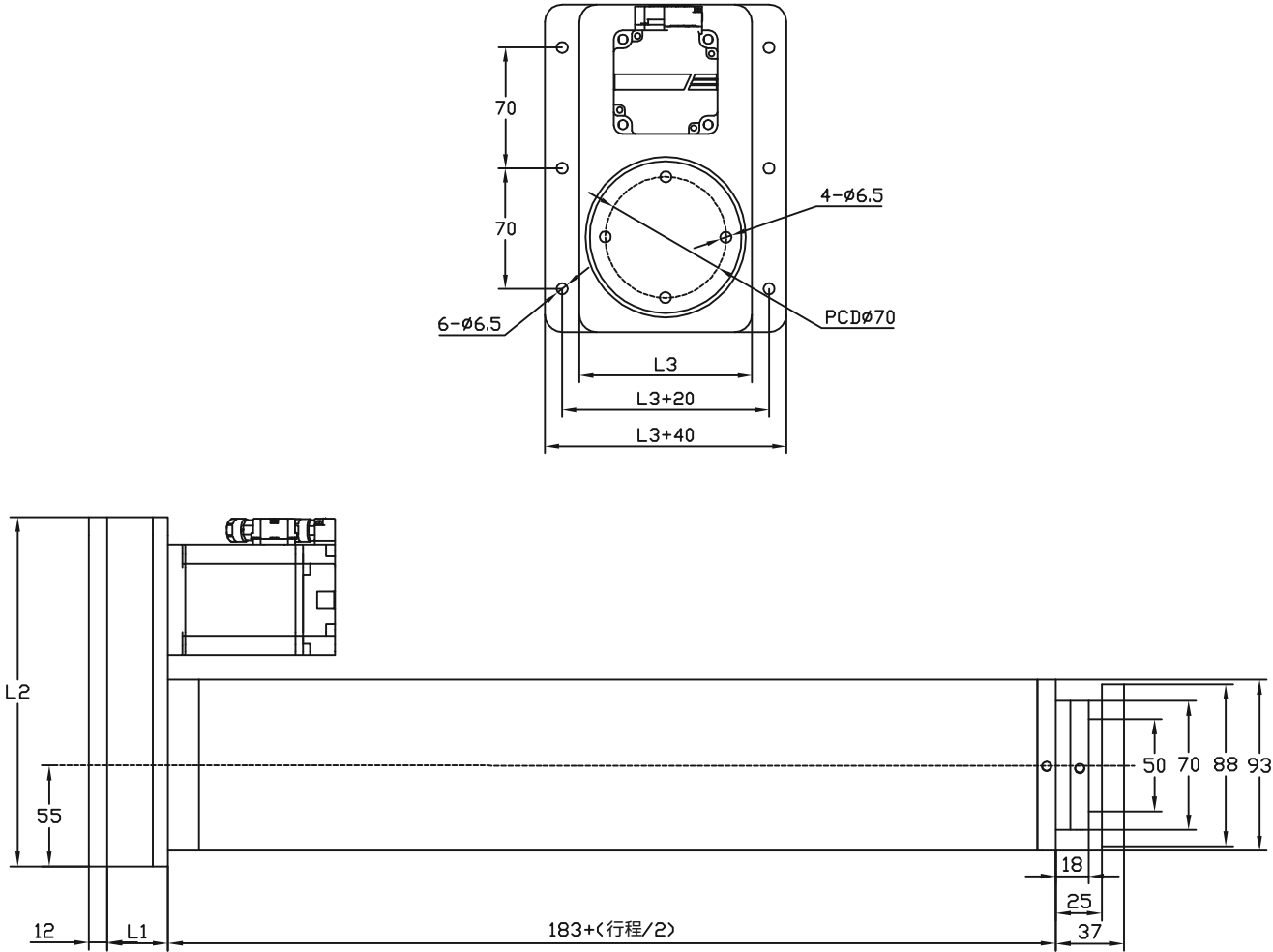
Model representation

ZD	8 8	S100	T	R10	M6	C1	P2
型号	缸径	行程mm	防转	导程	电动缸 安装方式	负载连 接方式	丝杆产地 台湾

标准马达额定功率 KW	0.4
马达额定扭矩 N·m	1.27
马达额定转速 r/min	3000
螺杆规格	1605
重复定位精度 mm	±0.05
标准马达额定推力 kN	1.2
标准马达额定速度 mm/s	500
最长有效行程 mm	2000
最大负载推力 kN	5
最快伸缩速度 mm/s	1000

多级缸外形图

Outline Drawing



电机法兰	L1	L2	L3
60	43	190	100

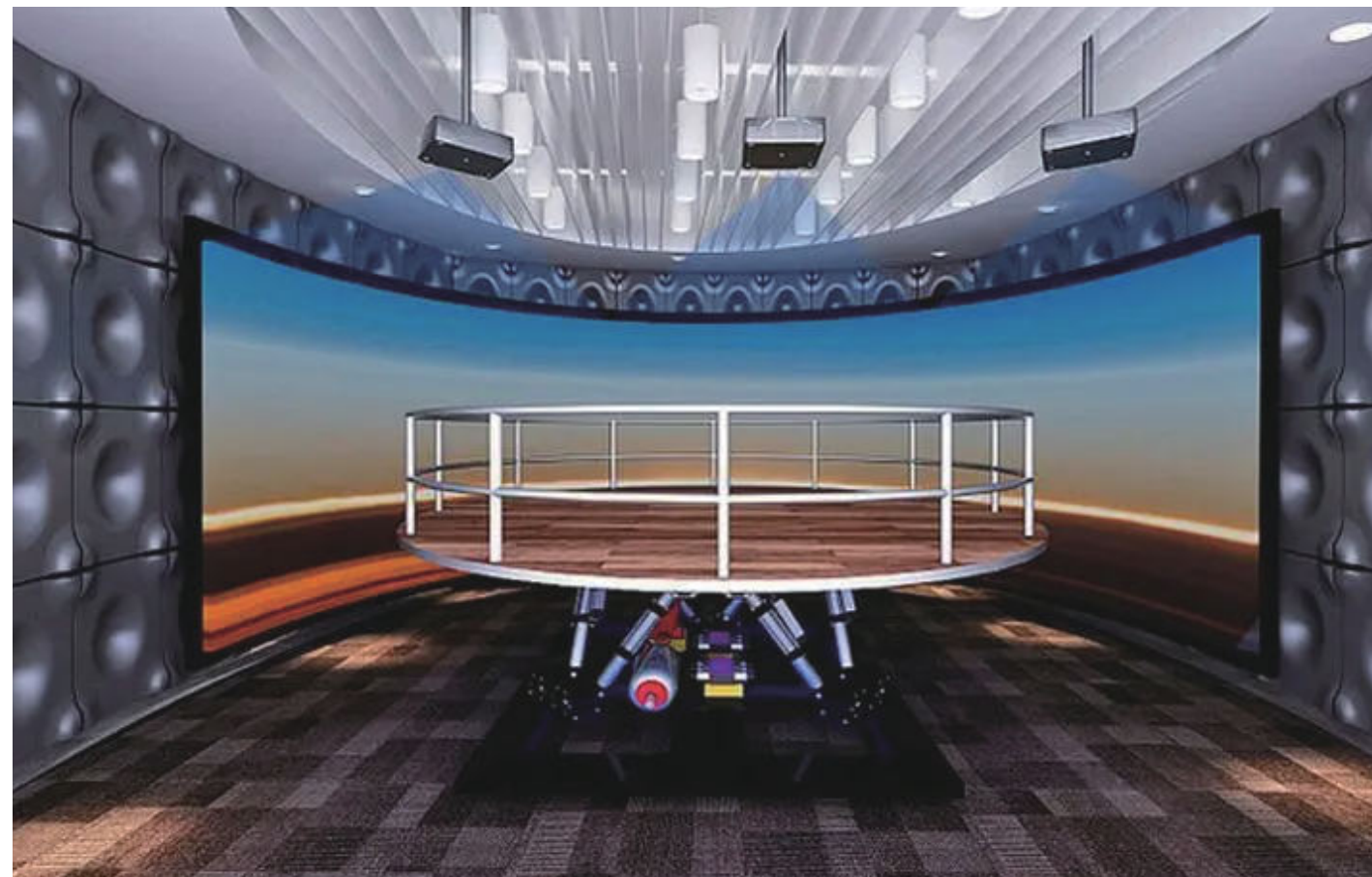
※注：伺服电动缸缸体与伺服电机处的连接板是根据伺服电机的法兰尺寸订制的，如需具体尺寸图，请联系厂家。
The connecting plate between the servo motor and the servo cylinder is customized according to the flange size of the servo motor. If you need a specific size drawing, please contact the manufacturer.

INTRODUCTION TO MULTI DEGREE OF FREEDOM MOTION SIMULATION PLATFORM

多自由度运动仿真模拟平台介绍

多自由度运动仿真模拟平台是由多支电动缸,上、下万向铰链和上、下两个平台组成,下平台固定在基础上,借助多支电动缸的伸缩运动,完成上平台在空间多个自由度的运动,从而可以模拟出各种空间运动姿态。多自由度运动平台涉及到机械、电气、控制、计算机、传感器、空间运动数学模型、实时信号传输处理等一系列高科技领域,因此,多自由度运动平台是控制领域水平的标志性象征。主要包括平台的空间运动机构、空间运动模型、数据采集系统、控制系统。

在工业应用中,两自由度、三自由度、六自由度平台较为常见,这些结构都属于并联机构,并联机构拥有精度高、刚度高、承载能力高、运动反解模型简单、操作速度高等特点。伺服电动多自由度平台按照使用领域大致可分为两大种类:模拟仿真用的动感平台和精密定位测试用平台。模拟仿真动感平台的有效载荷范围为0.1-20吨,这些模拟仿真动感平台通过接受来自上位控制器的状态信号,控制平台的运动,广泛应用于各种训练模拟器,如飞机操纵模拟器、舰艇操纵模拟器、直升机操纵模拟平台、坦克操纵模拟器、汽车驾驶模拟器、火车驾驶模拟器、地震模拟器以及动感电影、娱乐设备等领域。



精密定位测试平台的有效载荷为0.5-50吨,位置控制精度达到0.02MM,角度控制精度达0.002°。广泛应用在各种汽车姿态测试设备,飞机/导弹飞行姿态测试设备等精密测试多自由度平台,以及空间宇宙飞船的对接。同时利用多自由度精密定位机构可以形成高刚度、高精度的多自由度加工机械和装配机械手,广泛应用于各种负载的特种加工、复杂装配,如飞机装配和卫星装配等。

Multi-degree-of-freedom motion simulation platform is composed of multiple electric cylinders, upper and lower universal hinge, and upper and lower platforms. The lower platform is fixed on the foundation. With the telescopic motion of multiple electric cylinders, the motion of the upper platform in space with multiple degrees of freedom can be completed, so that various spatial motion attitudes can be simulated. The multi-dOF motion platform involves a series of high-tech fields such as machinery, electricity, control, computer, sensor, mathematical model of space motion, real-time signal transmission and processing, etc. Therefore, the multi-DOF motion platform is the symbolic symbol of the level of control field. It mainly includes the space motion mechanism, space motion model, data acquisition system and control system of the platform. In industrial applications, two-degree-of-freedom, three-degree-of-freedom and six-degree-of-freedom platforms are relatively common. These structures are all parallel mechanisms, which are characterized by high precision, high stiffness, high bearing capacity, simple motion inverse solution model and high operation speed. The servo-electric multi-dOF platform can be roughly divided into two types according to the application field: dynamic platform for simulation and precise positioning test platform.

Dynamic simulation platform of the range of 0.1-20 tons of payload, the dynamic simulation platform by accepting state signal coming from the upper controller, control the movement of the platform, widely used in all kinds of training simulator, such as aircraft operation simulator, operation simulation platform ships operation simulator, helicopter, tanks operation simulator, vehicle driving simulator, the train driving simulator, the earthquake simulator and action movies, entertainment and other fields.

The payload of the precision positioning test platform is 0.5-50 tons, the position control accuracy reaches 0.02mm, and the Angle control accuracy reaches 0.002°. It is widely used in various vehicle attitude test equipment, aircraft/missile flight attitude test equipment and other precision test multi-freedom platform, as well as space spacecraft docking. At the same time, multi-dOF precise positioning mechanism can be used to form multi-DOF machining machinery and assembly manipulator with high rigidity and high precision, which is widely used in special processing and complex assembly of various loads, such as aircraft assembly and satellite assembly.

MULTI DEGREE OF FREEDOM PLATFORM

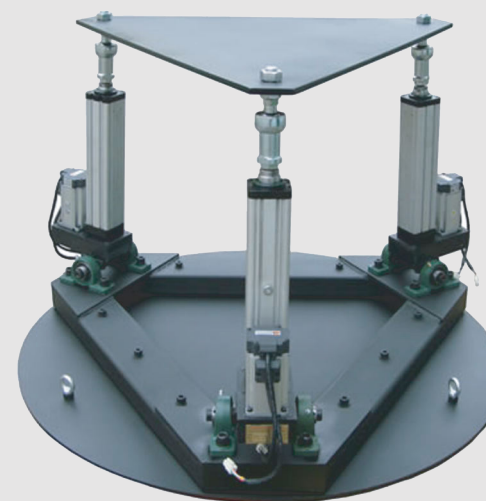
多自由度平台

昊奇科技成立以来一直专注于精密传动领域,推出了多种规格,多个行业项目的多自由度平台系统。平台种类包含单自由度震动平台和2/3/4/5/6/7自由度平台,实现了部分或者完全替换原有的液压平台。由于使用了全电动控制,省略了液压泵站、配管等周围设备,简化了整个装置,除去了由于使用液压油而产生的跑、冒、滴、漏等现象,免去了液压油的污染控制等繁琐的维护保养工作,大幅度的减少了功率损耗,提高了整个系统的效率。同时提高了系统的控制精度和稳定性,大大提高了系统的安全性和可靠性。

昊奇科技在多自由度平台的设计和开发的过程中累积了大量的实际应用技术和经验,从而具备很强的客户化设计能力,可以根据不同的客户要求合理的设计及优化参数,提供不同特性参数的多自由度平台,并提供细致周到的技术咨询的完善的售后服务。

Since its establishment, Jackson has been focusing on the area of precise transmission and has commenced the multi-freedom platform system for a variety of specifications and various industrial projects. Platform types include single-degree-of-freedom vibration platforms and 2/3/4/5/6/7 degree-of-freedom platforms, which partially or completely replace the original hydraulic platforms. With the use of all electric control, omitted the hydraulic pump station, piping and other surrounding equipment, simplified the device of the removed due to the use of hydraulic oil run, run, drip, leak phenomenon, such as from the hydraulic oil contamination control cumbersome maintenance work, greatly reduces the power loss, improve the efficiency of the whole system. At the same time, the control precision and stability of the system are improved, and the security and reliability of the system are greatly improved.

ZeQi technology on the platform of multi degree of freedom in the process of design and development has accumulated a large number of practical application of the technology and experience, and strong ability in custom design, can be reasonably according to the needs of different customers for the design and optimization of parameters, provide different characteristic parameters of multi degree of freedom platform, and provide thoughtful technical consultation of the perfect after-sales service.



- 1、全数字化闭环伺服控制,专业多轴运动控制卡保证运动的平滑性以及高仿真性,减少动感漂移和失真;
- 2、全新的模块化组合及自由灵活的系统集成,满足客户不同的需求;
- 3、高精度、高刚性电动缸驱动系统及平台组合,保证平台系统的高刚性和高效率。
- 4、多重机械、电气安全保护,保证平台系统的绝对安全;
- 5、高响应、高速和低噪音,满足各种运行环境的要求;
- 6、可视性友好人机界面,设定容易,操作简单;
- 7、节能环保,免维护,使用寿命长。

1. Fully digital closed-loop servo control, professional multi-axis motion control card to ensure the smoothness and high simulation of motion, reduce dynamic drift and distortion;
2. New modular combination and free and flexible system integration to meet customers' different needs;
3. The combination of high-precision and high-rigidity electric cylinder drive system and platform ensures high rigidity and high efficiency of the platform system.
4. Multiple mechanical and electrical safety protection to ensure the absolute safety of the platform system;
5. High response, high speed and low noise to meet the requirements of various operating environments;
6. Visual friendly man-machine interface, easy to set and easy to operate;
7. Energy saving, environmental protection, maintenance free and long service life.

“平台特性”
PLATFORM FEATURES

六自由度运动仿真模拟平台

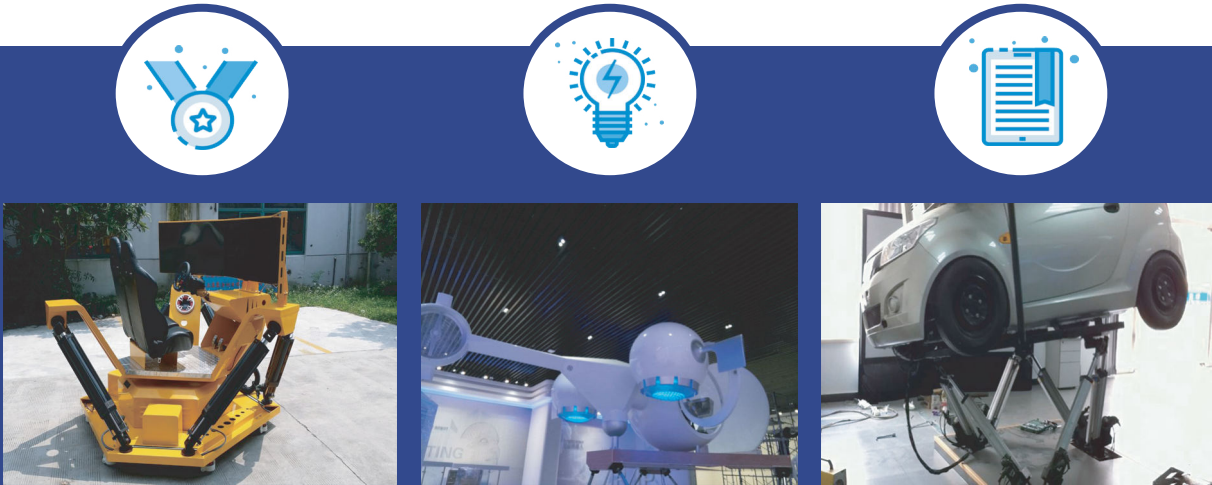
Six-degree-of-freedom motion simulation platform

六自由度运动平台系统由STEWART机构的六自由度运动平台、计算机控制系统、驱动系统等组成。它的下平台安装在地面上、上平台为运动平台,由六只电动缸支撑。运动平台与电动缸采用六个虎克铰连接,电动缸与固定基座也采用六个虎克铰连接,六只电动缸均采用伺服电机驱动。计算机控制系统通过协调控制电动缸的行程,实现运动平台的六个自由度的运动,即笛卡尔坐标系内的三个平移运动和绕三个坐标轴的转动。

六自由度运动平台可广泛应用到各种训练模拟器,如飞行模拟器、舰艇模拟器、海军直升机起降模拟平台、坦克模拟器、汽车驾驶模拟器、火车驾驶模拟器、地震模拟器等。还可应用于动感电影、娱乐设备等领域,甚至可用到空间宇宙飞船的对接、空中加油机的加油对接,在加工业可制成六轴联动机床、灵巧机器人等。

The six degrees of freedom motion platform system is composed of Stewart's six degrees of freedom motion platform, computer control system, drive system, etc. Its lower platform is installed on the ground, and the upper platform is a moving platform, supported by six electric cylinders. The moving platform and the electric cylinder are connected with six hooker hinge points, and the electric cylinder and the fixed base are also connected with six Hooker hinge points. All six electric cylinders are driven by servo motors. The computer control system realizes the motion of the motion platform with six degrees of freedom, namely the three translational motions and the rotation about the three coordinate axes in the Cartesian coordinate system by coordinating and controlling the stroke of the electric cylinder.

The six-dOF motion platform can be widely used in various training simulators, such as flight simulator, ship simulator, navy helicopter landing simulation platform, tank simulator, car driving simulator, train driving simulator, earthquake simulator and so on. It can also be used in dynamic movies, entertainment equipment and other fields, and even can be used for docking space spacecraft and refueling tankers. In the processing industry, it can be made into six-axis linkage machine tools, dexterous robots and so on.



名称	六自由度运动仿真模拟平台运动性能指标					
主要技术指标	(1) 有效载荷: 50kg-20000kg					
	(2) 运动参数:					
	姿态	位移或角度	速度	加速度	定位精度	重复定位精准
	俯仰 (α)	±5°~±35°	≤60°/s	≤200°/s ²	0.03°	0.01°
	滚转 (β)	±5°~±35°	≤60°/s	≤200°/s ²	0.03°	0.01°
	偏航 (γ)	±5°~±35°	≤60°/s	≤200°/s ²	0.03°	0.01°
	垂直升降 (z)	±10mm~±500mm	≤1000mm/s	≤1.0g	0.03mm	0.01mm
	纵向位移 (y)	±10mm~±500mm	≤1000mm/s	≤1.0g	0.03mm	0.01mm
	侧向位移 (x)	±10mm~±500mm	≤1000mm/s	≤1.0g	0.03mm	0.01mm
其它技术指标	(1) 系统响应频率: 0Hz-20Hz					
	(1) 行程回差: ≤0.2mm					
	(3) 漂移量: 平台系统连续运行12h以上, 任何一个电动缸的位置漂移不超过0.00025m					
控制系统	(1) 运动平台控制系统有带有CanPpen总线通讯和数字输入输出功能的运动控制器、全数字电机控制器、控制软件等组成。 (2) 以太网界面, 融合了高动态滚珠丝杆的机械概念, 实现了更高的动态性能。 (3) 运动平台的控制是至关的通过可以操作员在学习和实施系统时节约时间的人体工程学的图形界面完成的。 (4) 控制软件可以复制运动设计软件生产的运动。					

三自由度运动仿真模拟平台

Three-degree-of-freedom motion simulation platform

三自由度运动仿真模拟平台系统由三自由度运动平台、计算机控制系统、驱动系统等组成。三自由度运动平台主要由固定平台(下平台)、运动平台(上平台)、三只可以实现伸缩和轴线回转运动的电动缸、连接电动缸与上、下平台的十字铰链,以及辅助防扭臂等结构组成。控制三只电动缸的伸缩长度,能够使运动平台实现绕X轴和Y轴转动,以及沿Z轴进行直线运动。

三自由度的平台多用于模拟仿真试验,它具有明显的安全性、经济性、可操作性,不受场地和气象条件的限制和效率高等优点,加之驱动关节少,自由度较少,易于控制,成本低廉,性价比高等优点,因而广泛应用于驾驶模拟训练、飞行模拟器、空间对接模拟、船载和车载运动模拟,以及机构力加载等各个方面。平台能形成大幅震荡和摇摆,模拟汽车的复杂路况、轮船受浪颠簸、地震等场景。

The three-degree-of-freedom motion simulation platform system consists of a three-degree-of-freedom motion platform, a computer control system and a drive system. The three-degree-of-freedom motion platform is mainly composed of fixed platform (lower platform), moving platform (upper platform), three electric cylinders that can expand and rotate with axes, cross hinges connecting the electric cylinder with the upper and lower platforms, and auxiliary anti-twisting arms. By controlling the telescopic length of the three electric cylinders, the moving platform can rotate around the X-axis and Y-axis, and move in a straight line along the Z-axis.

More than three degrees of freedom platform used in the simulation test, it has the obvious safety, economy, operability, not limited by space and meteorological conditions and efficiency higher advantages, combined with the joints, less degrees of freedom is less, easy to control, low cost, high cost performance, thus is widely used in driving simulation training, flight simulator, docking simulation, ship and vehicle motion simulation, and many aspects, such as body force loading. The platform can be shaken and shaken to simulate the complex road conditions of cars, ships under waves and earthquakes.



名称	三自由度运动仿真模拟平台运动性能指标			
主要技术指标	(1) 有效载荷: 50kg-20000kg			
	(2) 运动参数:			
	姿态	位移或角度	速度	加速度
	横倾 (x)	±3°~±30°	≤30°/s	≤650°/s ²
	纵倾 (y)	±3°~±30°	≤30°/s	≤650°/s ²
	垂直升降 (z)	±10mm~±500mm	≤500mm/s	≤1.0g
其它技术指标	(1) 系统响应频率: 0Hz-20Hz			
	(2) 行程回差: ≤0.2mm			
	(3) 漂移量: 平台系统连续运行12h以上, 任何一个电动缸的位置漂移不超过0.00025m			

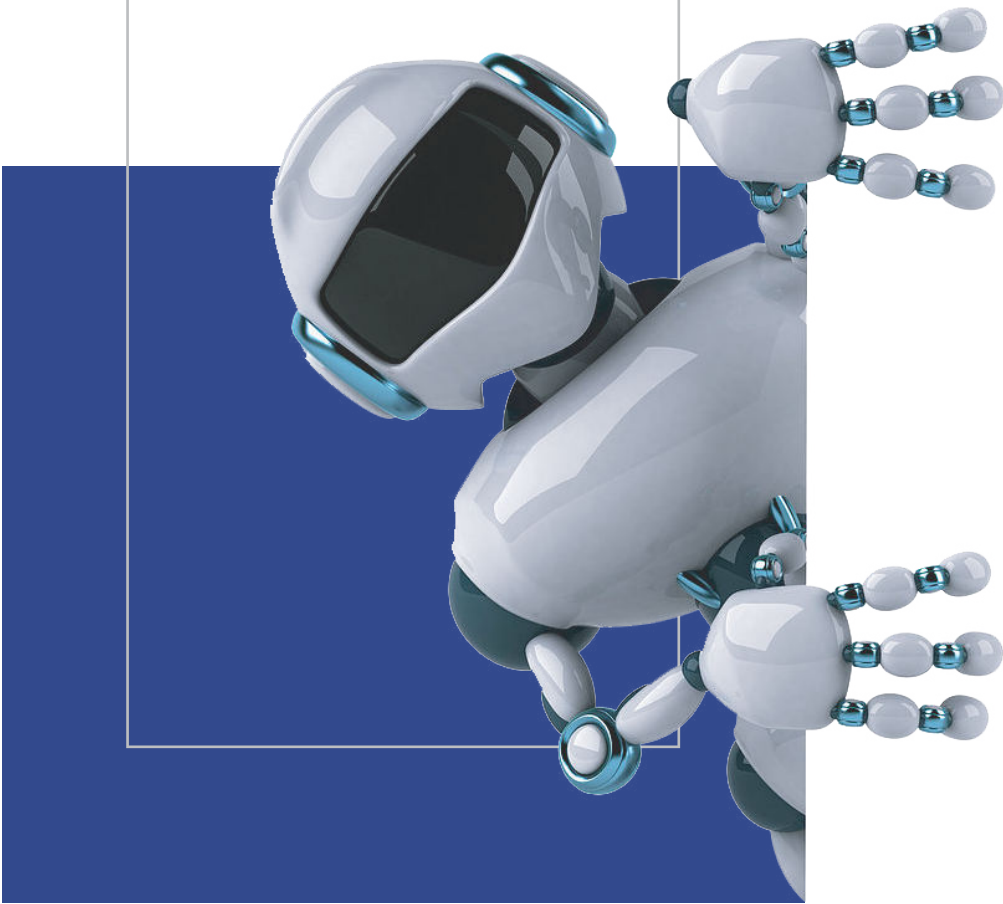
PRECAUTIONS FOR USE

- 1、ZR/ZS系列电动缸是精密机电一体化产品,使用前请先阅读《使用注意事项》和相关电机、驱动器的使用说明书,并在使用中严格按照要求操作。未经本公司许可不得擅自拆卸电动缸,尤其是电动缸外面的各个螺丝。
- 2、ZR/ZS系列电动缸基本上是免维护产品,任何零部件的替换必须在本公司或本公司授权的场所进行。否则,如有损坏,本公司概不负责。
- 3、折返式电动缸电机与缸体的连接是通过高强度同步带,并经过张力调整,所以不能自行拆卸电机,否则会造成同步带因张力不妥而损坏。
- 4、安装电动缸时,请不要在活塞杆上作用外力扭矩,以免损坏电动缸。
- 5、ZR/ZS系列电动缸采用润滑脂润滑,缸体上有润滑脂注入口。润滑脂为:MOBILITH SHC220,添加量/时期为:2次(枪行程)/6个月(或者50公里行程)。
- 润滑脂注入方法:将电动缸全行程伸出后,停止电机运转,切断电源。旋出缸体上润滑脂注入口的螺塞,用专用注油枪加注润滑脂至丝杆表面。加完后,旋上螺塞,接通电源,让电动缸走2~3个来回即可。
- 6、调试时,请特别注意电机有无刹车。先让电动缸在低速下运行,等各方面显示正常后再提高运行速度,以免损坏电动缸。
- 7、在安装、调试、使用时,严禁敲打电动缸的任何部位。
- 8、电动缸在工作时,严禁接触滑动座并保持安全工作范围。
- 9、滚珠螺杆产品垂直使用时,Z轴为防止物品掉落,建议马达需安装刹车装置,齿轮皮带驱动建议垂直使用Z轴。
- 10、有效行程过大时可能会发生共振,行程越大时最大速度应该相对的降低。

1. ZR/ZS series electric cylinders are precision mechatronics products. Please read "Notes for Use" and the instructions of relevant motors and drivers before use, and operate in strict accordance with the requirements during use. Without the permission of the company shall not remove the electric cylinder, especially the screws outside the electric cylinder.
2. ZR/ZS series electric cylinders are basically maintainable products, and any replacement of spare parts must be carried out in the company or the place authorized by the Company. Otherwise, we will not be responsible for any damage.
3. The connection between the returnable electric cylinder motor and the cylinder body is through the high-strength synchronous belt, and through the tension adjustment, so the motor cannot be disassembled by itself, otherwise the synchronous belt will be damaged due to the improper tension.
4. When installing the electric cylinder, please do not apply external torque on the piston rod to avoid damaging the electric cylinder.
5. ZR/ZS series electric cylinders are lubricated with grease, and the cylinder body is provided with a grease injection port. Grease: Mobilith SHC220, add quantity/period: 2 times (gun trip)/6 months (or 50 km trip).
- Grease injection method: after extending the full stroke of the electric cylinder, stop the motor operation and cut off the power supply. Unscrew the screw plug of the grease injection port on the cylinder block, and add the grease to the surface of the screw rod with a special grease gun. After adding, screw on the plug, turn on the power, let the electric cylinder go back and forth for 2 ~ 3 times.
6. During debugging, please pay special attention to whether the motor has brake or not. Let the electric cylinder run at low speed first, and then increase the speed after all aspects show normal, so as not to damage the electric cylinder.
7. It is strictly prohibited to knock any part of the electric cylinder during installation, debugging and use.
8. When the electric cylinder is working, it is strictly prohibited to touch the sliding seat and maintain a safe working range.
9. When the ball screw product is used vertically, z-axis is suggested to be installed on the motor to prevent items from falling off. Z-axis is suggested to be used vertically when the gear belt drives.
10. Resonance may occur when the effective stroke is too large, and the maximum speed should be relatively reduced when the stroke is larger.

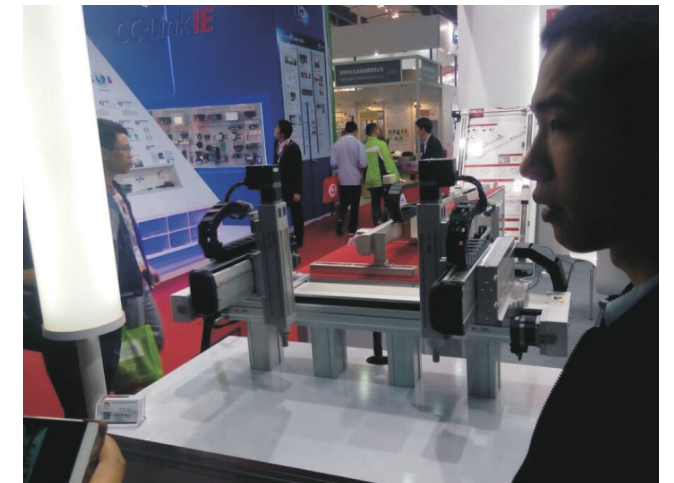
使用注意事项

PRECAUTIONS FOR USE



ELECTRIC CYLINDER APPLICATION SCENARIOS

电动缸应用场合



橡塑设备
Rubber and plastic equipment

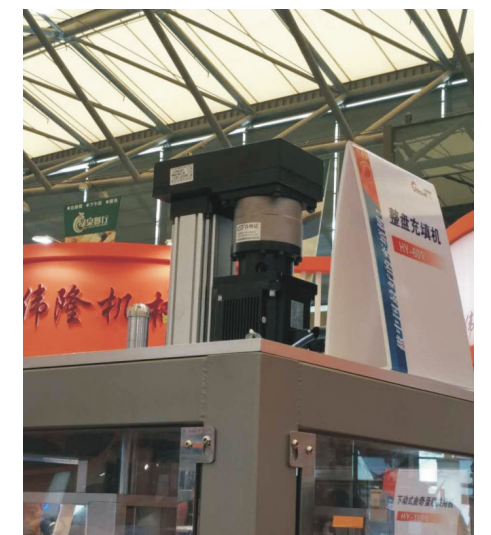
电子组装设备
Electronic assembly equipment



模拟赛车
racing simulation

娱乐9D设备
Entertainment 9D devices

VR娱乐设备
VR entertainment equipment

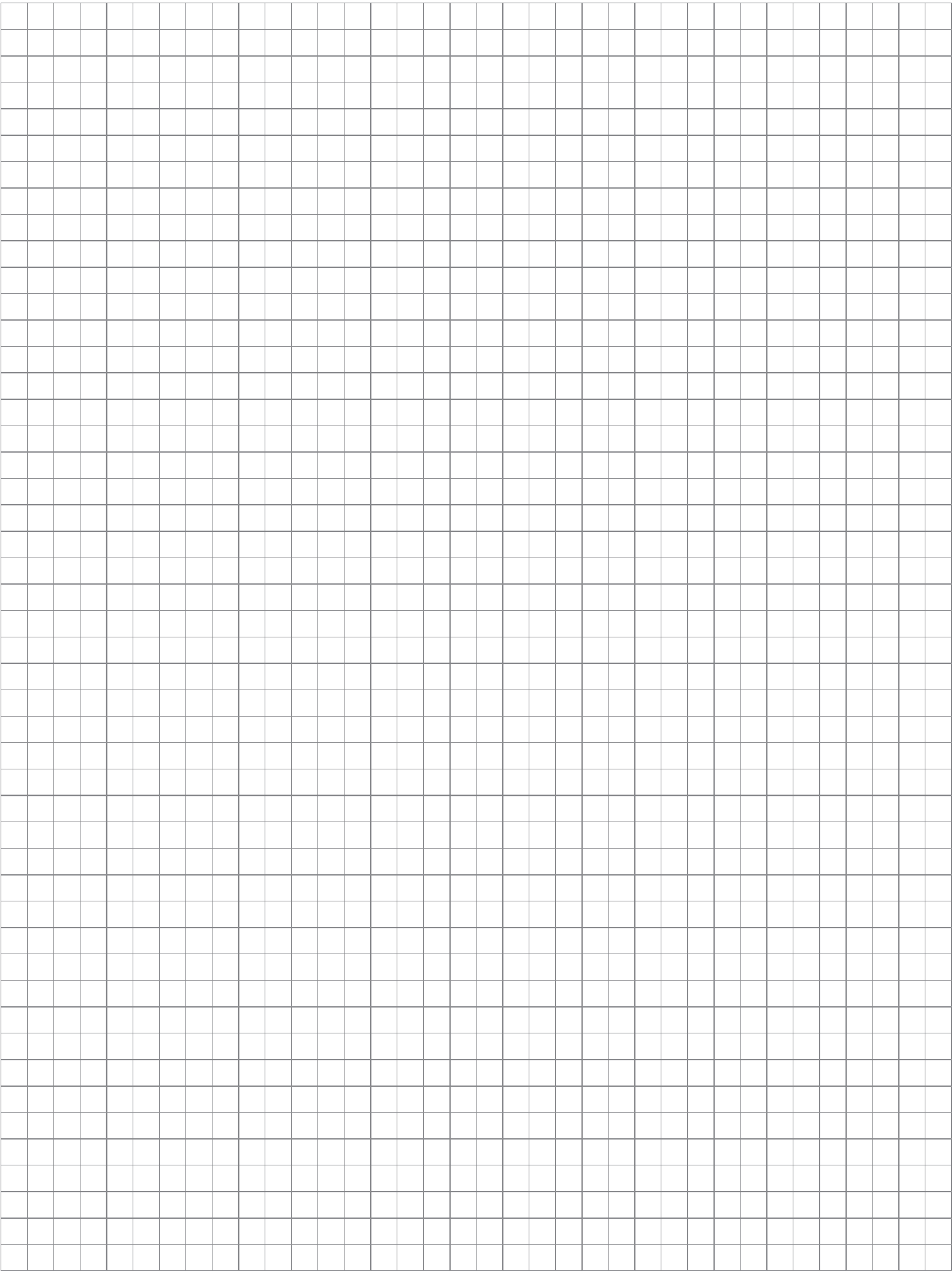


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Mobile equipment equipment

伺服压力机
Servo press

整盘充填机
Whole disc filling machine

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