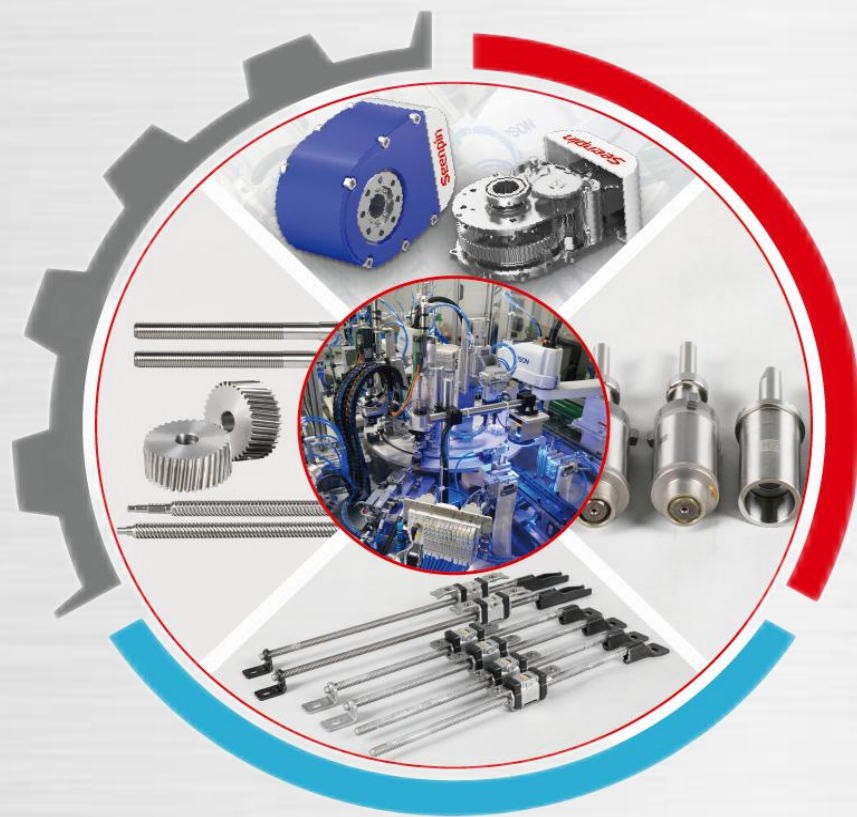


Seenpin 新剑

热烈欢迎莅临公司指导考察

希望能为您提供服务创造价值！



新剑致力于机电传动为核心技术的智能制造企业

SEENPIN IS COMMITTED TO THE INTELLIGENT MANUFACTURING ENTERPRISE OF ELECTROMECHANICAL TRANSMISSION AS THE CORE TECHNOLOGY

座椅水平驱动器事业部

SEAT HORIZONTAL DRIVE MECHANISM DIVISION

行星滚柱丝杠事业部

PLANETARY ROLLER LEAD SCREW DIVISION

智能柔性关节事业部

SINTELLIGENT FLEXIBLE JOINT BUSINESS DIVISION

使命：机电传动使人们的生活更美好！

Mission: Electromechanical Transmission makes people's life better!

愿景：机电传动产业引领企业之一

Vision: One of the leading enterprises in Electromechanical Transmission industry.

坚持艰苦奋斗

激情乐观向上 爱岗敬业 工匠精神

Persevere in arduous struggle

Passion, optimism, dedication and craftsman spirit



坚持自我批判

拥抱变化 超越自我 相互牵引力

Insist on self-criticism

Embrace change beyond self - pull



开放与创新

持续学习 重视原理和实践 竞争流动
命运共同体

penness and Innovation

Continuous learning emphasizes principles and practices A community with a shared



以客户为中心

持续为客户创造最大价值

Customer focus

Continue to create maximum value for customers



敬人弘道 仁爱事功

坦荡诚恳 平凡人做杰出事 勇于承担

Respect people, love and charity

Open and sincere ordinary people do outstanding things brave to bear



团队合作

共享共担 客观公正 坚决果断 雷厉风行

The team cooperation

Sharing, sharing, objective, fair, resolute and resolute



新剑的核心价值观

SUPER PRECISION
GRINDING NUTS -
STANDARD SERIES
PRODUCTS

单新平

Xinping Shan

董事长|总裁President and CEO

公司简介 COMPANY PROFILE



杭州新剑机电传动股份有限公司



新剑机电传动(上海)有限公司



新剑研发中心(上海)实验室

杭州新剑机电传动股份有限公司成立于1999年, 专精特新企业, 专业从事研发生产; CNC车磨精密轴、小模数切削、滚轧成型齿轮蜗杆、座椅水平驱动器、行星滚柱丝杠及电动缸、智能柔性模块化关节等相关系列产品。

产品主要应用: 半导体通讯电子; 汽车及新能源、智能汽车; 人机协作与服务机器人; 工程机械等行业。

2005年成立研发中心, 2015年成立研发中心(上海)实验室分部, 建立了技术创新体系, 精准把握前沿科技和未来产品发展趋势。从机电传动应用场景概念创新研究, 产品设计、仿真、实验和制造工艺工程技术研发, 可靠性和六西格玛设计的系统管理; 具有博士、硕士、本科学历50余人的研发团队。拥有自主开发的整套传动实验设备; 齿轮蜗杆测量中心: 整套的进口齿轮蜗杆测量设备。

新剑为满足客户的需求, 以行业专业区分设事业部子公司来满足客户不同行业不同专业的需求!

Founded in 1999, electromechanical transmission small giant enterprise, specializing in R & D and production; CNC grinding precision shaft, small module machining worm, rolling formed worm gear, seat horizontal drive mechanism, planetary roller screw electric cylinder, intelligent flexible modular joint related series products. The main application industries of products: semiconductor, communication and electronics industry; Automotive and new energy, intelligent automotive industry; Human-robot collaboration and service robot industry; Planetary roller screws and electric cylinder special series products and other industries. In 2005, the R&D center was established, and in 2016, the R&D center (Shanghai) laboratory branch was established, and a technological innovation system was established to accurately grasp the cutting-edge technology and future product development trends. From concept innovation research to intelligent transmission application scenarios, product design, simulation, experimentation and manufacturing process engineering technology research and development, reliability and system management of Six Sigma design; R&D team with more than 50 people with doctoral, master's and undergraduate degrees. Has a complete set of self-developed transmission experimental equipment; Gear worm measuring center, a complete set of imported gear worm measuring equipment; To provide customers with systematic electromechanical drive technology solutions, to provide quality functional products. In order to meet the needs of customers, Seenpin has set up business unit subsidiaries to meet the needs of customers in different industries and different professions!

超精密加工事业部: CNC车磨精密轴系列产品、小模数切削、滚轧成型齿轮蜗杆、内外圆磨削螺母蜗杆相关系列产品。

2003年在上海成立, 新剑机电传动(上海)有限公司: 车削蜗杆及CNC切削系列产品。

座椅水平驱动器事业部: 座椅水平驱动器(HDM)相关系列产品。

行星滚柱丝杠事业部: 行星滚柱丝杠及电动缸直线驱动系列产品。将成为液压驱动、滚珠丝杠电动缸的未来技术主力替代方案。

智能柔性关节事业部: 智能柔性关节、谐波一体化关节系列产品。

公司拥有制造场地3万多平方米, 拥有进口、国产研发、制造、检测高端设备300多台、10多条智能化组装线, 公司员工300余人。2008年分别获得IATF16949质量体系、ISO13485体系等五合一体系认证, 并和国内外知名企业成为战略合作伙伴, 我们专注机电传动的研发和智能制造, 您提供传动性能指标和接口空间的需求, 我们将为您提供设计实验的技术解决方案, 提供优质的功能性产品, 是您理想合作伙伴!

Ultra-precision machining division: CNC turning precision shaft series products, rolling roll forming small module gear worm, gear worm grinding rolling related series products.

Founded in Shanghai in 2003, Seenpin Electromechanical Transmission(Shanghai) Co., Ltd.: turning worm and CNC cutting series products.

Seat Horizontal Drive Mechanism Division: Seat Horizontal Drive Mechanism (HDM) related products.

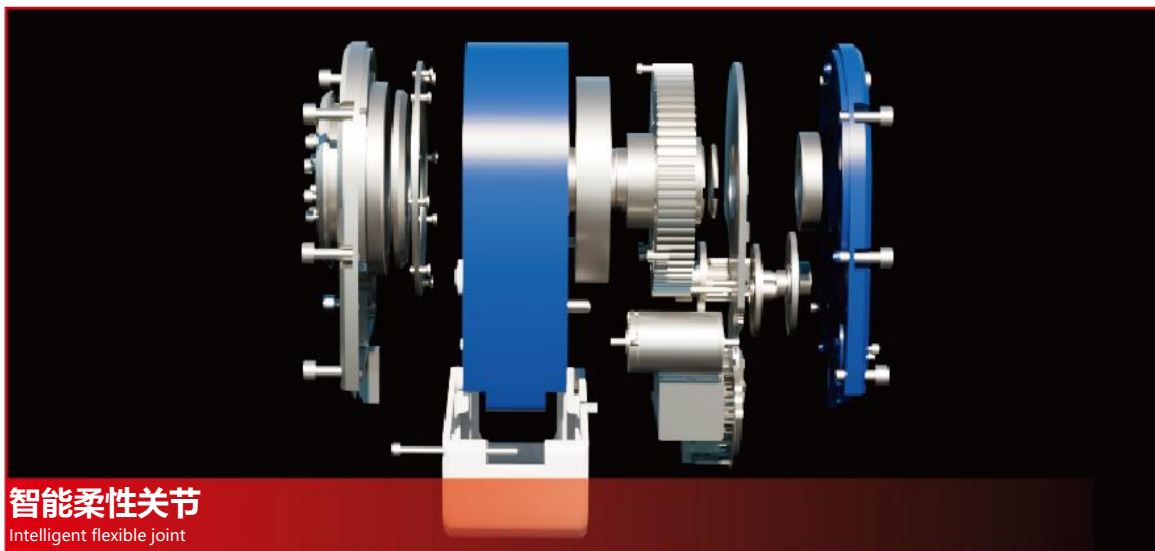
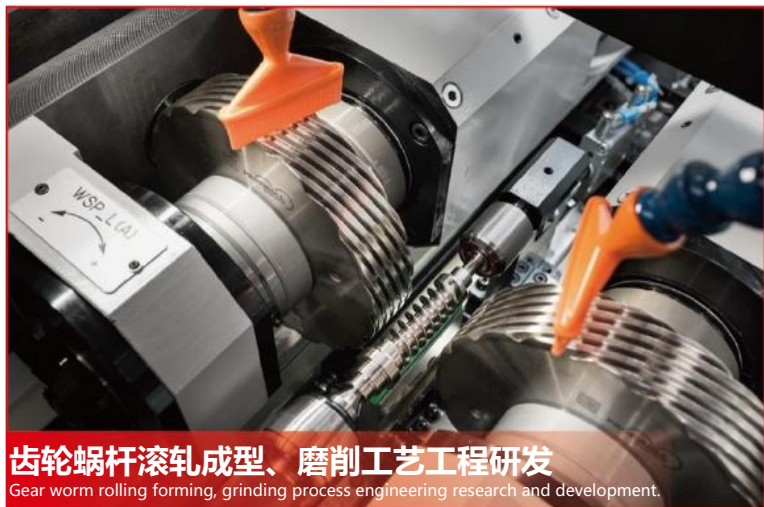
Planetary roller screw division: planetary roller screw and electric cylinder linear drive series products. It will become the main technical alternative to hydraulically driven and ball screw electric cylinders in the future.

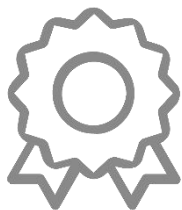
Intelligent Flexible Joint Division: Intelligent flexible joint, harmonic integrated joint series products.

The company has more than 30,000 square meters of manufacturing space, with more than 300 imported, domestic research and development, manufacturing, testing of high-end equipment, a number of intelligent assembly lines and robot workstations, the company employs more than 300 people. In 2008 respectively obtained IATF16949 quality system and ISO13485 system certification, and domestic and foreign well-known enterprises to become strategic partners, we focus on mechanical and electrical transmission research and development and intelligent manufacturing, you provide transmission performance indicators and interface space demand indicators, we will provide you with technical solutions for design experiments, is your ideal partner!

提供客户系统性的机电传动技术解决方案，提供优质的功能性产品，是您理想的合作伙伴！持续改进产品升级换代的研发，自我重生！

Provide technical solutions for customers to design experiments. For the development direction of key product series, continuous improvement of product upgrading research and development, self-rebirth!





公司获得“国家专精特新企业”、“国家高新技术企业”、多个省级首台套产品，承担“国家火炬计划项目”。拥有专利 80 多项，申请中的发明专利 20 多项。

The company has won the "National Specialized Special New Enterprise", "National Torch Plan Project", "National High-tech Enterprise", and a number of provincial first sets of products. It has more than 80 patents and more than 20 invention patents in the application.



荣获高新技术企业证书

The high-tech Enterprise certificate



荣获国家火炬计划项目

Awarded the national Torch Project

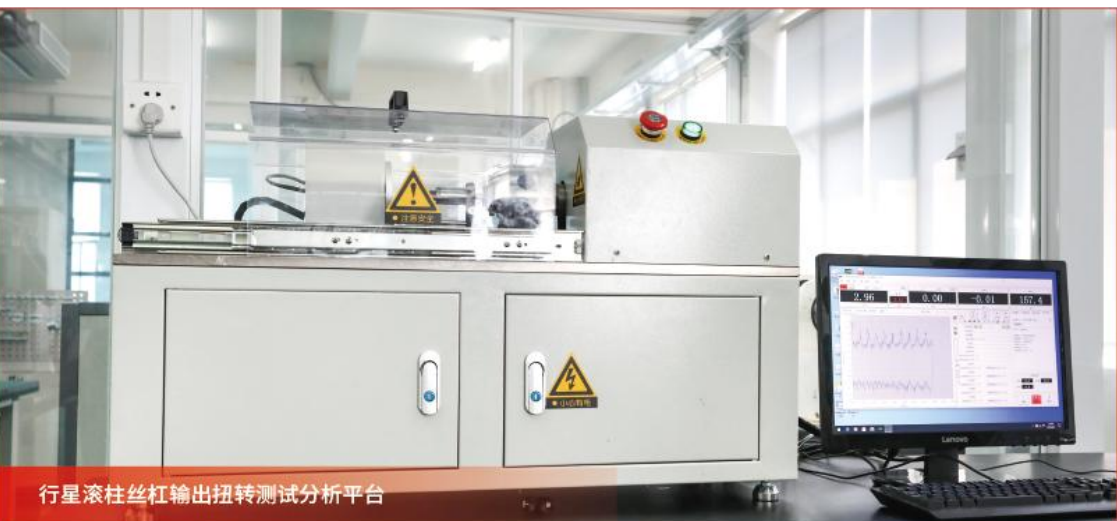


发明专利证书

Certificate of Invention Patent

测试行星滚柱丝杠的传动精度、传动效率、扭矩、刚度、疲劳寿命、负载 运行转矩等参数

Test planetary roller lead screw transmission accuracy, transmission efficiency, torque, stiffness, fatigue life, load operation torque and other parameters.



传动实验综合测试平台技术参数 Comprehensive test platform for transmission experiment		
输出直线速度范围	Output linear speed range	0~ 300mm/s
测量行程范围	Measuring stroke range	0~400mm
位置控制精度	Position control accuracy	±3μm
负载加载范围	Load range	0~ 50KN
负载控制精度	Accuracy of load control	±200N
驱动端转速范围	Driving speed range	0~ 3000rpm
转速控制精度	Speed control accuracy	±2rpm
传动效率误差	Transmission efficiency tolerance	±5%
启动力矩误差	Starting moment tolerance	±5%

输出扭转阻力测试平台技术参数 Output torsional resistance test platform		
试验力	Test force	200N.mm
试验力读数值	Test force value	0.01N.mm
试验力示值相对误差	Relative tolerance of test force	< +0.5%
试验力示值重复性误差	Repeatability tolerance of test force	< 0.5%
扭转速度控制范围	Torsion speed control range	0~ 30r/min
加扭矩方向	Torque direction	正反两方向
转角测量范围	Angle measuring range	0~n*360°
静态转角示值相对误差	Static Angle shows the relative tolerance	≤ +0.5%
静态转角示值重复性误差	Static rotation shows repeatability tolerance	< 0.5%
试验空间	Test space	200mm

传动效率平台：测试减速器的传动效率、启动转矩、无负载运行转矩、空载跑和测试和疲劳寿命试验

输出扭转平台：测试减速器的扭转刚度、滞后损失和最大齿隙量

传动精度平台：测试平行轴减速器的传动误差，判定减速器的传动精度以及精密级别

Transmission Efficiency Platform: Test the transmission efficiency, starting torque, no-load running torque, no-load running and testing and fatigue life test of the reducer.

Transmission torsion platform: Test the reducer's torsional stiffness, hysteresis loss and maximum amount of backlash.

Transmission accuracy platform: test the transmission tolerance of the parallel shaft reducer, determine the transmission accuracy and precision level of the reducer.



齿轮蜗杆传动整套实验分析设备

传动效率平台	Transmission Efficiency Platform	输出扭转平台	Transmission torsion platform	传动精度平台	Transmission accuracy platform
驱动端转速范围 Driving speed range	0-3000rpm	驱动端转速范围 Driving speed range	0-100rpm	驱动端转速范围 Driving speed range	0-1500rpm
转速控制精度 Speed control accuracy	1rpm	转速控制精度 Speed control accuracy	1rpm	转速控制精度 Speed control accuracy	1rpm
负载加载范围 Load range	0-200 Nm	负载加载范围 Load range	0-240 Nm	驱动行程控制精度 Drive stroke control accuracy	1arc.degree(度)
负载控制精度 Accuracy of load control	0.1Nm	负载控制精度 Accuracy of load control	0.01Nm	负载加载范围 Load range	0-230 Nm
输入端转速测量精度 Input speed measurement accuracy	+/- 1rpm	输出端角度测量精度 Measurement accuracy of output Angle	+/- 2.5arc. sec	负载控制精度 Accuracy of load control	0.01 Nm
输入端扭矩测量精度 Input torque measurement accuracy	+/- 0.005Nm	系统测量精度: System measurement accuracy:		输入端角度测量精度 Input Angle measurement accuracy	+/- 20 arc.sec
输出端转速测量精度 Measuring accuracy of output speed	+/- 0.1rpm	扭转刚度 Torsional rigidity	4%	输出端角度测量精度 Measurement accuracy of output Angle	+/- 2.5 arc.sec
输出端扭矩测量精度 Measuring accuracy of output torque	+/- 0.2Nm	回差 Hysteresis tolerance	+/- 3arc.sec	重复测量精度 Accuracy of repeated measurement	+/- 3 arc.sec
系统测量精度: System measurement accuracy:		启动力矩 start torque	+/- 2Nm		
传动效率 Transmission efficiency	2%				
启动力矩 start torque	0.5%				

综合传动实验测试平台：主要针对减速器及其他传动 装置而研发的综合性能测试平台，测试产品按照输入 轴输出轴的位置关系可分为同轴式、平行轴、相交轴、 交错轴四种类型，典型对象包括RV减速器、谐波减速器、SEW各类型减速器，锥齿轮减速器以及蜗轮 蜗杆减速器等，具有很高的测试精度和可靠性。

Comprehensive transmission test platform: Mainly aimed at the gear reducer and other research and development of comprehensive performance test platform, test the product in accordance with the input shaft and output shaft position relations can be divided into the coaxial, parallel shaft, cross shaft, staggered shaft four types, typical objects including the RV reducer, Strain wave gearing reducer , the SEW all kinds of gear reducer, bevel gear reducer, worm gear and worm gear reducer, etc., It has high test accuracy and reliability.



实验平台测试参数 Test parameters of experimental platform

被测部件最大轴向尺寸 Maximum axial dimension of the component under test	120mm(1)
被测部件最大单侧横向轴间距 Maximum single lateral axis spacing of the component under test	110mm
被测部件最大竖直轴间距 Maximum vertical axis spacing of the component under test	25mm
输出扭矩范围 Output torque range	0.2Nm- 5Nm(2)
最高输入转速 Maximum input speed	5000rpm(3)
最高输出转速 Maximum output speed	1800rpm
最低输出转速 Minimum output speed	5rpm
振动频率范围 Vibration frequency range	0.1-8400HZ
被测噪声范围 The measured noise range	30- -140dB
被测部件最大质量 Maximum mass of the component to be measured	50Kg
扭矩转速测试精度 Torque speed test accuracy	0.2%
噪声测试精度 Noise measurement accuracy	1级
振动加速度测试精度 Vibration acceleration test accuracy	2%
系统测试精度 System test accuracy	0.3%



谐波减速器
Strain wave gearing reducer



相交轴
Concurrent shaft



平行轴减速器
Parallel-shaft reducer



交错轴
Interlaced shaft

2号实验平台:测试产品的外形尺寸没有限制;最大输出扭矩可达100N/m;最高转速为3000rpm.
No.2 experimental platform: no restriction on out-form dimensions of test products; 100N/m max torque output; 3000rpm highest rotation rate.

●测试和确定技术指标:

- ✓电子、电器、橡塑胶、金属、零部件及其他产品及材料结构或复合材料，在高低温交变湿热环境下贮存、运输、使用时的适应性试验；
- ✓在瞬间下经极高温和极低温的连续环境下所能承受的程度，借以在最短时间内 试验其因热胀冷缩所引起的化学变化或物理伤害。

Test and determine the technical indicators: electronic, electrical, rubber, metal, parts and other products and material structure or composite materials, in high and low temperature alternating humidity and heat storage, transportation, use of the adaptability test; The degree to which it can bear under the continuous environment of extremely high temperature and extremely low temperature in an instant, so as to test the chemical changes or physical damage caused by thermal expansion and contraction in the shortest time.



环境仓尺寸 Environmental bin size	W3000*H2000*D2500mm
温度范围 Temperature range	-40℃ ~150℃
温度波动度 Temperature fluctuation	+/- 0.5 °C
温度均匀度 Temperature uniformity	+/- 0.2 °C
温度解析精度 Analytical accuracy of temperature	- 0.01℃
升温速率 Heating rate	2~3°C/min (空载,非线性/No load, nonlinear)
降温速率 Cooling rate	0.7~1°C/min (空载,非线性/No load, nonlinear)
湿度范围 Humidity range	30%R.H.~95%R.H.
湿度波动度 Humidity fluctuation	+/- 2 %R.H.
湿度均匀度 Humidity uniformity	≤3%R.H.
底板承载力 Floor load capacity	1000kq/m2

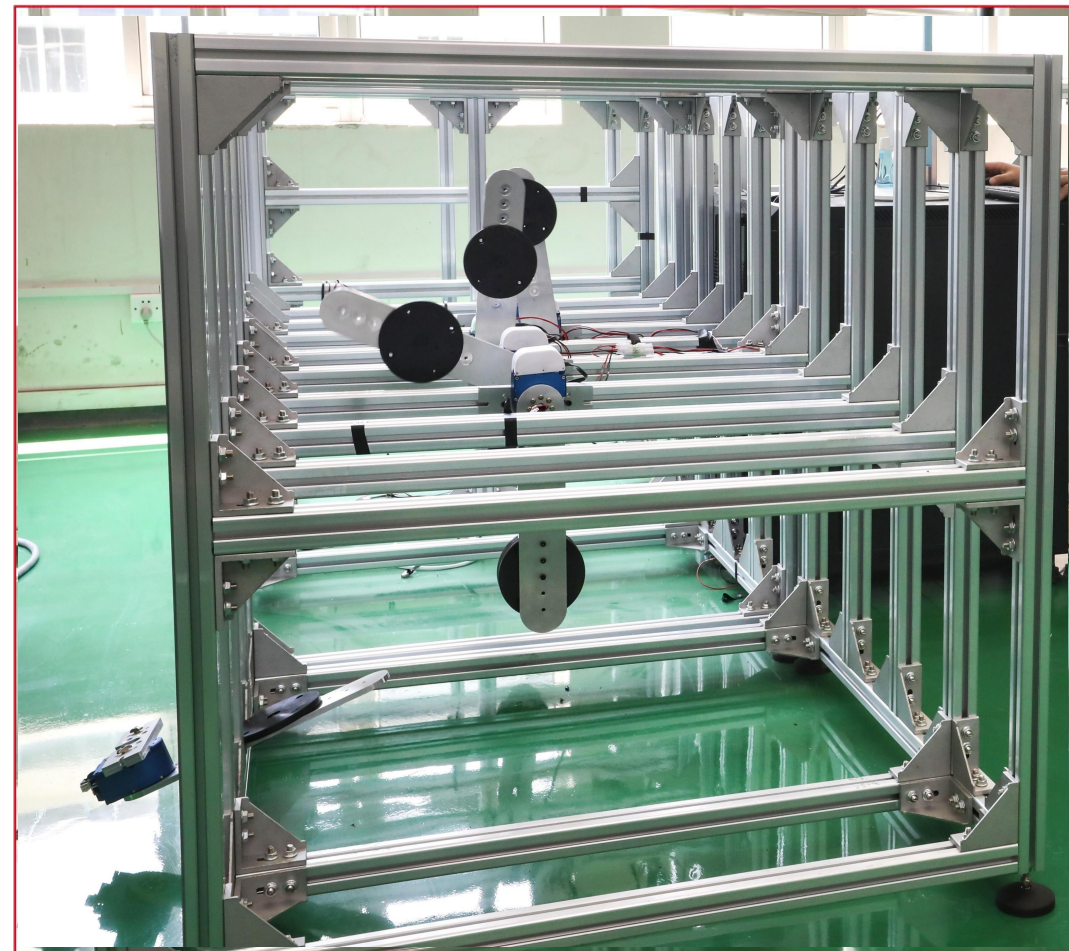
通过高低温和耐久实验达到产品的安全性和可靠性!

Through high and low temperature endurance test to achieve product safety and reliability!



谐波减速器耐久寿命测试

Strain wave gearing reducer durability test.





01

齿轮蜗杆测量中心

GEAR&WORM TEST CENTER

—
可靠性研发制造过程确保产品质量

Reliability R&D and manufacturing process to ensure product quality



东京精密圆度仪
TTI precision roundness tester



蔡司三坐标测量仪
Zeiss coordinate measuring instrument (CMM)



齿轮蜗杆测量中心
Gear & worm test center



马尔轮廓仪
Mahr profilometer



材料成分分析仪
Material composition analysis



颗粒物收集检测分析器
Particle detection and analysis instrument



激光行程误差测量仪
Laser planetary roller lead screw stroke tolerance measuring instrument

激光行星滚柱丝杠行程误差测量仪参数	
Laser Planetary Roller Lead Screw Stroke tolerance measuring Instrument Parameters	
可测导程(螺距)范围 Measurable range of lead (pitch)	0.7mm~40mm
可测丝杠公程直径范围 Can measure the diameter range of the lead screw	φ0.7mm~中40mm
可测最大长度 Maximum measurable length	1 500mm
螺母外径 Nut outer diameter	φ18-φ 85mm
螺母法兰外径 Outer diameter of nut flange	中35mm-中125mm
测量精度可达P0级 Measurement accuracy up to P0	V2tp=3μm; V300p =3.5μm; V1500p= 7um;e1500p=11μm

可测项目	
Measurable Project	
实际平均行程偏差 Actual average travel deviation	ea
有效行程内行程变动量 Variation in effective travel	Vμa
300mm内行程变动量 Change of stroke in 300mm	V300a
2π弧度内行程变动量 2π radian stroke variation	V2πa



原位多场耦合微纳CT成像分析系统
In situ multi-field coupling micro-nano CT imaging analysis system

成像模式 Pixel detail resolution	DR.固轨迹来CT.偏量扫描CT.螺旋扫描CT DR. CT from fixed path. CT by offset scanning. CT by spiral scanning
空间分辨率 Spatial resolution	≤5μm
X射线源类型 X ray source type	开管反射靶微焦点 Open tube reflection target microfocus
射线道电压 The highest voltage	20KV-225KV
成像面积 Imaging area	427mm*427mm
像素矩阵 Pixel matrix	307 2mm*3072mm
可检测样品尺寸 Sample size can be detected	600mm*550mm (直径*高度)
样品承重 The sample weight	≤25kg



座椅水平驱动器事业部

SEAT HORIZONTAL DRIVE MECHANISM DIVISION

座椅水平驱动器 (HDM) 相关 系列产品及产线介绍

Seat horizontal drive mechanism (HDM) related series products and production line introduction.

新剑针对座椅水平驱动器持续进行优化、创新、研发！为智能驾驶座舱与座椅的舒适性和功能性方面变革做出贡献。

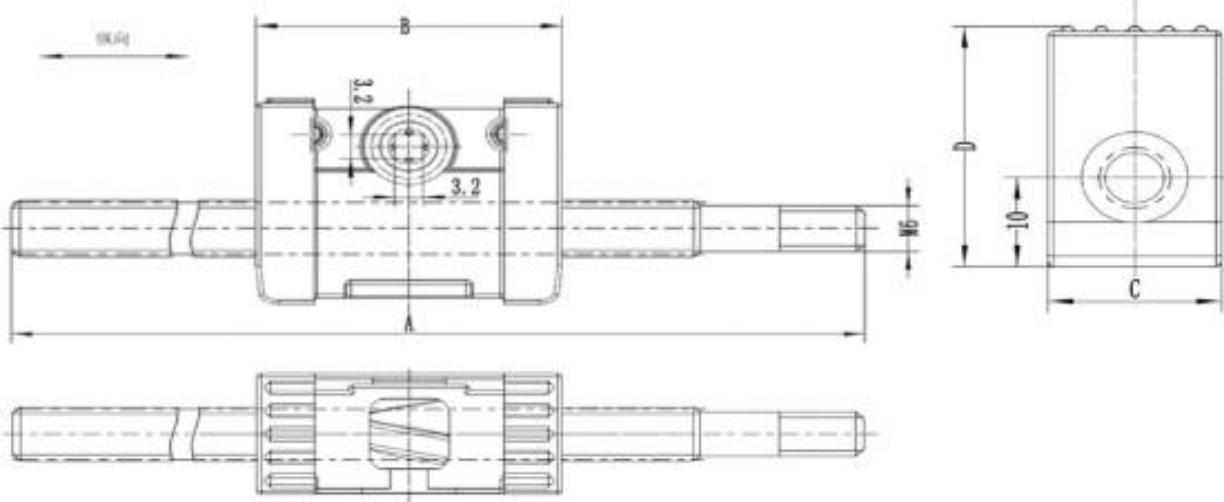
The SEENPIN continues to optimize, innovate and develop the seat horizontal drive mechanism! For intelligent driving cockpit and seat comfort and functional change

● 典型应用案例产品
Typical application case products



● 案例参数
Typical application case products

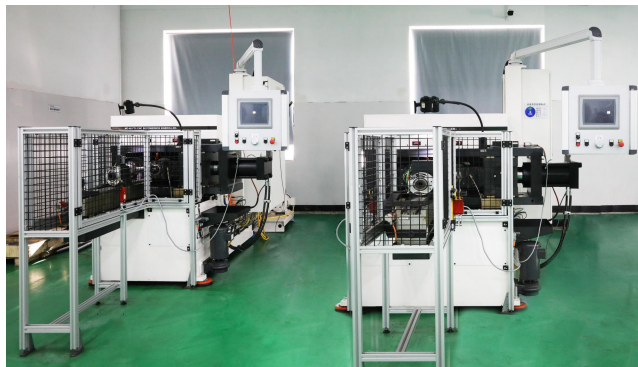
参数 parameter		尺寸单位为 mm	
减速比 Reduction ratio	13:2	A	332
纵向间隙 Vertical clearance	≤0.3mm	B	34.68
总重量 The total weight	约为155g	C	16.6
纵向拉拔力强度 Strength of longitudinal drawing force	≥19000N	D	27



●说明：本页所有数值均为参考值，因不同的检测方法和测量方式，数据可能存在偏差。我们保留技术信息变更 的权利，如需了解 最新版本的信息可 直接联系我们。
Note: All values on this page are reference values, due to different detection methods and measurement methods, data may be biased. We reserve the right to change the technical information. If you need to know the latest version of the information, please contact us directly.



多条丝杆、蜗杆、车、铣滚轧流水线
screw spindle, worm turning grinding, rolling form production line



多条宝飞螺、肯尼福、津上等齿轮蜗杆滚轧成型产线
Postic, Kniefac, Tsugami gear worm roll forming production line





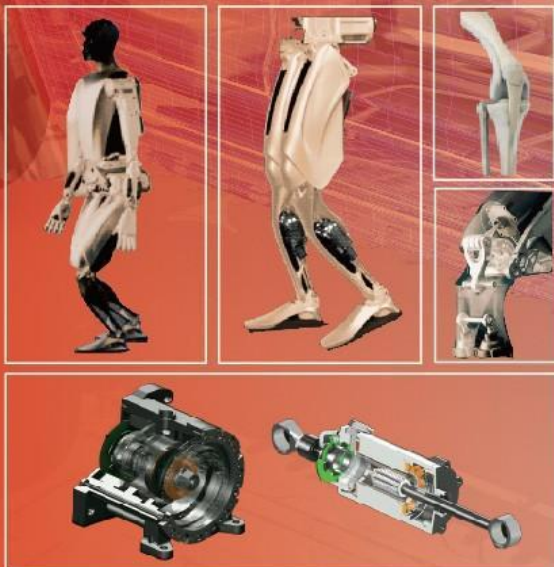
05

行星滚柱丝杠事业部

PLANETARY ROLLER LEAD SCREW DIVISION

行星滚柱丝杠及电动缸系列产品

Planetary roller screw and electric cylinder linear drive series products and production line introduction.



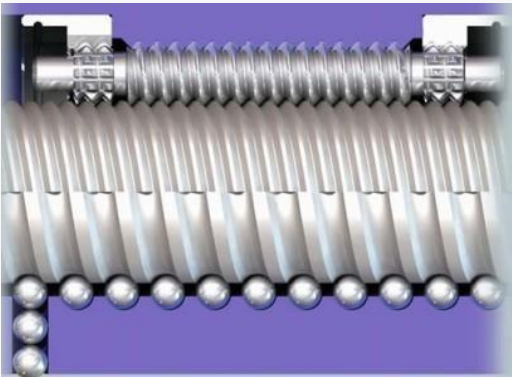
行星滚柱丝杠电动缸对比其他解决方案的技术优势

TECHNICAL ADVANTAGES OF PLANETARY ROLLER ELECTRIC CYLINDER COMPARED WITH OTHER SOLUTIONS

Seenpin 新剑

行星滚柱丝杠电动缸：可以替代液压驱动系统，响应速度快、高精度、高负载、更清洁环保，更容易实现电控化。可以替代滚珠丝杠电动缸、导程小、高精度、稳定性好、寿命长等特点。将成为液压驱动、滚珠丝杠电动缸的未来技术主力替代方案。

Planetary roller screw electric cylinder: can replace the hydraulic drive system, fast response, high precision, high load, cleaner environmental protection, easier to achieve electronic control. Can replace ball screw electric cylinder, small lead, high precision, good stability, long life and so on. Will become a hydraulic drive, ball screw electric cylinder of the future technology of the main alternative.



- 在相同丝杠直径下承载能力提高6倍，相同负载下比滚珠丝杠节省1/3空间、寿命提高14倍、工作环境温度范围提高2倍，提升了刚度和抗冲击能力;
- 能够提供更高旋转速度和加速度，转速可达16000r/min，直线速度2m/s，加速度3g。滚珠丝杠很难达到上述指标;
- 行星滚柱丝杠的导程与滚柱丝杠的节距成函数关系，导程可以小于0.5mm，而且导程可以设计为整数或小数，不需要减速齿轮来配比;
- 可在恶劣环境下使用，高速运转时产生的振动噪声较小;
- 拆卸及维护方便。滚柱丝杠由保持架定位，拆卸时，可直接将丝杠旋出完成。

- The load capacity of the same screw diameter is increased by 6 times, and the same load is saved by 1/3 space than the ball screw, the service life is increased by 14 times, the temperature range of the working environment is increased by 2 times, and the stiffness and impact resistance are improved.
- Can provide higher rotation speed and acceleration, speed up to 16000r/min, linear speed 2m/s, acceleration 3g. Ball screw is difficult to achieve the above indicators.
- The lead of the planetary roller lead screw is a function of the pitch of the roller lead screw. The lead can be less than 0.5mm, and the lead can be designed as an integer or decimal, without the need for reduction gears to match.
- It can be used in harsh environment, and has less vibration and noise when running at high speed.
- Easy to disassemble and maintain. The roller lead screw is positioned by the cage. When disassembling, the lead screw can be rotated out directly.

类型 Type	标准式 STANDARD 	反向式 REVERSE 	循环式 CIRCULAR 	差动式 REVERSE 
规格 Specification	3.5x1-92x36(丝杠中径x导程) 3.5x1-92x36 (lead screw middle diameter x lead)	10.5x2-80x16(丝杠中径x导程) 10.5x2-80x16 (lead screw middle diameter x lead)	8x0.25-125x5(丝杠中径x导程) 3.5x1-92x36 (lead screw middle diameter x lead)	5x0.8-110x2.36(丝杠中径x导程) 5x0.8-110x2.36 (lead screw middle diameter x lead)
效率 Efficiency	80—90%	70—90%	60—80%	60—70%
导程精度 Lead Accuracy	G1, G3, G5 (每315mm行程, 导程精度: 6μm, 12μm, 23μm) G1, G3, G5 (per 315mm stroke, Lead accuracy: 6 μm, 12 μm, 23 μm)	G1, G3, G5 (每315mm行程, 导程精度: 6μm, 12μm, 23μm) G1, G3, G5 (per 315mm stroke, Lead accuracy: 6 μm, 12 μm, 23 μm)	G1, G3, G5 (每315mm行程, 导程精度: 6μm, 12μm, 23μm) G1, G3, G5 (per 315mm stroke, Lead accuracy: 6 μm, 12 μm, 23 μm)	T5, T7(每315mm行程, 导程精度: 23μm, 52μm) T5, T7 (per 315 mm stroke, Lead accuracy: 23μm, 52μm)
承载 load	静态承载: 8.9KN-1898KN; 动态承载: 3.9KN-709KN; Static load: 8.9KN-1898KN; Dynamic bearer: 3.9KN-709KN;	静态承载: 20.8-1225KN; 动态承载: 13.4-559KN; Static load:20.8-1225KN; Dynamic bearer: 13.4-559KN;	静态承载: 14.3KN-3972KN; 动态承载: 7.3KN-986KN; Static load: 14.3KN-3972KN; Dynamic bearer: 7.3KN-986KN;	静态承载: 10KN-1300KN; 动态承载: 8KN-550KN; Static load: 10KN-1300KN; Dynamic bearer: 8KN-550KN;
转速 Rotate Speed	最高可达12000转/分 Up to 12,000 rpm	最高可达10000转/分 Up to 10,000 rpm	最高可达10000转/分 Up to 10,000 rpm	最高可达14000转/分 Up to 14,000 rpm
轴向间隙 AXIAL Clearance	0.02mm	0.02mm	0.02mm	-0.01mm (过盈预紧) -0.01mm (interference preload)

性能 PERFORMANCE	滚柱丝杠电动缸 ROLLER LEAD SCREW ELECTRIC CYLINDER	滚珠丝杠电动缸 BALL SCREW ELECTRIC CYLINDER	液压缸 THE HYDRAULIC CYLINDER	气缸 CYLINDER
承载能力 The load capacity	很高 high	高 high	很高 high	高 high
寿命 life	很长 For a long	中等 medium	维护好 可较长 Good maintenance can be longer	维护好 可较长 Good maintenance can be longer
速度 speed	很快 soon	中等 medium	中等 medium	很快 medium
加速度 The acceleration	很高 high	中等 medium	很高 high	很高 high
位置可控性 Position controllability	容易 easy	容易 easy	困难 difficult	很困难 difficult
机械刚度 Mechanical stiffness	很高 high	中等 medium	很高 high	很低 high
抗冲击性能 Impact resistance	很高 high	中等 medium	很高 high	高 high
相对体积 Relative volume	小 small	中等 medium	大 big	大 big
摩擦 friction	小 small	小 small	小 small	中等 small
效率 The efficiency of	> 85% > 85%	> 90% > 90%	< 50% < 50%	< 50% < 50%
安装 The installation	简单 simple	简单 simple	复杂 complex	复杂 complex

汽车及新能源、智能汽车行业

静液式离合器执行机构:替代液压驱动, 响应速度快, 更容易实现电控化。

电子机械制动(EMB)系统:取消了液压系统, 响应速度快。通过电机来驱动行星滚柱丝杠直线运动, 作用于刹车片进行制动。

前后轮线控转向直线驱动执行机构:替代滚珠丝杠, 高精度、高负载, 寿命长, 更容易实现电控化。

电液执行器:替代液压驱动, 响应速度快、高精度、高负载的部件, 更容易实现电控化。

Automobile and new energy, intelligent automobile industry

Hydrostatic clutch actuator: instead of hydraulic drive, it has fast response speed and is easier to realize electronic control.

Electronic mechanical braking (EMB) system: the hydraulic system is canceled, and the response speed is fast. The motor drives the planetary roller lead screw to move in a straight line and acts on the brake pad for braking.

Front and rear wheel wire steering linear drive actuator: it replaces ball screw, with high precision, high load, long service life, and is easier to realize electronic control.

Electro hydraulic actuator: instead of hydraulic drive, it is a component with fast response, high precision and high load, and it is easier to realize electronic control.

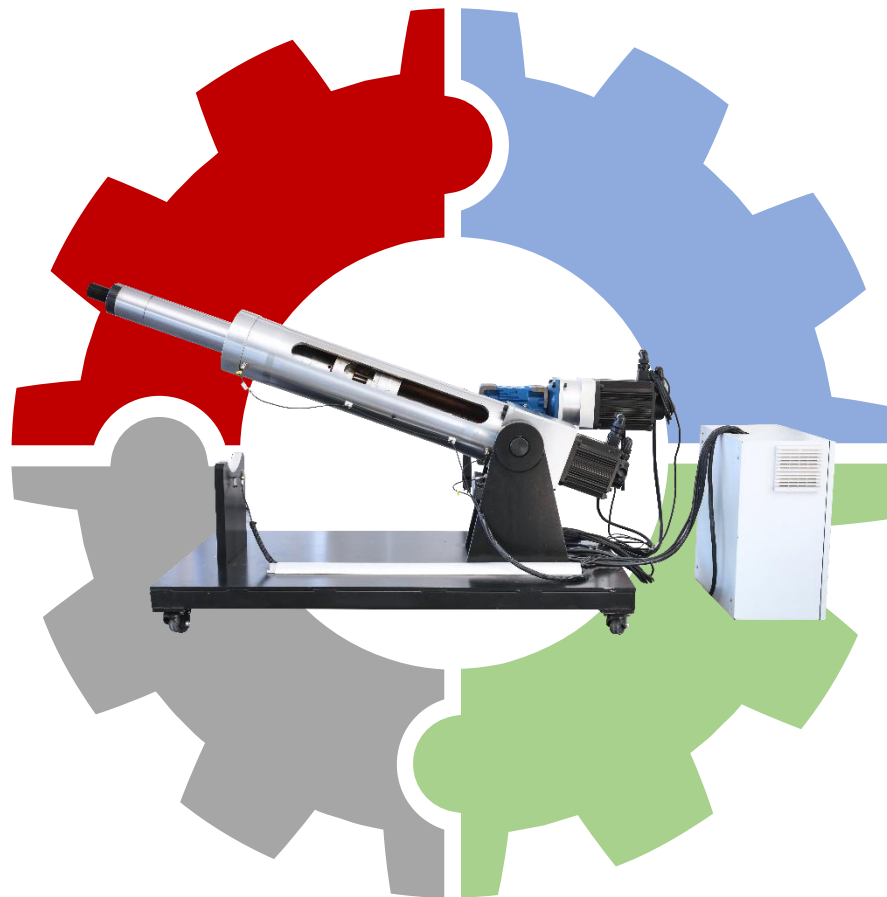
石油天然气行业

行星滚柱丝杠电动缸:用于石油输送增压泵, 承载力大, 寿命长等特点。

行星滚柱丝杠电动缸:可以替代部分磕头机, 更清洁环保。

Oil and gas industry

Planetary roller lead screw electric cylinder: used for oil delivery booster pump, with large load capacity and long service life. Planetary roller electric cylinder: it can replace part of the kowtow pumping unit, which is cleaner and more environmentally friendly.



工程机械行业

替代液压驱动:响应速度快、高精度、更容易实现电控化, 取消液压系统, 更清洁环保。

Construction machinery industry

Replace hydraulic drive: fast response, high precision, easy to achieve electronic control, cancel the hydraulic system

机器人、自动化行业

行星滚柱丝杠电动缸:用于人形服务机器人手臂、腿部线性运动, 采用行星滚柱丝杠+力传感器, 响应速度快、导程小、高精度、高负载、寿命长等特点。

Robot, automation industry

Instead of ball screw electric cylinder and cylinder: fast response, small lead, high precision, high load, long life and so on. Instead of ball screw electric cylinder and cylinder: fast response,

机床设备行业

替代滚珠丝杠: 导程小、高精度、高负载、寿命长等特点

Machine tool equipment industry

Instead of ball screw: small lead, high precision, high load, long life and so on

医疗器械、光学仪器行业

替代滚珠丝杠: 导程小、高精度、稳定性好、寿命长等特点

Medical instrument, optical instrument industry

Instead of ball screw: small lead, high precision, high load, long life and so on

丝杠中径(mm)		丝杠长度 (mm)	导程(mm)	效率(%)	导程精度(μm)	静态承载 (KN)	动态承载 (KN)
PITCH DIAMETER OF LEAD SCREW		LENGTH OF LEAD SCREW	LEAD	EFFICIENCY	LEAD ACCURACY	STATIC load	DYNAMIC load
标准式 行星滚柱丝杠 Standard planetary roller lead screw	3.5-60	960	1-35	75-90	G3, G5, G7 (每315mm行程, 导程精度: 12μm, 23μm, 52μm) G3, G5, G7 (per 315mm stroke, lead accuracy: 12μm, 23μm, 52μm)	8.9-950	3.9-470
反向式 行星滚柱丝杠 Reverse planetary roller lead screw	10.5-80	960	2-16	70-90	G1, G3, G5 (每315mm行程, 导程精度: 6μm, 12μm, 23μm) G1, G3, G5 (per 315mm stroke, lead accuracy: 6μm, 12μm, 23μm)	20.8-225	13.4-559
循环式 行星滚柱丝杠 Circular planetary roller lead screw	8-63	960	0.25-4	60-80	G3, G5, G7 (每315mm行程, 导程精度: 12μm, 23μm, 52μm) G3, G5, G7 (per 315mm stroke, lead accuracy: 12μm, 23μm, 52μm)	14.3-560	7.3-219
差动式 行星滚柱丝杠 Differential PlanetaryRoller Lead screw	5-63		0.8-2.66	60-80	T5, T7 (每315mm行程, 导程精度: 23μm, 52μm) T5,T7 (per 315mm stroke, lead accuracy: 23μm, 52μm)	10-370	8-256

● 成功应用于汽车及新能源汽车;机床;石油;人形机器人等行业

Application in automobile, new energy automobile, machine tool, petroleum



差动式行星滚柱丝杠
Differential planetary roller screw



反向式行星滚柱丝杠
Reverse planetary roller screw



微分行星滚柱丝杠
Differential planetary roller screw



标准式行星滚柱丝杠
Standard planetary roller lead screw



标准式行星滚柱丝杠
Standard planetary roller lead screw

	丝杠中径(mm) PITCH DIAMETER OF LEAD SCREW	丝杠长度 (mm) LENGTH OF LEAD SCREW	导程(mm) LEAD	效率(%) EFFICIENCY	导程精度(μm) LEAD ACCURACY	静态承载 (KN) STATIC load	动态承载 (KN) DYNAMIC load
外循环 External circulatio	16-63	960	5-35	85-95	P1, P3, P5 (每315mm行程, 导程精度: 6μm, 12μm, 23μm) G3, G5, G7(per 315mm stroke, lead accuracy: 12μm, 23μm, 52μm)	27-231;	13-81;
内循环 Internal circulation	14-50	960	4-16	85-95	P1, P3, P5 (每315mm行程, 导程精度: 6μm, 12μm, 23μm) G3, G5, G7(per 315mm stroke, lead accuracy: 12μm, 23μm, 52μm)	5-150;	3-58;

● 典型应用案例产品

Typical application case products



滚珠丝杠
BALL SCREW



滚珠丝杠
BALL SCREW





智能柔性关节事业部

INTELLIGENT FLEXIBLE JOINT BUSINESS DIVISION

智能柔性关节、谐波一体化关节系列产品

Intelligent flexible joint, harmonic integration joint series products and production line introduction





模块智能化关节系列产品，是智能人机协作机器人、服务机器人创新研发应用技术关键核心部件。实现智能人机协作机器人、智能服务机器人手臂运动。凭您的想象，像搭积木一样制造神奇机器人！

将带动智能人机协作机器人、智能服务机器人相关的一系列上下游产业的深度技术变革升级，具有示范引领作用，促进服务机器人尽早进入家庭。

Module intelligent joint series products are the key core components of intelligent human-machine collaboration robot and service robot innovation research and application technology. Realize the arm movement of intelligent human-machine cooperation robot and intelligent service robot. Build amazing robots with your imagination like building blocks! It will drive the in-depth technological transformation and upgrading of a series of upstream and downstream industries related to intelligent human-machine collaboration robot and intelligent service robot, play a leading role in demonstration, and promote the early entry of service robot into the home.

安全第一 Safety first

该系列关节集电机、减速器、弹性体、控制器和多种传感器为一体，在超薄体积下实现高功率密度、高转速、大力矩输出。内部采用高集成芯片，拥有过压、过流、过温、短路、堵转、欠压等多重保护，保障设备及人员安全。外部采用总线控制，一根网线就可以完成任意构型机器人的多关节运动控制的信号传输。开放位置、速度、电流三环控制并集成智能算法，集成力矩传感器，实现力矩控制功能，高柔度SEA保障安全性。

This series of joints integrates motor, reducer, elastomer, controller and various sensors to achieve high power density, high speed and large torque output in ultra-thin volume. Internal use of high integrated chip, with over voltage, over current, over temperature, short circuit, blocking, under voltage and other multiple protection, to ensure the safety of equipment and personnel. External bus control, a network cable can complete the multi-joint motion control signal transmission of any configuration robot. Open position, speed, current three-loop control and integrated intelligent algorithm, integrated torque sensor, torque control function, high flexibility SEA to ensure safety.

精巧的模块化 Delicate modularity

关节设计集成度高，体积小。采用中空结构，方便外部走线。优秀的传动系统在保证较高的传动精度和输出力矩的同时，使运动过程更平稳，抗冲击能力更强。关节采用高精度编码器，结合新型智能控制算法，实现对运动轨迹的精确控制。

The joint design is highly integrated and small in size. Hollow structure is adopted to facilitate external wiring. Excellent transmission system ensures high transmission accuracy and output torque, while making the movement process more stable, stronger impact resistance. The joint adopts high precision encoder and new intelligent control algorithm to realize accurate control of motion trajectory.

开放多数据接口、全平台支持 Open multi-data interface, full platform support

开放大量数据接口，除位置、速度、力矩信号外，还提供加速度、陀螺仪、电压、电流、温度等传感器数据，便于进行算法开发。全系统平台软件支持。提供MATLAB一站式的开发环境，支持ROS、LINUX、WINDOWS等多种平台，支持C/C++/C#/PYTHON多种编程语言。

Open a large number of data interfaces, in addition to position, speed, torque signals, but also provide acceleration, gyroscope, voltage, current, temperature and other sensor data, easy to develop algorithms. Full system platform software support. MATLAB one-stop development environment, support ROS, LINUX, WINDOWS and other platforms, support C/C++/C#/PYTHON programming languages.

自由组合 Free combination

即插即用，方便用户快速、安全的开发各种机器人手臂及其他类型的机器人。采用网络级联式的硬件连接方案，关节直接连接电脑即可控制，为用户节省调试底层硬件的时间成本及网络搭建成本。

Open a large number of data interfaces, in addition to position, speed, torque signals, but also provide acceleration, gyroscope, voltage, current, temperature and other sensor data, easy to develop algorithms. Full system platform software support. MATLAB one-stop development environment, support ROS, LINUX, WINDOWS and other platforms, support C/C++/C#/PYTHON programming languages.

XG系列机器人关节是我公司采用行业内最先进技术研制的智能模块化关节。

该系列关节集电机、减速器、弹性体、控制器和多种传感器为一体，在超薄体积下实现高功率密度、高转速、大力矩输出。内部采用高集成芯片，拥有过压、过流、过温、短路、堵转、欠压等多重保护，保障设备及人员安全。外部采用总线控制，一根网线就可以完成任意构型机器人的多关节运动控制的信号传输。开放位置、速度、电流三环控制并集成智能算法，集成力矩传感器，实现力矩控制功能，高柔度SEA保障安全性。

关节采用中空结构，方便外部走线。优秀的传动系统在保证较高的传动精度和输出力矩的同时，使运动过程更平稳，抗冲击能力更强。关节采用高精度编码器，结合新型智能控制算法，实现对运动轨迹的精确控制。开放大量数据接口，除位置、速度、力矩信号外，还提供加速度、陀螺仪、电压、电流、温度等传感器数据，便于进行算法开发。

全系统平台软件支持。提供MATLAB一站式的开发环境，支持ROS、LINUX、WINDOWS等多种平台，支持C/C++/C#/PYTHON多种编程语言。

即插即用，方便用户快速、安全的开发各种机器人手臂及其他类型的机器人。采用网络级联式的硬件连接方案，关节直接连接电脑即可控制，为使用者节省调试底层硬件的时间成本及网络搭建成本。

XG series robot joints are intelligent modular joints developed by our company using the most advanced technology in the industry.

This series of joints integrates motors, reducers, elastomers, controllers and a variety of sensors to achieve high power density, high speed and high torque output under ultra-thin volume. The internal use of highly integrated chip, with overvoltage, overcurrent, overtemperature, short circuit, stall, undervoltage and other multiple protection, to ensure the safety of equipment and personnel. External bus control, a network cable can complete the signal transmission of multi-joint motion control of any configuration robot. Open position, speed, current three-ring control and integrated intelligent algorithm, integrated torque sensor, to achieve torque control function, high flexibility SEA to ensure safety.

The joints have a hollow structure to facilitate external wiring. The excellent transmission system ensures high transmission accuracy and output torque at the same time, so that the movement process is more stable and the impact resistance is stronger. The joint adopts high-precision encoder and combines the new intelligent control algorithm to achieve accurate control of the motion trajectory. Open a large number of data interfaces, in addition to position, speed, torque signals, but also provide acceleration, gyroscope, voltage, current, temperature and other sensor data, easy to develop algorithms.

System-wide platform software support. Provide MATLAB one-stop development environment, support ROS, LINUX, WINDOWS and other platforms, support C/C++/C#/PYTHON multiple programming languages.

Plug and play, it is convenient for users to quickly and safely develop various robot arms and other types of robots. Using the network cascaded hardware connection scheme, the joint can be controlled by directly connecting to the computer, saving the time cost of debugging the underlying hardware and the cost of network construction for the user.



智能柔性模块关节

Intelligent flexible modular joints

配置 configurat	XGA	XGB	XGC	XGD
额定电压 Power	24V DC	24V DC	24V DC	24V DC
尺时 Dimensions	116mm*77mm *47mm	115mm*77mm *47mm	116mm*77mm *47mm	116mm*77mm *47mm
背隙 Backlash	±0.2°	±0.2°	±0.2°	±0.2°
最大转矩 Peak Torque	17.6Nm	7Nm	7Nm	34Nm
最大转速 Max Speed	26RPM	27RPM	69RPM	14RPM
重量 Weight	520g	400g	500g	530g
通讯 Communication	Ethernet	Ethernet	Ethernet	Ethernet
传感器 Sensing	Output Torque 3-axis Accelerometer Gyro Temperature Current			

智能柔性关节服务机器人
Intelligent flexible joint service robot



机械臂
Hexapod robot



原型机
Hexapod robot

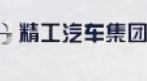
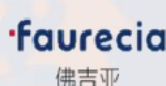


我们的合作伙伴遍布全球！ 跨越多个行业

OUR PARTNERS ARE ALL OVER THE WORLD, SPANNING MULTIPLE INDUSTRIES

Seenpin 新剑

汽车及新能源、智能汽车行业 Automobile Industry:



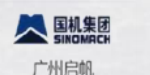
半导体通讯电子行业 Semiconductor Electronics Industry:



其他制造行业 Other Industry



人机协作与服务机器人行业 Robot Industry







谢谢观看



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