

深圳市兆威机电股份有限公司

地址: 深圳市宝安区松岗街道燕罗工业区朝阳路兆威工业园
电话: 0086-755-2732 2645
传真: 0086-755-2732 3949
邮编: 518105
网址: www.szzhaowei.com
邮箱: sales@szzhaowei.net

兆威企业(香港)有限公司

地址: 中国香港中环德辅道西60-64号荣裕商业大厦1005室
电话: 00852-63264597
传真: 00852-63264597
电邮: sales@zwgearbox.com

ZW Drive GmbH

ADD: Alte Marktoberdorfer Straße 14, 87616 Marktoberdorf
TEL: +49 89 6600 2375
E-mail: kontakt@zw-drive.com

SHENZHEN ZHAOWEI MACHINERY & ELECTRONICS CO., LTD.

ADD: Zhaowei Industrial Park, Chaoyang Rd., Yanluo Industrial Zone, Songgang Str.,
Bao'an Dist., Shenzhen, 518127, Guangdong, China
TEL: 0086-755-2732 2645
FAX: 0086-755-2732 3949
Website: <http://www.zwgearbox.com>
E-mail: sales@zwgearbox.com

ZHAOWEI ENTERPRISE (H.K.) COMPANY LIMITED

ADD: Room 1005, Wing Yue Building, 60-64 Des Voeux Road
West, Hong Kong, China.
TEL: 00852-63264597
FAX: 00852-63264597
E-mail: sales@zwgearbox.com



微信公众号



兆威官网

ZHAOWEI 兆威
SHENZHEN ZHAOWEI
MACHINERY & ELECTRONICS CO., LTD.

愿景和使命 | VISION & MISSION

致力微型驱动领域进步, 共创智能美好生活
Advancing the Micro Drive Industry, Creating a Better Smart Life

核心价值观 | CORE VALUE

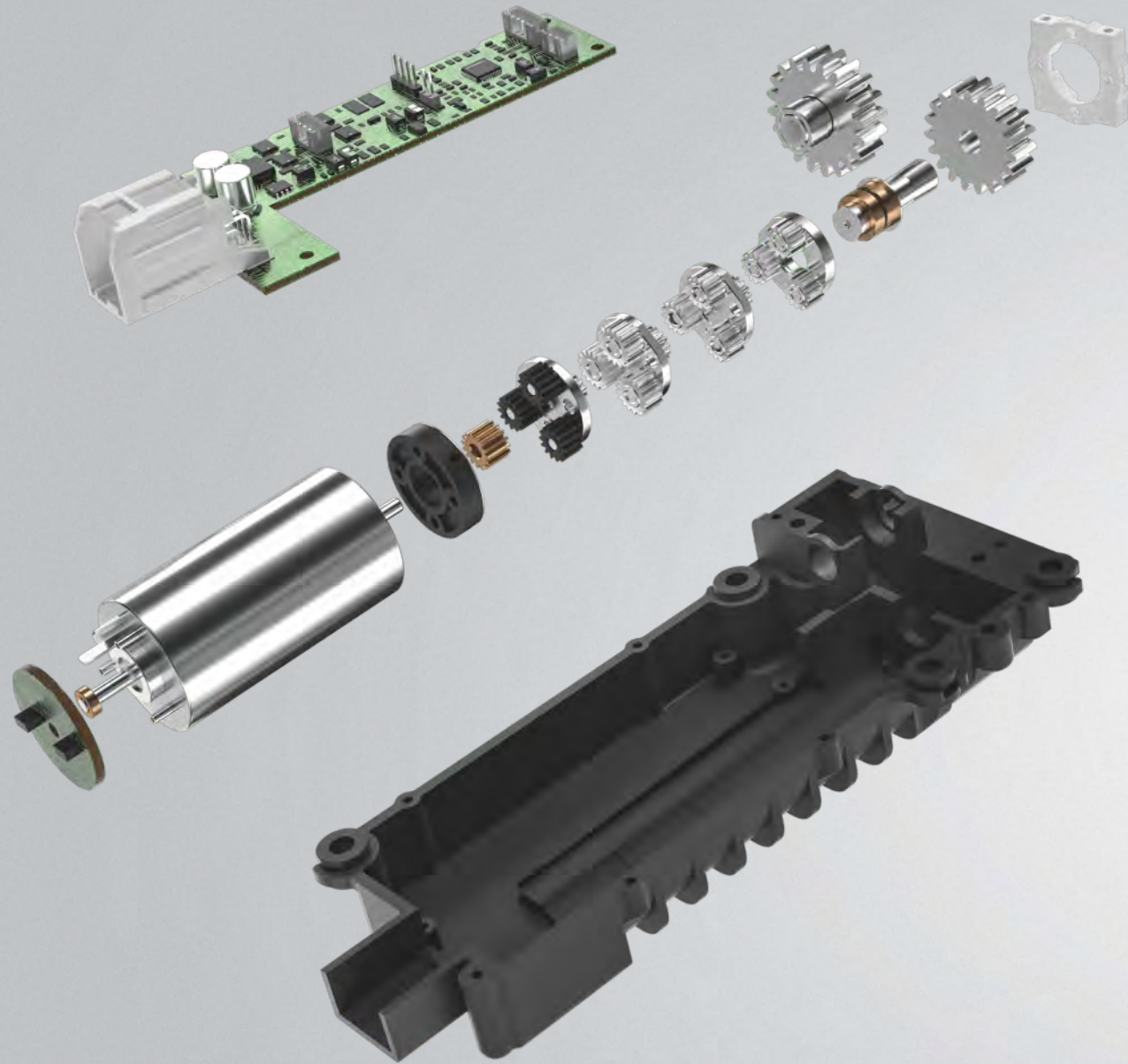
创造价值, 坚持创新, 持续奋斗, 追求卓越
Create Value, Innovate with Drive, Strive to Thrive, Aim to Excel

ZHAOWEI 兆威

微型驱动系统制造商
Micro Drive System Manufacturer

股票简称: 兆威机电 股票代码: 003021
Stock Abbreviation: ZHAOWEI Machinery & Electronics Stock Code: 003021

About ZHAOWEI	一、关于兆威	01-12
Company Profile	公司简介	03-04
Company Milestones	发展历程	05-06
ZHAOWEI Honor	兆威荣誉	07-08
Our Clients	合作伙伴	09-10
Quality System & Certification	品质认证和体系	11-12
R&D Capability	二、研发实力	13-21
R&D Teams	研发团队	15-16
Patents & Innovation	专利和技术创新	17
Gearbox Design	齿轮箱设计	18
Mold Development	模具开发	19
Gear Technology	齿轮技术	20
Micro Motor Control Module Development	微型电控模块开发	21
Fine Machining & Quality Control	三、精密加工与品质控制	22-34
Fine Machining	精密加工	23-26
Quality Control	品质控制	27-34
Production Capability	四、生产实力	35-43
MES System	MES系统	37
Parts Production Lines	零件生产线	38-40
Assembly Lines	组装生产线	41-42
PCBA Production Lines	PCBA生产线	43
Product Series	五、产品体系	44-48
Intelligent Drive Systems	六、智能驱动系统	49-104
Automotive Electronics	汽车电子	51-60
Industrial Automation	工业自动化	61-65
Medical Micro Drive Systems	智慧医疗	66-70
Smart Home	智能家居	71-79
Consumer electronics	消费电子	80-93
Robot	机器人	94-96
Standard Gearboxes	七、标准齿轮箱系列	97-158
SMD planetary gearbox	SMD行星齿轮箱	99-120
MD planetary gearbox	MD行星齿轮箱	121-134
PD planetary gearbox	PD行星齿轮箱	135-146
Zero backlash gearbox	零背隙齿轮箱	147-148
PL Right-Angle Gear Motor	PL直角电机齿轮箱	149-151
MC Spur Gearbox	MC正传动减速箱	152-158
Micro Motor	八、电机系列	159-171
MC brushless DC coreless motor	MC系列无刷直流空心杯电机	161-165
MP brushed DC motor	MP有刷直流电机	166-169
MC stepper motor	MC步进电机	170-171
Electronic control board	九、电控系统	172-180
CB-ST encoder	CB-ST编码器	173-177
Electronic Control Boards	电控板	178-180



SINCE 2001

Micro Drive System Manufacturer
Provide Integrated Drive Solutions

微型驱动系统制造商
为您提供系统化的解决方案

公司简介

Company Profile

深圳市兆威机电股份有限公司（以下简称“兆威”）成立于2001年，是一家集设计、研发、制造于一体的微型传动和微型驱动系统方案解决商。兆威是国家高新技术企业，总部位于广东省深圳市，注册资金2.3亿(元)，股票代码：003021。兆威产品主要应用于智慧医疗、工业自动化、智慧出行、智能消费、机器人等领域。

兆威在深圳、上海、苏州、东莞、香港、德国、美国等地设有3家分公司和7家子公司。兆威共有员工2200多人，在深圳有办公和制造厂房面积6万平方米。已在东莞建成微型传动系统研发和制造基地，正在苏州建设微型驱动系统产业园。

兆威先后获得广东省微型齿轮传动工程技术研究中心、深圳市智能机器人微型驱动系统工程研究中心、国家级企业技术中心、机械工业微型传动系统工程技术研究中心、国家制造业单项冠军、国家知识产权优势企业、广东省机器人骨干企业、广东省知识产权示范企业等资质认定，是国家数字化设计与制造创新中心参与单位；荣获国家科技进步二等奖、广东省科技进步一等奖、中国专利奖、中国机械工业科技进步特等奖、中国工业大奖表彰奖、中国好设计金奖、全国机械工业产品质量创新大赛金奖等荣誉奖项；承担了多项国家、省、市、区各级科技计划项目。

兆威已通过ISO9001、ISO14001、ISO45001、IATF16949、ISO13485、知识产权、两化融合、智能制造能力成熟度（三级）、CMMI L3等体系认证，建立了科学管理和企业现代化体系。公司重视科技实力和自主创新，拥有一支500余人的研发工程团队，形成了从研发、设计、装配到检测的系统性、全方位的人才队伍。参与制定国家标准3项，主持制定团体标准1项，参与制定团体标准2项。

兆威人秉持着“创造价值，坚持创新，持续奋斗，追求卓越”的核心价值观，持续为行业提供优质产品和服务。未来，兆威将继续拥抱智能时代，以“致力微型驱动领域进步，共创智能美好生活”为愿景和使命，专注于微型驱动领域的理论与技术研究，不断创新和突破，推动微型驱动产业及万物互联生态链的发展进步，赋能多场景、高品质的智能科技应用，实现人们生活更加便捷、舒适、美好！

Shenzhen Zhaowei Machinery & Electronics Co., Ltd. (Zhaowei), established in 2001, is a micro transmission and drive system solution provider that integrates design, research, development, and manufacturing. Zhaowei is recognized as a Chinese high-tech enterprise, headquartered in Shenzhen, Guangdong with a registered capital of 238.9408 million RMB and stock code: 003021. The company's products are primarily applied in smart healthcare, industrial equipment, automotive electronics, smart home solutions, consumer electronics, and robotics.

Zhaowei operates 3 branch offices and 7 subsidiaries located in Shenzhen, Shanghai, Suzhou, Dongguan, Hong Kong, Germany, and the United States. The company employs over 2,200 people and has a combined office and manufacturing space of 60,000 square meters in Shenzhen. Zhaowei has established a micro transmission system R&D and manufacturing base in Dongguan and is in the process of constructing a micro drive system industrial park in Suzhou.

The company has been recognized with numerous accolades, including certifications as the Guangdong Provincial Micro Gear Transmission Engineering Technology Research Center, Shenzhen Intelligent Robot Micro Drive System Engineering Research Center, National Enterprise Technology Center, and Mechanical Industry Micro Transmission System Engineering Technology Research Center. Zhaowei is a recipient of prestigious titles such as National Manufacturing Champion, National Intellectual Property Advantage Enterprise, Guangdong Provincial Key Robotics Enterprise, and Guangdong Provincial Intellectual Property Model Enterprise. It is also an active participant in the National Digital Design and Manufacturing Innovation Center.

Zhaowei's awards include the National Science and Technology Progress Award (Second Prize), Guangdong Provincial Science and Technology Progress Award (First Prize), China Patent Award, China Machinery Industry Science and Technology Progress Special Award, China Industry Award Recognition Award, China Good Design Gold Award, and the National Machinery Industry Product Quality Innovation Competition Gold Award. The company has undertaken multiple research projects at the national, provincial, municipal, and district levels.

Zhaowei has achieved certifications such as ISO9001, ISO14001, ISO45001, IATF16949, ISO13485, Intellectual Property Management, Integration of Informationization and Industrialization, Smart Manufacturing Capability Maturity Level 3, and CMMI Level 3. It has established a modern enterprise management system emphasizing scientific rigor and technological innovation. The company's R&D team, comprising over 500 professionals, integrates expertise in research, design, assembly, and testing to deliver comprehensive, end-to-end solutions. The team has participated in formulating three national standards, led the development of one industry standard, and contributed to two additional industry standards.

Guided by the core values of "creating value, driving innovation, pursuing excellence, and continuous effort," Zhaowei is committed to providing high-quality products and services to the industry. Looking forward, Zhaowei aims to embrace the era of smart technologies with the mission of "advancing the micro drive field and creating a smarter, better future." The company is dedicated to the theoretical and technological advancement of micro drives, consistently pursuing innovation and breakthroughs to drive the development of the micro drive industry and the ecosystem of interconnected devices. Zhaowei seeks to empower diverse, high-quality intelligent applications, making life more convenient, comfortable, and enriching for everyone.



兆威长三角基地
ZHAOWEI Yangtze River Delta Base



兆威珠三角基地
ZHAOWEI Pearl River Delta Base

发展历程
Company Milestones

2001	2002 - 2005	2006 - 2009	2010 - 2013	2014 - 2017	2018 - 2020	2021 - 2022	2023 - 2025
公司成立 Established 	精密、微小、超薄产品 Precision, micro, ultra-thin products 	进军汽车行业 Entering the automotive industry 	实现产值过亿 Achieving output value of over 100 million RMB 	兆威产业园投入使用 ZHAOWEI Industrial Park put into use 	兆威IPO上市 ZHAOWEI IPO 	启动管理变革 Initiate Change Management 	谱写新章 Write a new chapter 
	核心马达部件 Core Motor Parts - 松下 (Panasonic) - 三洋 (SANYO) - 三协 (SANKYO)	汽车齿轮部件 Automobile Gear Parts - 博世 (Bosch) - 博泽 (Brose) - 马勒 (MAHLE) - 比亚迪 (BYD) - 长城 (Great Wall)	微型齿轮箱 Micro Gearbox - 华为 (HUAWEI) - 罗森博格(Rosenberger) - 奥克斯 (AUX)	成立电控团队 Setting up electronic control team - 马达驱动控制 Motor Drive Control - 嵌入式软件设计 Embedded Software Design	微型齿轮传动 Micro Gear Transmission - 驱动一体化 Drive Integration	广东省科技进步一等奖 The First Prize of Guangdong Province Scientific and Technological Progress Award	2023年荣获中国专利奖 Won the China Patent Award in 2023
	精密齿轮部件 Precision Gear Parts - 佳能 (Canon) - 尼康 (Nikon) - 亚洲光学 (Asia Optical)		通讯齿轮箱 Gearbox for Communication Equipment - 4G天线 (4G Antennas) - 5G天线 (5G Antennas) -	汽车齿轮箱 Gearbox for Automobile - 尾门电机 (Power Tailgate) - EPB -	中国机械工业科技进步特等奖 Special Prize of China Machinery Industry Science and Technology Award	东莞微型传动系统研发和制造基地 Dongguan Micro Transmission System R&D and Manufacturing Base	国家企业技术中心 National Enterprise Technology Center
			智能家居 Smart Home - 窗帘 (Electric Curtain) - 扫地机 (Robot Vacuum) -	消费电子类齿轮箱 Gearbox for Consumer Electronics Products - 手机摄像头升降齿轮箱 (Phone Lifting Camera Gearbox) -	中国工业大奖表彰奖 China Grand Awards for Industry of Recognition	国家制造业单项冠军 China Manufacturing Single Championship	成立美国子公司 Establish a subsidiary in the United States
					医疗齿轮箱 Gearbox for Medical Electronics - 胰岛素齿轮箱 (Insulin Pump) - 清洗泵 (Pulse Lavage System) -		

兆威荣誉
ZHAOWEI Honor

国家认定

企业技术中心

The National Enterprise Technology
Center of China

国家制造业

单项冠军

Individual Championship for
National Manufacturing Industry

国家科学技术进步奖

二等奖

The Second Prize for National
Scientific and Technological Progress

中国机械工业科学技术

特等奖

Special Award for China Machinery
Industry Science and Technology

中国工业大奖

表彰奖

China Grand Awards for Industry
(Commendation Award)

广东省战略性新兴产业

培育企业

Enterprise of Cultivation for Strategic
Emerging Industry of Guangdong Province

中国专利奖

优秀奖

China Patent Award
Excellent Award

国家知识产权

优势企业

Preponderant Enterprise of National
Intellectual Property Rights

广东省科技进步

一等奖

The First Prize for Scientific and Technological
Progress of Guangdong Province

广东省机器人

骨干企业

Key Robot Enterprise of
Guangdong Province

中国好设计

金奖

Chinese Good Design
gold prize

深圳市工程技术

研究中心

Shenzhen Engineering Technology
research center

- 参与制定首个注射成型齿轮精度国标-GB/T 38192-2019
- 塑胶齿轮精度—国标6—10级
- 粉末冶金工艺—齿轮精度JGMA 3级
- 智能制造/CMMI 3级

- Participated in the development of the first national standard for injection
molded gear precision GB/T 38192-2019
- Precision of plastic gears – National standard level 6-10
- Powder Metallurgy Process – Gear Precision JGMA Level 3



合作伙伴
Our Clients



品质认证和体系

Quality System & Certification

兆威的管理体系是企业运作的核心部分;兆威全体员工严格遵守ISO管理体系,从产品的设计、研发到生产所有的过程都严格按照体系进行;

我们致力于将产品的风险把控,在恶劣、苛刻的环境条件下,提高产品的可靠性;

我们的使命是为客户提供创新、符合客户所需的产品。

ZHAOWEI management system is the core part of company operation. All employees strictly comply with the ISO system from product design, development to production.

We are committed to controlling risks and improving product reliability under harsh environmental conditions.

Our mission is to provide innovative products that meet customer needs.



产品认证 | PRODUCT CERTIFICATION



公司认证 | CERTIFICATES



ISO13485 (CN18/42018)

ISO9001:2015 (CN11/30731)

IATF16949 (CN11/30730.01)

ISO14001 (U006616E0153R3M)

项目管理 | PROJECT MANAGEMENT

深圳兆威机电股份有限公司承诺严格按照兆威项目管理系统为客户提供创新的、质量稳定的产品,让产品市场竞争力符合客户所需。

ZHAOWEI is committed to providing customers innovative and stable quality products in strict accordance with ZHAOWEI project management system, to ensure product market competitiveness meets customers needs.

产品实现过程涉及:

- 产品设计确认阶段
- 顾客财产管理过程
- 产品质量先期策划过程
- 工程变更管理过程
- 产品PPAP批准过程
- 订单管理过程
- 生产及交付管理过程
- 顾客信息反馈、满意度管理过程

Product Implementation Process:

- Product Design Confirmation
- Customer Property Management
- Advanced Product Quality Planning
- Engineering Change Management
- Product PPAP
- Order Management
- Production & Delivery Management
- Customer Feedback & Satisfaction Management



研发实力 R&D Capability

深圳市兆威机电股份有限公司专注于微型齿轮驱动系统的设计开发生产, 为客户提供驱动解决方案。公司重视自主研发和科技创新, 公司的研发团队涵盖微型传动系统、电子驱动的设计开发, 产品主要涉及汽车、通讯、医疗、智能家居、美容养生&运动健康、机器人、电子产品、工业装备等领域。

ZHAOWEI specializes in designing, developing, manufacturing and providing micro gear drive systems for customers. ZHAOWEI attaches great importance to independent R&D and technological innovation, and R&D teams cover design and development of micro drive system and electric drive module. Our products are used in many fields, mainly involves automotive, communication equipment, intelligent medical equipment, smart home, beauty and health care & sports, intelligent robot, electronic product and industrial equipment.

研发团队
R&D Teams



兆威的研发团队是由教授、博士、硕士及研发工程师等组成。其中研究生和本科生占比75%，平均年龄32岁，形成了从研发、设计、制造到实验检测的系统性、综合性的开发平台。

Zhaowei' s R&D team comprises professors, PhDs, postgraduates, and engineers, with postgraduate and undergraduate degree holders accounting for 75% of the team. With an average age of 32, this young and dynamic team has established a comprehensive development platform encompassing research, design, manufacturing, and experimental testing, ensuring systematic and integrated innovation.



团队构成 | Team Members

兆威的研发团队涵盖微型齿轮箱研发、控制器系统研发、精密模具设计加工、注塑与组装自动化、齿轮检测和系统测试等领域。

ZHAOWEI R&D teams cover the fields of micro gear and gearbox design and development, precision mold design and processing, injection molding and assembly automation, gear and drive system testing, etc.



研发设计团队
R&D Team

- 传动设计
Transmission Design
- 产品设计
Product Design
- 仿真验证
Simulation Verification
- 马达设计
Motor Design
- 技术开发
Technology Development



电子驱动团队
Electronic Drive Team

- 马达驱动控制
Motor Drive Control
- 嵌入式软件设计
Embedded Software Design
- 智能硬件设计
Intelligent Hardware Design



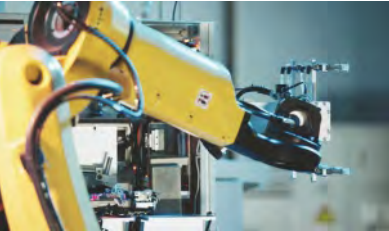
齿轮检测实验室
Gear Testing Laboratory

- 蔡司CT
Zeiss CT
- 齿轮检测中心
Gear Testing Center
- 齿轮啮合测试
Gear Mesh Test
- 三坐标测量
Three-coordinate Measurement
- 热重分析仪
Thermogravimetric Analyzer



齿轮技术团队
Gear Technical Team

- 齿轮箱的研制
Gearbox Development
- 定制化研制
Customized Design
- 材料研究
Materials Research
- 模具设计
Mold Design
- 成型工艺
Molding Process



自动化团队
Automation Team

- 柔性加工技术
Flexible Machining Technology
- 注塑无人化
Injection Automation
- 组装自动化
Assembly Automation



综合测试实验室
Comprehensive Test Laboratory

- 噪声分析
Noise Analysis
- 马达综合测试
Motor Comprehensive Test
- 环境测试实验
Environmental Test
- 震动测试
Vibration Test
- 寿命测试
Life Test

专利和技术创新
Patents & Innovation

400余项专利其中微型传动关键技术专利86项, 115项发明专利、37项软件著作权、23项PCT。

兆威参与并主导了多项省市科技攻关项目, 在新能源汽车、4G、5G 天线基站及智能机器人领域有丰富的研发和制造经验。

More than 400 patents, including 86 key technology patents for micro transmission, 115 invention patents, 37 software copyrights, 23 Patent Cooperation Treaty.

ZHAOWEI leads and participates in a number of provincial and municipal science and technology research projects, being experienced in manufacturing drive systems for new energy vehicles, 4G and 5G antenna base stations, and intelligent robots.

专利名称 Patent Name	专利类型 Patent Type	申请/授权日期 Application / Authorization Date	证书/申请编号 Certificate / Application No.
低噪音汽车尾箱减速器 Low-noise Automobile Tail Box Reducer	发明授权 Invention Authorization	2018-03-27	CN105041986BXXXX
调频组件及滤波器 FM Components and Filters	发明公布 Invention Announcement	2017-09-08	CN107146928AXXXX
小回程差角度传感器及其行星齿轮 Small Backlash Angle Sensor and Its Planetary Gears	发明公布 Invention Announcement	2017-09-08	CN107144215AXXXX
《机器人的手臂机构以及具有该手臂机构的机器人》 Robot Arm Mechanism and A Robot with the Arm Mechanism	发明专利 Invention Patent	2015-02-04	ZL201110381753.8
充电枪电子锁装置及充电枪电子锁系统 Electronic Lock Device and Lock System for EV Charger	实用新型 Utility Model	2018-05-18	CN207381641UXXXX
柔性自调位机构及机械手 Flexible Self-adjusting Mechanism and Manipulator	国际发明专利 International Invention Patent	2018-06-01	CN108098757AXXXX
天线调节装置 Antenna Tilt Adjustment Device	发明公布 Invention Announcement	2019-05-17	CN109768392A
电机控制方法及系统 Motor Control Methods and Systems	发明公布 Invention Announcement	2019-07-16	CN110022093A
离合结构和控制箱 Clutch Structure and Control Box	发明公布 Invention Announcement	2020-04-17	CN111022523A
多电机同步驱动控制方法、装置以及系统 Synchronous Drive Control Method, Device and System of Multiple Motors	发明公布 Invention Announcement	2020-06-16	CN111293927A
离合组件和控制箱 Clutch Components and Control Box	发明公布 Invention Announcement	2020-08-25	CN111577788A
摄像头推出旋转结构和电子设备 Pop-up, Rotating Camera Structures & Electronic Devices.	发明公布 Invention Announcement	2020-08-25	CN111586265A
步进电机同步驱动方法、装置、终端及存储介质 Synchronous Driving Method, Device, Terminal and Storage Medium of Stepper Motor	发明公布 Invention Announcement	2020-09-04	CN111628682A
交错轴齿轮副的传动性能测试装置 Transmission Performance Testing Device of Cross-shaft Gear Pair	发明公布 Invention Announcement	2020-08-11	CN111521389A

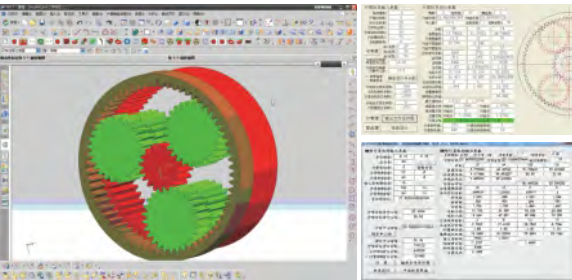


齿轮箱设计
Gearbox Design

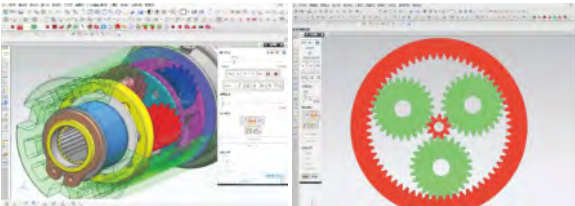
齿轮箱设计综合平台 | COMPREHENSIVE GEARBOX DESIGN PLATFORM

兆威自主知识产权的齿轮箱综合设计平台, 可实现渐开线行星齿轮系统、锥齿轮、面齿轮等机构的自动化参数设计、齿形绘制和3D精密建模等。设计平台的特性是具有方案设计、结构设计、齿形设计、模拟分析等特点。

The gearbox design platform of ZHAOWEI's independent intellectual property rights can realize automatic parameter design, tooth shape drawing and 3D precision modeling of involute planetary gear systems, bevel gears, face gears and other mechanisms. The design platform has functions of scheme design, structural design, tooth shape design, simulation analysis, etc.



直齿圆锥齿轮副齿廓修形及精密建模
Straight bevel gear pair profile modification and precision modeling



NGW型渐开线齿轮行星传动系统设计平台软件 2018SR329606
Design and Development Software of NGW Type Involute Gear Planetary Transmission System 2018SR329606

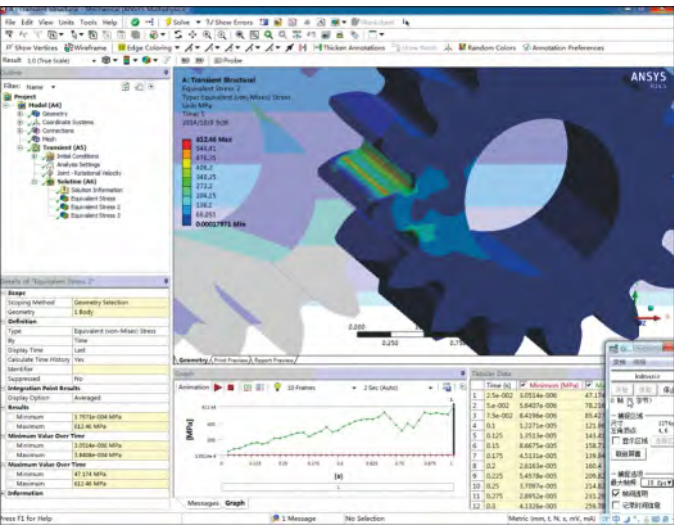
齿轮箱设计平台在进行变位系数合理的分配、啮合角优化计算、滑移率和重合度的校核。在前期设计开发阶段, 优化变位系数、行星齿轮齿顶干涉校验, 预防和改善齿轮箱的效率、噪音、寿命等问题。

The gearbox design platform performs reasonable allocation of modification coefficients, meshing angle optimization calculation, slip ratio and coincidence degree. In the early stage of design and development, optimize the modification coefficient and planetary gear tooth profile overlap interference to improve gearbox efficiency, noise and life.

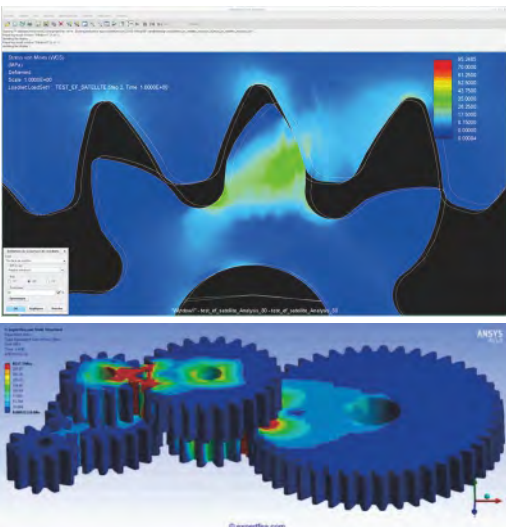
动态仿真和有限元分析 | DYNAMIC SIMULATION AND FINITE ELEMENT ANALYSIS

在齿轮和齿轮箱设计阶段, 采用运动学仿真对齿轮副运动的平稳性和局部干涉进行验证。同时采用有限元分析技术, 对弧齿、锥齿轮的齿面强度进行分析校核产品的可靠性。

In gear and gearbox design stage, dynamic simulation is used to verify the smoothness and local interference of gear pair movement. At the same time, finite element analysis technology is used to analyze tooth surface strength of spiral teeth and bevel gears and check product reliability.

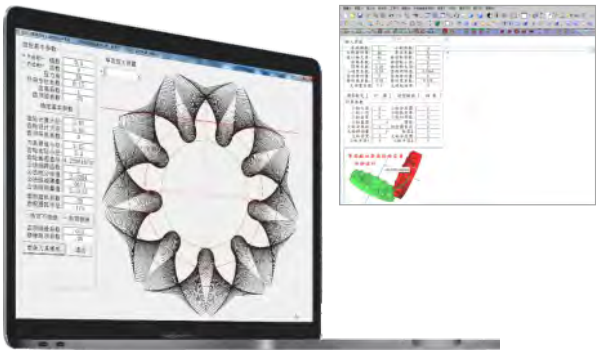


平行轴内、外啮合圆柱齿轮副设计平台软件 2018SR330220
Design platform software for internal and external meshing cylindrical gear pairs in parallel shafts 2018SR330220



模具开发
Mold Development

齿轮模具设计 | GEAR MOLD DESIGN



齿轮模具型腔齿形参数设计软件 2018SR627905
Gear mold cavity profile parameter design software 2018SR627905

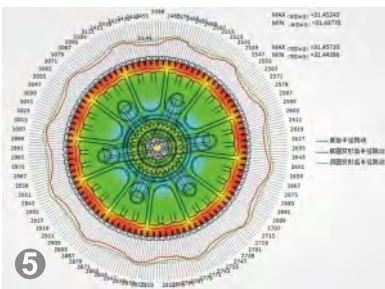
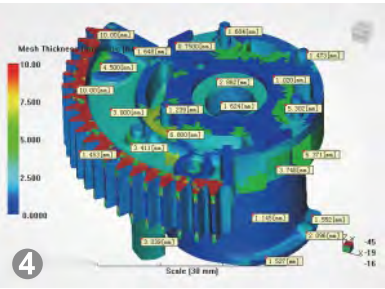
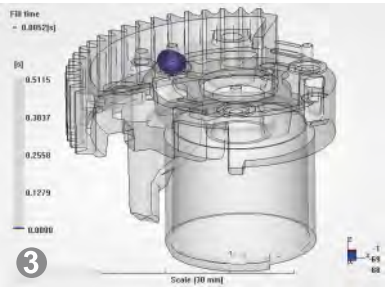
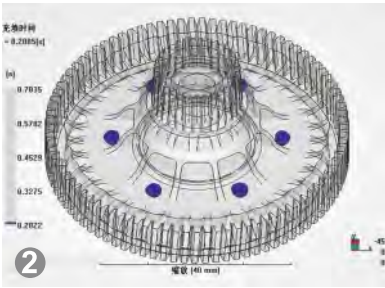
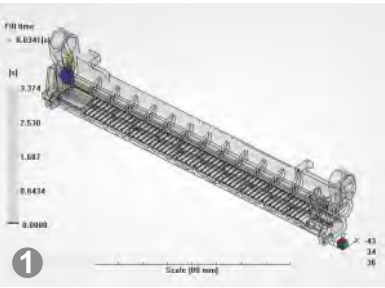
与传统的模具设计不同，齿轮的齿厚、模数、压力角都需要结合经验数据修形，不能按收缩率直接加工，我们的优势是：根据公司设计数据自主开发了齿轮模具的型腔参数计算软件，这个软件可以直接生成齿轮参数及轮廓，用于齿轮修形、提高齿形精度。

Different from traditional mold design, the gear tooth thickness, modulus, and pressure angle need to be modified with empirical data and cannot be processed directly according to material shrinkage rate. Our advantage: the cavity parameters design software of gear molds is independently developed according to our company's design data, and the software can directly generate gear parameters and contours for gear modification and improve tooth profile precision.

模流分析 | MOLD FLOW ANALYSIS

- 模流分析经验的材料研究生从事模流分析工作；
- 可以预测产品的变形、缩水、缺胶、困气等缺陷，给出对应方案；
- 可用于比较不同的设计方案，选择比较好的方案；
- 优化成型工艺参数，提高试模效率。

- Materials postgraduates with mold flow analysis experience are engaged in mold flow analysis.
- Can predict product deformation, shrinkage, lack of glue, air trap, etc. and provide corresponding solutions.
- Can compare different design schemes and choose a right scheme.
- Can optimize mold processing parameters and improve mold tryout efficiency.



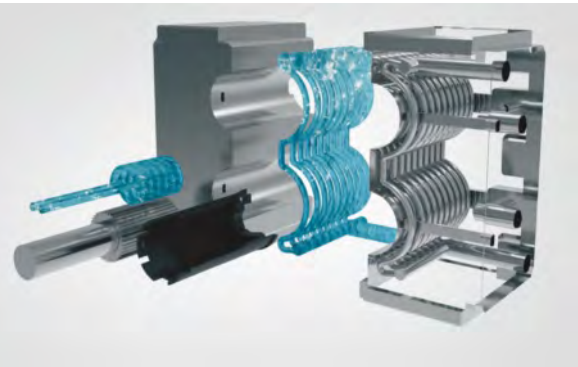
- ① 翘曲分析
Warpage Analysis
- ② 充填分析
Filling Analysis
- ③ 熔接线分析
Weld Line Analysis
- ④ 厚度分析
Thickness Analysis
- ⑤ 齿轮变形分析
Gear Deformation Analysis

齿轮技术
Gear Technology

3D打印冷却技术 | 3D PRINTING COOLING TECHNOLOGY

传统冷却水路采用直通式，水路的设计受到加工方式的限制，冷却不均匀、冷却效果差。兆威采用3D激光打印技术，根据产品结构，可以加工出复杂的异形冷却水路，提高了产品的冷却效果，使产品的品质更稳定，生产效率更高。

Traditional cooling water circuit adopts straight-through type, but is limited by processing method, with uneven cooling effect and poor result. ZHAOWEI adopts 3D laser printing technology, which can process complex special-shaped cooling water channels according to product structure, to improve cooling effect and achieve better product quality stability and higher production efficiency.



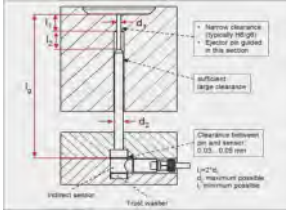
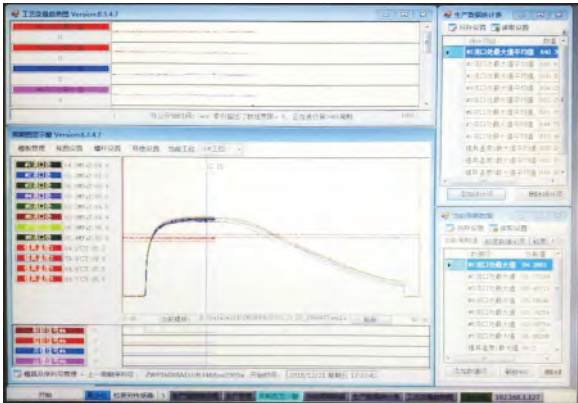
型腔压力技术 | CAVITY PRESSURE TECHNOLOGY

型腔压力技术是在模具型腔内安装压力传感器，通过压力曲线可以检测注塑成型过程中型腔压力的变化，准确地反映出注塑工艺的情况，监控产品质量。

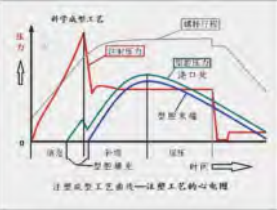
- 型腔压力技术，可快速实现型腔压力曲线与模板的匹配，提高品质一致性；
- 通过对型腔压力峰值和曲线的综合分析进行监控，来判别制品的品质状况，结合伺服机械手实现对成型不良品的自动分隔。

Cavity pressure technology is to install a pressure sensor in mold cavity, pressure curve can reflect cavity pressure change during injection process and monitor product quality.

- Cavity pressure technology can quickly match cavity pressure curve with the template to improve quality consistency.
- By comprehensive analysis of mold cavity peak pressure and pressure curve, can judge product quality, and combine with servo manipulator to automatically separate defective products.



型腔压力传感器安装图
Installation Drawing of Cavity
Pressure Sensor



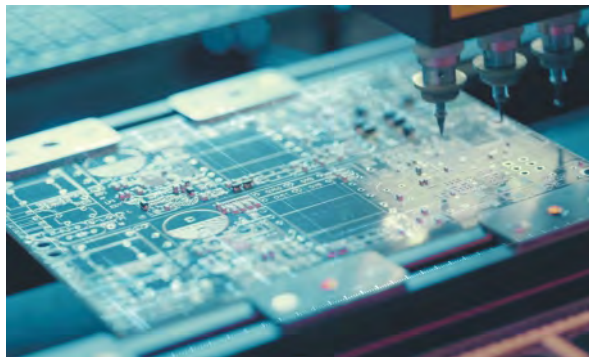
型腔压力加测图
Cavity Pressure Testing Diagram

微型电控模块开发 Micro Motor Control Module Development

聚焦微型电控, 模块化定制开发
Focus On Micro Motor Control and Modular
Customized Development

兆威专注微型驱动领域, 在微型电机控制方面拥有完整研发体系, 具备多个领域丰富开发和制造经验。

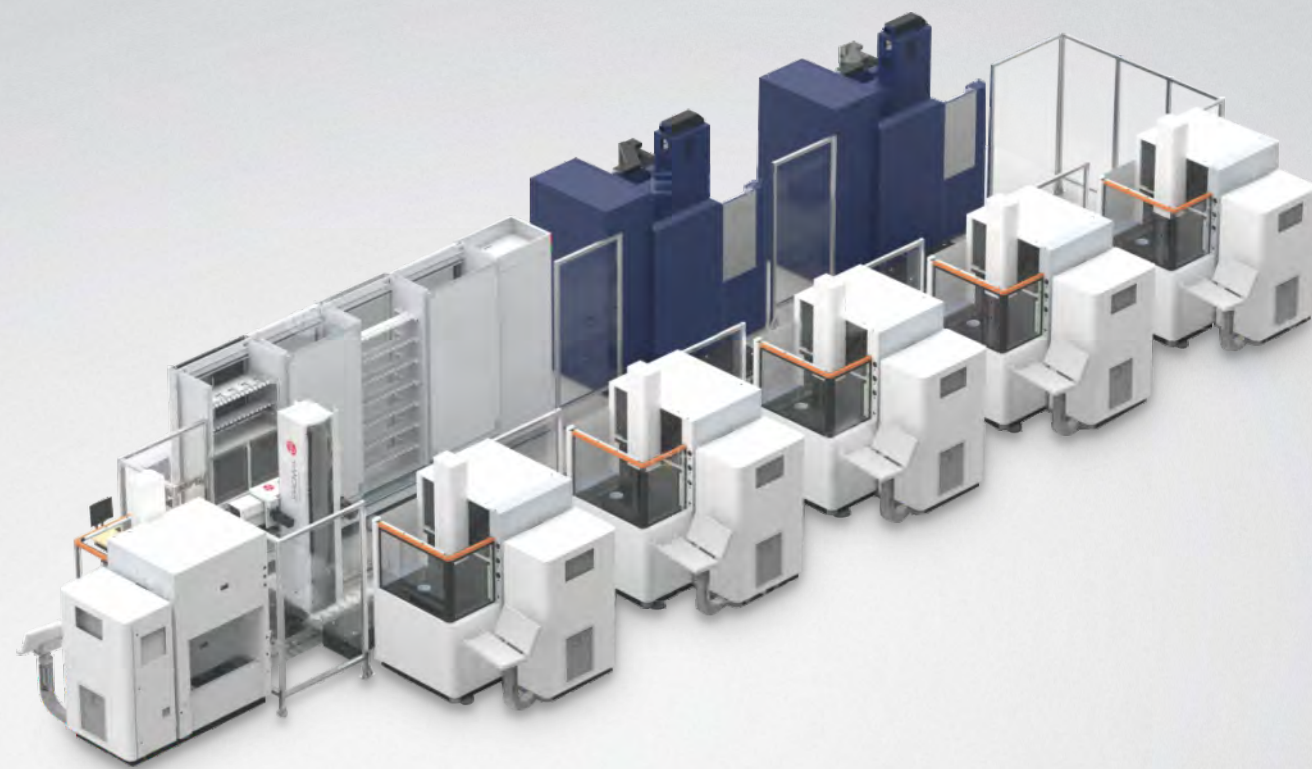
ZHAOWEI focuses on micro-drives and has a complete R&D system in micro motor control, as well as extensive development and manufacturing experience in a variety of fields.



■ 软件开发平台
Software Development Platform

■ 完善测试标准
Complete Testing Standard

■ 硬件设计平台
Hardware Design Platform



精密加工与品质控制 Fine Machining & Quality Control

深圳市兆威机电股份有限公司拥有瑞士AGIE线切割机、AGIE火花机、MAKINO、HAMAI等众多加工设备和德国蔡司三坐标、DIATEST内齿测量仪、冷热冲击试验箱、雨淋试验箱、步入式恒温恒湿室、程式恒温恒湿箱、齿轮双面啮合仪等质检设备, ZHAOWEI专注于微型齿轮和齿轮箱精密模具设计加工、齿轮检测和传动系统测试等, 为客户提供精度高、质量优的产品。

ZHAOWEI has many processing equipments such as Switzerland AGIE wire cutting machine, AGIE EDM machine, MAKINO, HAMAI, etc. and Germany ZEISS three-coordinate, DIATEST internal tooth measuring instrument, cold and thermal shock testing chamber, rain and spray testing chamber, step in-class constant temperature and humidity chamber, programmable constant temperature and humidity chamber, gear double-sided meshing instrument and other quality inspection equipments. ZHAOWEI specializes in micro gear and gearbox designing and processing, gear detection and transmission system testing, and providing precision and high quality products to customers.

精密加工
Fine Machining

精加工中心 | FINE MACHINING CENTER



兆威精密加工中心拥有多种瑞士阿奇夏米尔加工设备，线切割机 CUT 1000 OilTech、CUT2000、CUT E 600、VP2、VP3；HMS500；安田YASDA 640V等加工设备。自动化精加工，使用EMAN智能管理系统及iMould自动化加工系统，为加工精度提供了保障。

ZHAOWEI fine machining center has a variety of precise machining devices, including Switzerland Agie Charmilles wire cutting machines: CUT 1000 OilTech, CUT 2000, CUT E 600, VP2, VP3; HMS500 and YASDA 640V. Automated finishing combined with the EMAN intelligent management system and the iMould automated processing system provides a guarantee for machining accuracy.

火花机自动化加工线
EDM Automated Machining Line

8台GF FORM P350火花机加1条自动化线轨机器人组成的自动化加工项目

Including eight GF FORM P350 EDM and one automated linear slider robot, forms an automated machining line



电极自动化加工单元
Electrode Automated Machining Unit

2台HSM500CNC和1台WORKPARTNER1
电极库组成自动加工项目

Including two HSM500 CNC and one WORKPARTNER1
electrode cabinet, forms an automated electrode
machining center

加工设备 | MACHINING EQUIPMENT



德国罗德施加工中心
Roders CNC (Germany)



日本安田超高速加工中心
YASDA Super High Speed CNC (Japan)



日本HAMAI滚齿机
HAMAI Gear Hobbing Machine (Japan)



瑞士阿奇火花机FORM P350
AGIE EDM FORM P350 (Switzerland)



日本牧野MAKINO火花机
MAKINO EDM (Japan)



瑞士阿奇夏米尔线切割-CUT2000
Agie Charmilles CUT 2000 (Switzerland)



瑞士阿奇线切割
AGIE WEDM (Switzerland)



瑞士米克朗CNC-HSM500
Mikron HSM 500 (Switzerland)



美国哈挺高精度CNC车削中心
Hardinge High-precision CNC (United States)



日本牧野 MAKINO V33 加工中心
MAKINO V33 CNC (Japan)



瑞士加工中心-MILL P500
MILL P500 (Switzerland)



北京五轴加工中心-精雕JDGR300
JDGR300 (China)

精密加工
Fine Machining

日本HAMAI滚齿机 | JAPAN HAMAI GEAR HOBBING MACHINE

日本HAMAI哈迈为专业小型滚齿机专业制造商,在半导体材料加工,齿轮加工及测量,金属模具制作等领域提供专业化、个性化的加工设备。60SP-ELT采用卧式滚齿的特点,切削粉末垂直排下后直接排除机外,从而大大降低了由于粉屑产生的故障,滚刀轴的转速为5000RPM,缩短加工时间,提高加工效率。可加工:直齿、斜齿、圆柱齿轮、蜗轮、链轮等。

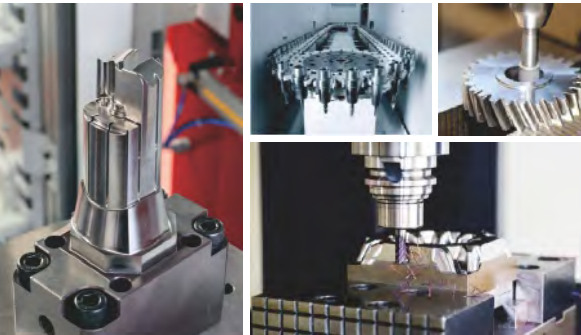
HAMAI is a professional manufacturer of small gear hobbing machines, providing professional and personalized processing machines in the fields of semiconductor material processing, gear processing and measurement, and metal mold making. The 60SP-ELT adopts horizontal gear hobbing, the cutting powder can be directly eliminated from the machine, which can greatly reduce the faults caused by powder chips. The rotation of the hob shaft is 5,000RPM, which can shorten processing time and improve processing efficiency. Can process: straight gears, helical gears, cylindrical gears, worm gears, sprockets, etc.



德国罗德斯加工中心 | GERMAN RODERS MACHINING CENTER

德国Rodgers(罗德斯)拥有200年模具制造经验;罗德斯在高速加工领域的领导地位,罗德斯高速加工中心除了加工速度快外,工件光洁度及精度都达到了世界水平。德国Rodgers机床一直以“高速加工”著称,其定位于高速,特别适合于深腔加工、清角加工、精加工等高难度工序,RXP系列机床应用了油压导轨,直线电机等技术,各项性能指标在高速铣领域遥遥领先。

Rodgers has 200 years mold manufacturing experience, and is in a leading position in the field of high-speed machining. In addition to fast processing speed, Rodgers high-speed machining center has reached world level in the finish and accuracy of workpiece. Rodgers machines have always been known for High-speed Machining, and are particularly suitable for deep cavity machining, corner machining, fine machining and other difficult processes. The RXP series machines apply hydraulic guide rails, linear motors and other technologies, their performance indicators are far ahead in high-speed milling field.



瑞士阿奇夏米尔线切割机 | SWITZERLAND AGIECHARMILLES CUT 1000 OILTECH

阿奇夏米尔是欧洲精密加工的参考标准,在加工设备领域属于市场的领导者。瑞士阿奇夏米尔线切割-CUT1000拥有自动换丝(AWC)技术使Schawnog能在慢走丝线切割设备上预安装各种不同直径的电极丝(0.011mm),并将根据切割所需轮廓精度选择电极丝。IVU能够对孔定中、角部探测、两个表面的内外定中以及孔间距、定中和尺寸这类操作获的基准。

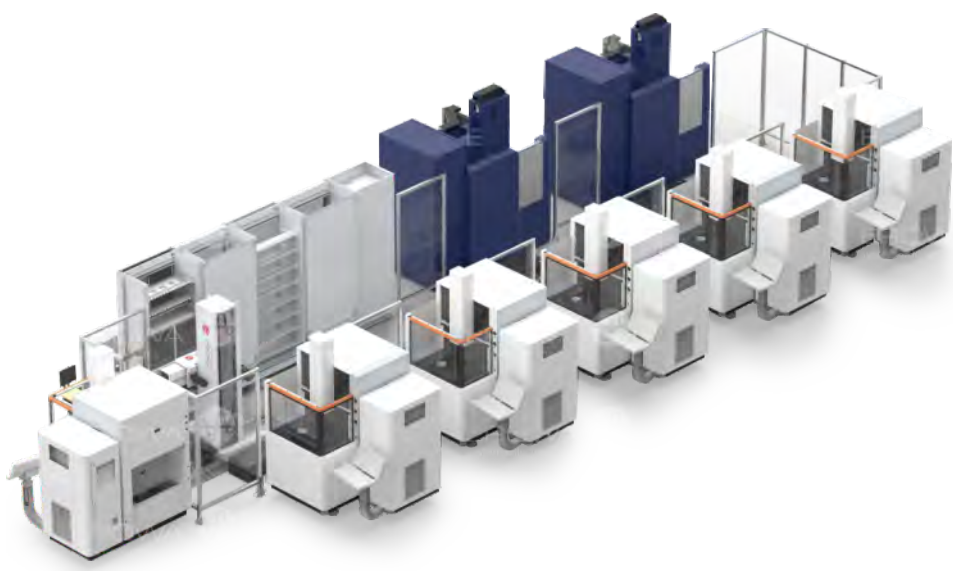
AgieCharmilles is the reference standard for precision machining in Europe, and market leader in the field of processing equipment. The Switzerland AgieCharmilles CUT 1000 OilTech has automatic wire change (AWC) technology and allows Schawnog to pre-install various electrode wires of different diameters (such as 0.011mm) in it, and will select the electrode wires according to the required contour accuracy for cutting. An IVU system makes it possible to any reference on the workpiece for hole centering, corner detection, internal or external centering between two faces, distance between holes, centering, dimensions, it can obtain reliable processing results.



自动化精密加工系统 | AUTOMATED FINE MACHINING SYSTEMS

为实现公司自动化精加工,公司投入EMAN智能管理系统及iMould自动化加工系统。EMAN对模具从建立项目、设计、采购、工艺、计划、加工、品质、试模的全程管理,建立模具标准化。iMould系统实现CNC钢件加工自动线、CNC电极加工自动线、EDM加工自动线等,从而实现大部份模具的全自动化加工。

To realize automatic fine machining, ZHAOWEI adopts EMAN intelligent management system and iMould automated machining system. The EMAN system manages the entire process, including project set-up, mold design, material purchasing, process confirmation, production plan, machining, quality check, mold trial, and formed a standard process. The iMould system realizes automated processing lines for CNC steel parts, CNC electrodes and EDMs, so as to realize fully automated processing of most molds.



品质控制
Quality Control

高精度检测设备 | HIGH PRECISION TESTING EQUIPMENT

兆威拥有德国蔡司CT、德国蔡司三坐标、WERTH三次元、日本大阪齿轮检测中心、日本大阪齿轮啮合仪、OGP平面测试仪、瑞士热重分析仪(TGA)等多台高精度检测设备,为品质提供了保障。

ZHAOWEI has many high-precision measurement devices such as German Zeiss coordinate measuring machine, WERTH CMM, Japanese Osaka gear measuring center, Osaka gear meshing device, American OGP plane detector, Switzerland Thermal Gravimetric Analyzer (TGA) etc., which improves the product quality.



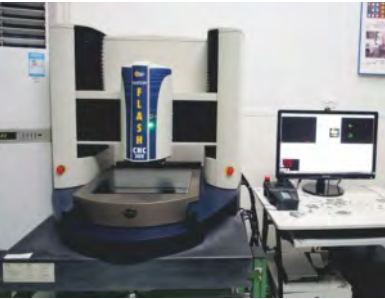
德国蔡司三坐标
Zeiss CMM (Germany)



日本大阪齿轮检测中心
Osaka Gear Measuring Center (Japan)



日本大阪齿轮啮合仪
Osaka Gear Meshing Device (Japan)



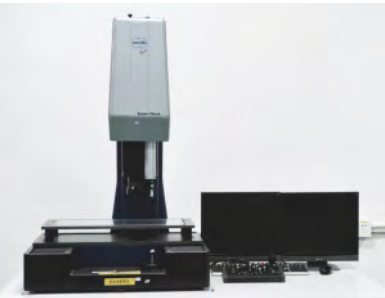
美国OGP影像仪
OGP Projector (United States)



海克斯康影像仪
HEAXGON Projector



德国Mahr圆柱度测量仪
Cylindricity Measuring Machine (Germany)



德国WEITH三次元
WEITH CMM (Germany)



瑞士梅特勒-托利多TGA热重分析仪
METTLER TOLEDO TGA (Switzerland)



RoHS分析仪
RoHS Analyzer

德国蔡司CT | GERMAN ZEISS METROTOM

蔡司METROTOM是基于CT传感器的坐标测量机,其融合X射线计算机断层扫描(CT)及三坐标测量机(CMM)的功能优势。工业CT定位于无损探伤,主要应用于内部缺陷、气孔、裂纹、杂质及三维装配结构等,更重要用于无损几何尺寸测量、色差数模比对、无损内部缺陷及装配结构分析,其权威的可追溯性计量性能、核心的坐标测量机高精度部件、CAA误差补偿、自校准装置及智能测量平台等技术优势。



ZEISS METROTOM is a coordinate measuring machine based on CT sensors, and combines functional advantages of X-ray, computed tomography (CT), and coordinate measuring machine (CMM). Industrial CT is positioned for non-destructive inspection, mainly used for internal defects, pores, cracks, impurities and 3D assembly structures, etc., and more importantly for non-destructive geometric measurement, color difference digital-analog comparison, non-destructive internal defects and assembly structure analysis. It has technical advantages, including its authoritative traceability measurement performance, core high-precision components of coordinate measuring machine, CAA error compensation, self-calibration device, intelligent measurement platform, etc.



KLINGELNBERG 齿轮检测中心 | KLINGELNBERG GEAR MEASURING CENTER

KLINGELNBERG (克林贝格) 全自动精密测量中心,用于检查圆柱齿轮齿形、切割齿和剃齿刀、蜗轮蜗杆、滚刀、锥齿轮,以及轴对称工件的尺寸、形状和位置偏差,以及曲线和凸轮轴测量和转子测量。采用四轴联动测量技术,适用于各个形状的测量。全自动技术一次装夹中完成以下所有测量:齿轮测量、坐标点测量、形状和位置测量、粗糙度测量、轮廓测量和光学测量。

KLINGELNBERG is a fully automatic precision measuring center, used to check cylindrical gear, shaved gear and shaving cutter, worm and gear, hob, and bevel gear. Also it can check general dimension, shape, and positional deviation of axially symmetrical workpiece, cam and camshaft measuring and rotor measuring. It adopts four-axis linkage measuring technology, which is suitable for various shape measuring. With fully automatic technology, KLINGELNBERG can complete various measuring tasks, including gear, coordinate point, shape and position, roughness, profile and optical measuring in a single clamping.



品质控制 Quality Control

丹麦B&K PULSE噪音与振动分析系统 | DENMARK B&K PULSE NOISE AND VIBRATION ANALYSIS SYSTEM

PULSE系统是由软件跟硬件两部分组成的噪音及振动的多功能分析仪。可实时、FFT (频谱分析, 或者说傅里叶分析)、CPB (三分之一倍频程分析)、Overall (噪音总值) 等分析。同时含有数据采集、自动校准、测量、实时多分析、后处理及报告生成。

PULSE system is a multi-function analyzer for noise and vibration consisting of software and hardware. Real-time FFT (spectral analysis, or Fourier analysis), CPB (one-third octave analysis), and Overall (noise total) analysis are available. At the same time, data acquisition, automatic calibration, measurement, real-time multiple analysis and post-processing report generation are available.



PULSE Labshop

分析功能: 噪音的声压级总值、固有频率、振动加速度等; 对噪音进行频谱分析、FFT随时间变化的云图显示、噪音总值对时间变化、CPB合成、信号相关等。

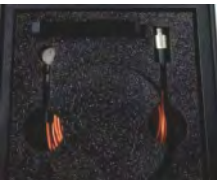
Analysis functions: total sound pressure level of noise, natural frequency, vibration acceleration, etc.; Spectrum analysis of noise, cloud image display with FFT over time, total noise versus time, CPB synthesis, signal correlation, etc.



传声器 (采集噪音信号)
Microphone (Collecting noise signals)



采集三维振动信号
Collecting three-dimensional vibration signals



加速度计 (采集振动信号)
Accelerometer (Collecting vibration signals)

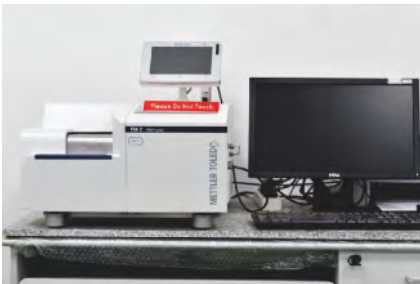


传声器校准器
Microphone calibrator

瑞士梅特勒-托利多TGA热重分析仪 | SWITZERLAND METTLER TOLEDO TGA THERMO GRAVIMETRIC ANALYZER

热重分析仪是一种利用热重法检测物质温度与质量变化关系的仪器。在加热过程(塑料800°C、金属粉末1200°C)中有升华、汽化、分解出气体或失去结晶水时, 被测的物件质量就会发生变化, 这时热重曲线就有所下降。通过分析热重曲线, 就可以知道被测物质在多少度时产生变化, 并且根据失重量可以计算失去了多少物质, 从而得到材料物质的成份。主要用于聚合物(热塑性塑料、热固性树脂、弹性体、粘合剂和复合材料)及金属粉末冶金的材料测试。

Thermo Gravimetric Analyzer is an equipment uses thermal analysis to measure changes in temperature and mass of substance. In the heating process, there is sublimation, vaporization, decomposition of gas or loss of crystalline water (plastic at 800°C, metal powder at 1,200°C), the mass of the object will change, and the thermogravimetric curve will decrease. By analyzing the thermogravimetric curve, we can know at what temperature when the measured substance changes, and based on the lost weight, and it is possible to calculate how much material is lost and know material composition. The analyzer is mainly used for testing polymers (thermoplastic, thermosetting resin, elastomer, adhesive and composite) and metal powder metallurgy materials.



德国Mahr圆柱度测量仪 | GERMAN MAHR CYLINDRICITY MEASURING MACHINE

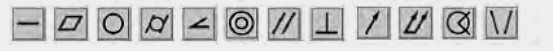
MMQ 150 是一款可自动测量形状和位置公差 的测量仪器, 可在生产或测量室使用, 测量精确、针对形位公差进行了优化, 可以减少不合格零件的数量。

Mahr MMQ150 is an automatic shape and position tolerance measuring machine, can be used in production or measuring room. With its precise measuring ability and optimized geometric tolerance, MMQ150 can reduce defective parts.



可测量参数:

圆度、直线度、平面度(圆形扫描评定)、平行度、锥度、同心度、同轴度、跳动、圆柱度、斜度、垂直度(以圆形扫描面为基准)、角度、扇形区间上的圆度、平面度、径向跳动-区间上的直线度评定。



径向跳动误差: 0.0006
径向跳动误差: 0.0003
轴向跳动误差: 0.0006
圆度误差: 0.0003



Radial runout deviation ($\mu m + \mu m/mm$ measuring height): 0.0006
Radial runout deviation ($\mu m + \mu m/mm$ measuring height): 0.0003
Axial runout deviation ($\mu m + \mu m/mm$ measuring radius): 0.0006
Roundness deviation ($\mu m + \mu m/mm$ measuring radius): 0.0003

品质控制
Quality Control

瑞士梅特勒-库仑法卡尔费休水分仪 | SWITZERLAND METTLER TOLEDO KARL FISCHER TITRATOR

采用I2、SO2、吡啶、无水CH3OH(含水量在0.05%以下) 配制试剂，测定出试剂的水当量，在试剂与样品中的水进行反应后，通过计算试剂消耗量而计算出样品中水含量，国际标准化组织把这个方法定为微量量水分国际标准，我们国家也把这个方法定为国家标准微量量水分。

卡尔费休水分测定法，已被很多国际标准，如ISO，ASTM，DIN，BS，和JIS等公认为准确性最高的方法。

- 1.应用范围广泛，可适用多种有机和无机物的水分测定。
- 2.可测量的样品含水量:1PPM-5%
- 3.可选择使用有隔膜或无隔膜的电解电极。

Prepare a reagent with I2, SO2, anhydrous CH3OH (water content below 0.05%), and measure its water equivalent. After reagent reacts with water contained in the sample, measure consumption of reagent then calculate water content in the sample accordingly. The International Organization for Standardization sets this method as the international standard for measuring trace moisture. The Karl Fischer moisture determination method has been recognized as the most accurate method by many international standards, such as ISO, ASTM, DIN, BS, and JIS.

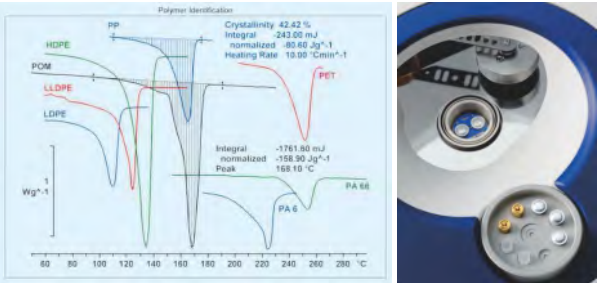
- 1. Wide range of applications, suitable for moisture determination of various organic and inorganic substances.
- 2. Measurable sample water content: 1PPM-5%
- 3. Can choose electrolytic electrodes with or without diaphragm.



瑞士梅特勒-差示扫描量热仪 | SWITZERLAND METTLER TOLEDO DIFFERENTIAL SCANNING CALORIMETER

差示扫描量热法DSC一种热分析法。在程序控制温度下，测量材料和参比物的功率差与温度的关系。差示扫描量热仪记录到的曲线称DSC曲线，它以样品吸热或放热的速率，即热流率dH/dt(单位毫焦/秒)为纵坐标，以温度T或时间t为横坐标，可以测量多种热力学和动力学参数，例如比热容、反应热、转变热、相图、反应速率、结晶速率、高聚物结晶度、样品纯度等。该法使用温度范围宽(-175~725℃)、分辨率高、试样用量少。适用于无机物、有机化合物及药物分析。提供物理、化学变化过程中有关的吸热、放热、热熔变化等定量或者定性的信息。

Differential Scanning Calorimetry (DSC) is a thermal analysis method, it is to measure the change of the difference in the heat flow rate to the sample and to a reference sample while they are subjected to a controlled temperature program. The test result of a DSC experiment is called DSC curve, means heat flux versus temperature or versus time. DSC instrument can be used to measure various thermodynamic and kinetic parameters, such as specific heat capacity, reaction heat, transition heat, phase diagram, reaction rate, crystallization rate, polymer crystallinity, sample purity, etc. The method can be used with wide temperature range (-175~725℃), with high resolution and less sample consumption. It is suitable for analysis of inorganic substances, organic compounds and drugs, can provide quantitative or qualitative information about endothermic, exothermic, and hot melt changes during physical and chemical changes.



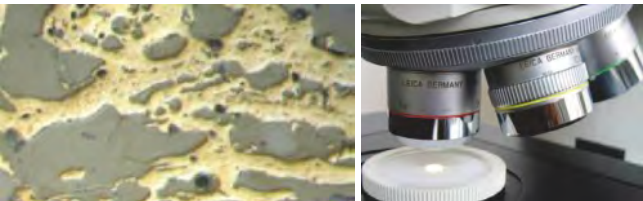
不同材料的熔融峰，峰的大小和在温度轴上的位置明显不同。PP和POM的例子表明，鉴定既取决于熔点，又取决于熔化的焓（压力与体积的乘积,单位是焦耳）



德国徕卡 (Leica) 金相显微镜 | GERMAN LEICA MICROSCOPE

徕卡Leica DM2700 M 金相显微镜由高质量的徕卡光学元件以及先进的通用白光 LED 照明组成。徕卡 DM2700 M 能够装配先进的配件，例如放大倍数从5x到100x、具有22mm视场、提供平像场和大范围工作距离的 N PLAN 消色差物镜系列。可以对金属材料的金相—金属材料的排布，塑胶材料的洁净度—塑胶材料的颗粒大小及排布进行分析。

Leica DM2700 M microscope combines high-quality Leica optical elements with advanced LED illumination. It is an ideal inspection tool for all kinds of routine inspection tasks in metallography, earth science, forensic investigation, and materials quality control and research. The Leica DM2700 M can be equipped with advanced accessories, e.g. with an N PLAN achromatic objective series with magnifications from 5x to 100x, a field of view of 22 mm, a flattened image field, and large working distances. It can be used to analyze metallography of metal materials—arrangement of metal materials, cleanliness of plastic materials—particle size and arrangement of plastic materials.



轮廓度测试仪 | PROFILE MEASURING INSTRUMENT

齿轮及其外形测量直接驱动C轴的高精度三维矢量扫描传感器保证了精度及效率。全自动检测项：- 直齿齿轮及斜齿圆柱齿轮- 弧齿锥齿轮及准双曲面锥齿轮- 冠轮- 圆柱蜗杆- 锥形圆柱齿轮- 扇形齿轮- 齿轮滚刀- 剃齿刀- 插齿刀- 斜面体齿轮- 同步齿轮可以测量诸如直径、距离、跳动、同心度、平面度等参数。另外其他像圆度、圆柱度、同心度、角度等。

A high precision profile measuring instrument drives a 3D vector scanning sensor on C axis to measure gear and its shape, and ensures product precision and efficiency. This instrument can automatically measure spur gear, helical cylindrical gear, spiral bevel gear and hypoid bevel gear, crown gear, cylindrical worm, conical cylindrical gear, sector gear, gear hob, shaving cutter, gear shaper, beveloid gear and synchronous gear. It can measure parameters including diameter, distance, runout, concentricity and flatness, and also roundness, cylindricity, concentricity and angle.



品质控制 Quality Control

实验室设备 | LABORATORY EQUIPMENT



产品的可靠性及稳定是评价产品技术水平的综合指标。为了能够分析、评价、验证和提高产品的可靠性，了解总成及零部件在失效情况下而获得可靠数据。兆威建立了驱动模块实验室——拥有多功能震动仪、恒温恒湿箱、冷热冲击试验箱、淋雨试验箱、盐雾试验机、噪音室等多功能实验设备。

Product reliability and stability is a comprehensive indicator to evaluate its technical level. In order to analyze, evaluate, verify and improve product reliability, and get reliable data in failure conditions for assemblies and parts, ZHAOWEI established a drive module laboratory, with multifunctional laboratory equipment including 3D vibration testing device, constant temperature and humidity chamber, thermal shock chamber, rain test chamber, salt spray test chamber and noise test room.



生产实力

Production Capability

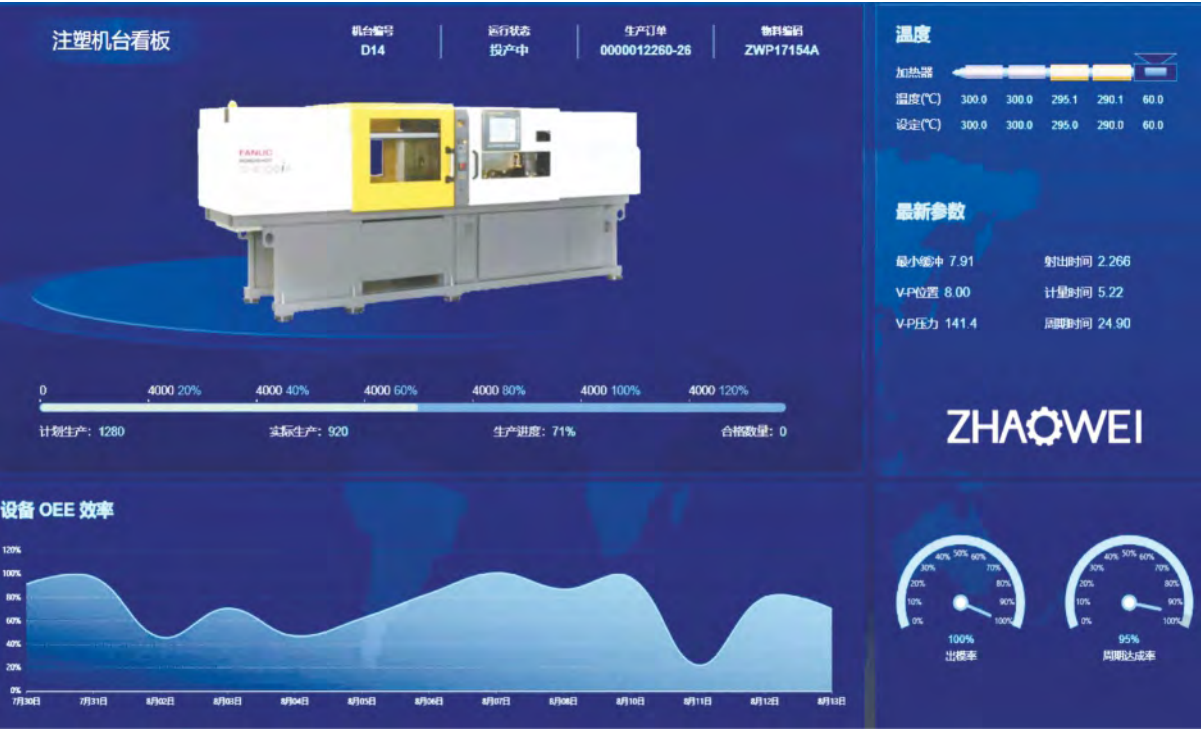
深圳市兆威机电股份有限公司引进自动化生产线，严格实施 IATF16949 (CN11/30730.01)、ISO14001 (U006616E0153R3M)、ISO9001:2015 (CN11/30731)、ISO13485 (CN18/4201) 体系标准，采用短线扁平化、注塑与组装自动化的生产模式，完整的PCBA生产线，缩短生产周期，交货快，实现共赢。

ZHAOWEI has designed and installed automatic production lines and strictly implemented IATF16949 (CN11/30730.01), ISO14001 (U006616E0153R3M), ISO9001:2015 (CN11/30731), ISO13485 (CN18/4201) system standards. By adopting production mode of short-term and flat management, automatic injection molding and assembling, complete PCBA production line, ZHAOWEI shortened production cycle and realized fast delivery, can achieve win-win situation.

MES系统
MES System

为了更好对生产现状及品质进行监管,引进了MES生产系统,MES系统可实现注塑工艺的远程监控、注塑工艺、品质监测的管理功能。

In order to better manage production status and monitor product quality, ZHAOWEI introduced MES system. MES system realized remote monitoring of injection molding process and technology, and product quality as well.



在产订单列表					
#	机台号	工单号	产品编码	工单数量	生产数量
30	B12	0000012562-9	19045-C04	16000	6346
31	B13	0000012474-21	19026-A01	300	364
32	B17	0000012015-1	16055-B01	334000	145640
33	B18	0000012517-27	M0016016-C03	7500	3701
34	B22	0000012543-2	ZW1-1057-A1	30000	59960
35	B23	0000012522-1	ZWP16214A	60000	65748
36	B24	0000012015-11	17003-B02	12000	7890
37	B28	0000011993-21	19111-C05	100000	27664
38	B29	0000012480-48	PD010010-A02	30000	2752
39	B30	0000012480-53	PD010010-C01	27000	18504
40	B31	0000012483-2	ZW1-0762-A1	150000	113838
41	B32	0000012432-40	19045-C01	163000	9736
42	B33	0000012517-6	16037-C15	21500	11464
43	B35	0000012452-34	18187-B01	276000	39960
44	B36	0000012480-40	PD010010-B01	24000	24960
45	B37	0000012480-30	19082-C04	46000	22132
46	B38	0000012070-2	16020-C03	55000	10312



粉末冶金生产线
Powder Metallurgy Production Lines

兆威粉末冶金生产线,拥有16台日本月村(YUEH TSUEN)粉末成形机,2条马勒(Mahler)氨氢烧结炉。通过多轴机械臂实现自动分拣、MES生产信息化管理系统逐步的导入打造一个可靠、全面的制造协同管理生产中心。

ZHAOWEI Powder Metallurgy Production Lines have 16 Japan YUEH TSUEN powder compacting presses and 2 Mahler sintering furnaces. With multi-axis manipulators, we realized automatic product sorting, and with MES system, we can gradually create a reliable and comprehensive collaborative production management center.



注塑零件生产线 Injection Molding Parts Production Lines

兆威零件生产中心拥有住友、FANUC、Sodick等日本进口注塑成型设备200余台。通过模腔压力技术配合机械手实现自动分拣的同时，导入MES生产信息化管理系统，打造一个可靠、全面的制造协同管理生产中心。

ZHAOWEI Parts Production Center has more than 200 injection molding machines imported from Japan, including Sumitomo, FANUC and Sodick. With cavity pressure technology and manipulators, we realized automatic product sorting, and with MES system, we can gradually create a reliable and comprehensive collaborative production management center.



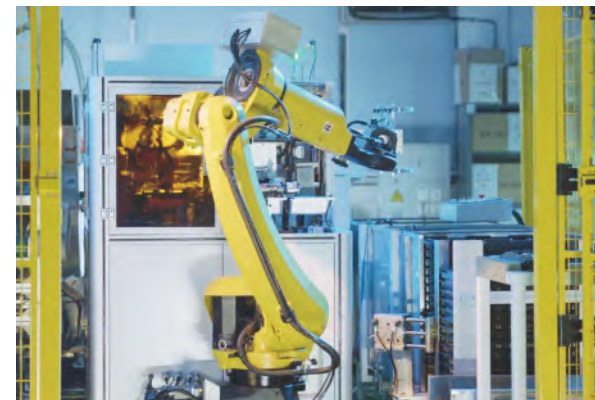
自动化零部件生产线 Automated Parts Production Lines

兆威所有成型注塑机都配备伺服机械手，提高生产效率的同时，也能提高产品品质的一致性。

- 采用伺服机械手可以实现产品的自动分拣；
- 多功能、多方位工序的自动化。

All injection molding machines of ZHAOWEI are equipped with servo manipulators, which improves production efficiency and quality consistency.

- Servo manipulators can achieve automatic product sorting.
- Had achieved multifunctional and multidirectional process automation.



组装生产线 Assembly Lines

兆威通过对装配生产线的研究，将生产、工业工程技术在生产中加以运用，从场地节约、流水线设计、布局、管理、日常保养维护到员工单位劳动时间的强度降低等方面对现有生产线进行了改善。

Through study, ZHAOWEI applied industrial engineering technology to assembly lines, and improved with space saving, assembly line design and layout, daily management and maintenance, and reduced labor intensity.



自动组装生产线 Automatic Assembly Lines

兆威所有成型注射机设备都配备伺服机械手，提高生产效率及生产及品质的一致性。自动生产线图像识别、机械手和EPSON系统通过图像识别、伺服机器人协作完成整个齿轮箱的组装。

All injection molding machines of ZHAOWEI are equipped with servo manipulators, which improves production efficiency and quality consistency. Automatic assembly lines can complete gearbox assembly process automatically, with cooperation of computer automatic image recognition, servo manipulators and EPSON system.



PCBA生产线 PCBA Production Lines

兆威机电拥有完整PCBA生产线,包括西门子SMT贴片线、DIP插件线、分板线、涂覆线,以及日联-X-Ray、FAI 自动首件检测仪等对应检测设备确保制造可靠性。

ZHAOWEI has a complete PCBA production line, including Siemens SMT line, DIP line, depaneling line, coating line, as well as inspection equipment such as X-Ray and FAI detectors. These corresponding testing equipment can ensure production quality.



全自动分板线
Fully-automatic Depaneling Line



SMT贴片线
SMT Line



DIP插件线
DIP Line



涂覆线
Coating Line



产品体系 PRODUCT SERIES

兆威导入传感器与控制器等智能硬件设计、制造。根据客户的需求,我们将微型传动及电子驱动单元整合,可让复杂的机电驱动系统智能化运转。

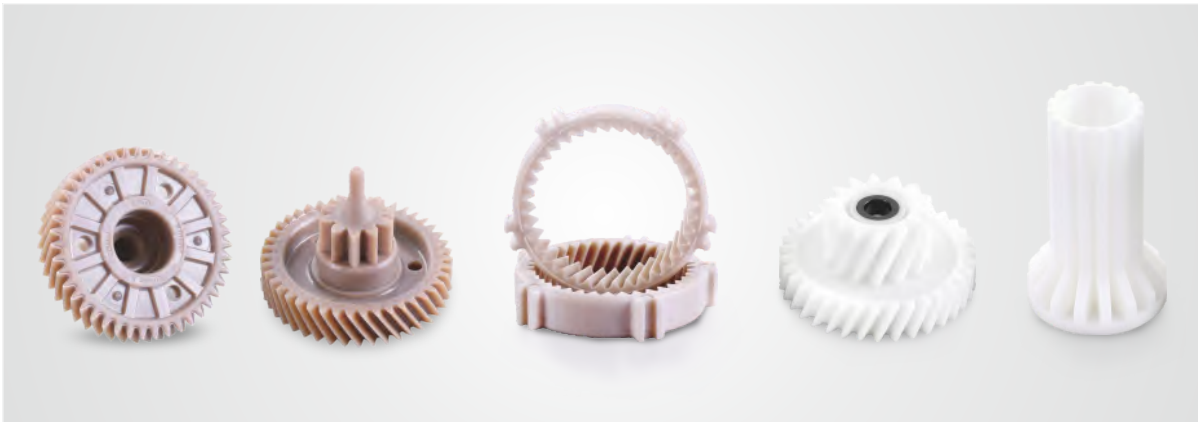
ZHAOWEI introduced design and production of intelligent hardware like sensors and controllers. According to customer needs, ZHAOWEI integrates micro-drive parts and electronic units and makes complex electromechanical system to operate intelligently.

齿轮零部件 Gear Parts

MIM齿轮 | METAL INJECTION MOLDING GEARS



塑料齿轮 | PLASTIC GEARS



粉末冶金齿轮 | POWDER METALLURGY GEARS



金属镶嵌件 | METAL INSERTS



机加工齿轮 | MACHINED GEARS



精密部件 | PRECISION PARTS

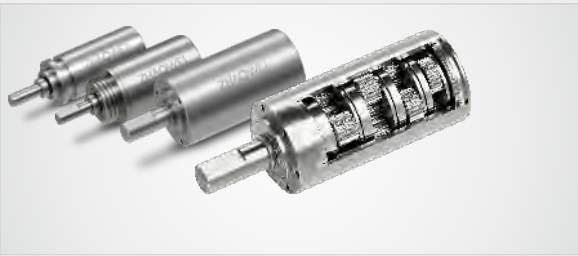


标准品
Standard product

兆威致力于为全球客户提供微型驱动解决方案。基于20余年的微型驱动领域经验, 实现了电控系统+传动系统+电机系统三位一体的研发体系, 其中齿轮箱系列有, 行星齿轮箱、直角电机齿轮箱、正传动齿轮箱和零背隙齿轮箱; 电机系列有无刷空心杯电机、步进电机、有刷直流电机; 电控系统有编码器、电控板等, 还可根据客户要求进行定制化规划, 实现大批量生产。

ZHAOWEI is dedicated to providing micro-drive solutions to global customers. With over 20 years of experience in the micro drive industry, ZHAOWEI offers integrated R&D capabilities in electronic control systems, transmission systems, and motor systems. The firm's product lines cover gearboxes, motors, and electronics controllers. The gearbox series includes planetary gearboxes, right-angle motor gearboxes, spur gearboxes, and zero-backlash gearboxes. The motor series features brushless coreless motors, stepper motors, and brushed DC motors. The control system includes encoders and control boards. We provide customized solutions tailored to specific client needs, with the capacity for large-scale production.

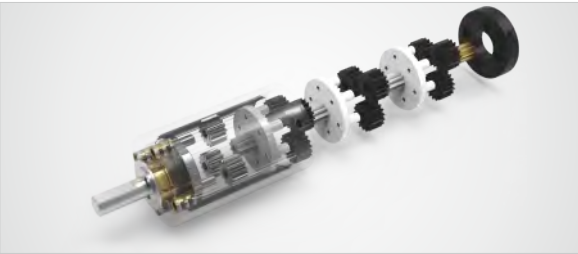
齿轮箱 | GEARBOX



SMD行星齿轮箱
SMD planetary gearbox



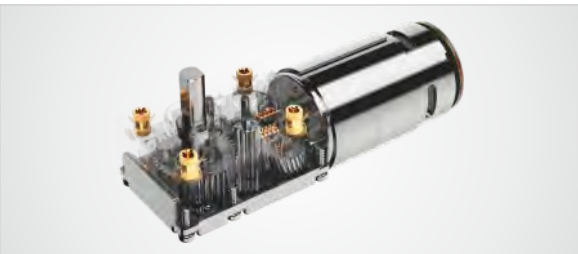
MD行星齿轮箱
MD planetary gearbox



PD行星齿轮箱
PD planetary gearbox



零背隙齿轮箱
Zero backlash gearbox



PL直角电机齿轮箱
PL right-angle gear motor



MC正传动减速箱
MC spur gearbox

电机 | ELECTRIC MACHINERY



MC无刷空心杯电机
MC coreless brushless motor

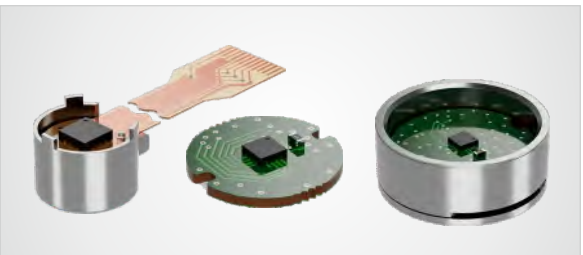


MP有刷直流电机
MP brushed DC motor



MC步进电机
MC stepper motor

电控系统 | ELECTRONIC CONTROL SYSTEM



CB-ST编码器
CB-ST encoder



电路板
PCB

兆威定制化微型驱动系统决方案

Zhaowei Customization Micro drive system solution

基于精密、微小、尖端的微型驱动工艺,我们致力为客户定制研发,提供从创意到大批量生产一站式微型驱动系统服务。

Based on precision, miniaturization, and cutting-edge micro drive technology, we are committed to customized research and development for customers, providing one-stop micro drive system services from creativity to mass production.



汽车电子
Automotive Electronics



智慧医疗
Smart healthcare



智能家居
Smart Home



消费电子
Consumer electronics



机器人
Robot



工业自动化
Industrial Automation

汽车驱动系统

Automotive Drive



汽车电动冰箱执行器 | AUTOMOBILE ELECTRIC REFRIGERATOR ACTUATOR

**产品说明：**

兆威机电采用蜗杆斜齿形式，通过电机模组与输出轴结合，实现车载冰箱的直线往复开合运动，且具有自锁功能，确保冰箱在坡道等倾斜状态下也能保持稳定。

Product Description:

ZHAOWEI employs a worm and helical gear structure, seamlessly integrating the motor module with the output shaft to precisely drive the linear reciprocating opening and closing motion of in-vehicle refrigerators. This design incorporates a self-locking feature, ensuring the refrigerator remains securely positioned even on inclined surfaces.

汽车屏类执行器解决方案 | SOLUTION FOR AUTOMOTIVE SCREEN ACTUATORS



产品说明：

兆威是汽车屏类执行器方案专家，拥有中控屏翻转、旋转、滑动、两度自由、遮阳屏翻转、后排扶手屏翻转等屏幕定制化方案经验，赋能车企智能场景化应用。

Product Description:

As an expert in automotive display actuator solutions, ZHAOWEI provides customized designs, including central control screen flipping, rotating, sliding, and dual-degree-of-freedom movement, sunshade screen flipping, rear armrest screen flipping. These solutions empower automotive manufacturers with intelligent, scenario-based applications.

尾门电机模组 | TAILGATE MOTOR MODULE



产品说明：

兆威汽车尾门电机模组，通过电机驱动行星传动减速，带动输出花键进行旋转运动为螺杆输出扭矩，推动尾门撑杆做升降运动。该产品可在有限空间内输出较大支撑力矩，广泛适用SUV、轿车等汽车尾门升降场景。

Product Description:

The Zhaowei car tailgate motor module drives planetary transmission deceleration through the motor, driving the output spline to rotate and output torque as a screw, and pushing the tailgate strut to move up and down. This product can output a large support torque in a limited space and is widely used in scenarios such as SUV and sedan tailgate lifting.

电子驻车执行器MGU | ELECTRONIC PARKING ACTUATOR MGU

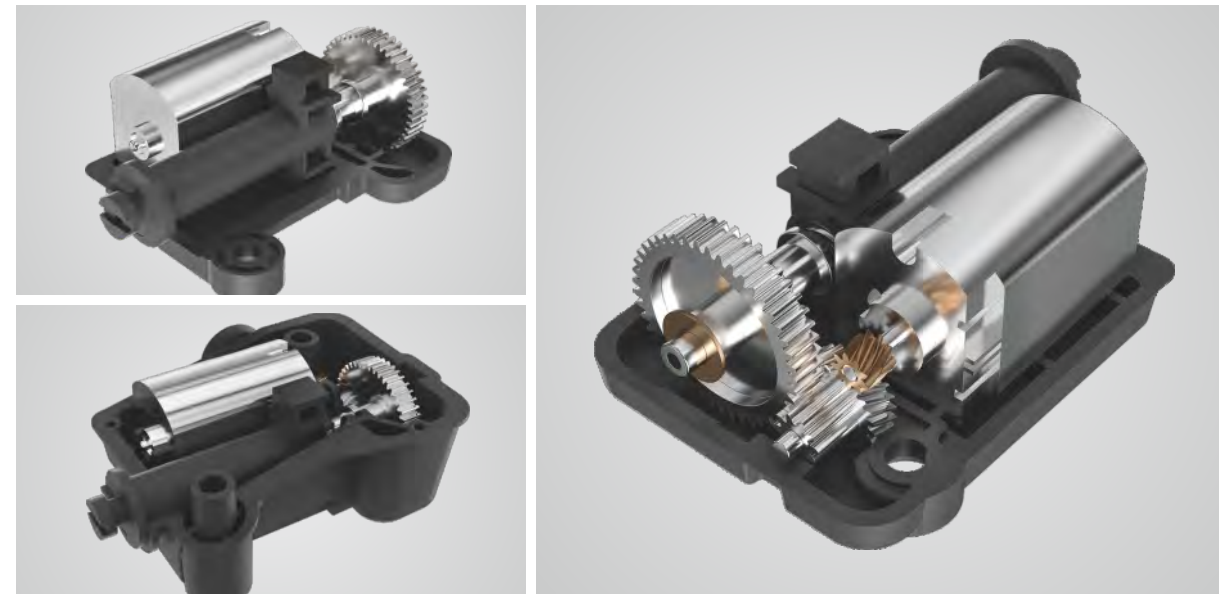
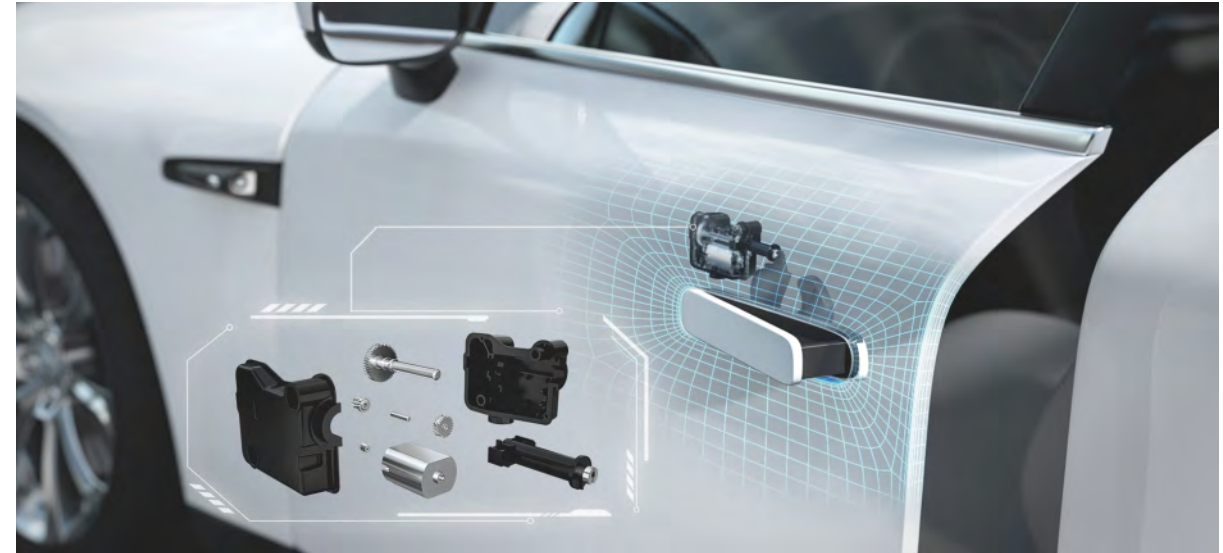
**产品说明：**

兆威电子驻车MGU，通过电机，输出转轴传递动力至卡钳中的螺杆螺套组件，螺杆螺套组件将转矩转变为线性动力来推动活塞，从而夹紧制动盘，实现驻车。

Product Description:

The Zhaowei Electronic Parking MGU transmits power to the screw sleeve assembly in the caliper through the output shaft of the motor. The screw sleeve assembly converts torque into linear power to push the piston, thereby clamping the brake disc and achieving parking.

隐藏门把手执行器 | FLUSH DOOR HANDLE ACTUATOR

**产品说明：**

兆威隐藏门把手执行器采用结构紧凑的微型驱动设计，能够在兼具小体积的同时，输出较大扭矩，实现车辆门把手伸缩功能。

Product Description:

The flush door handle actuator employs a compact micro-drive design, delivering high torque output despite its small size. This enables smooth sliding, popping, and retracting actions, ensuring reliable performance and maintaining the sleek aesthetics of the vehicle's flush door handles.

充电枪锁止执行器 | CHARGING GUN LOCK ACTUATOR



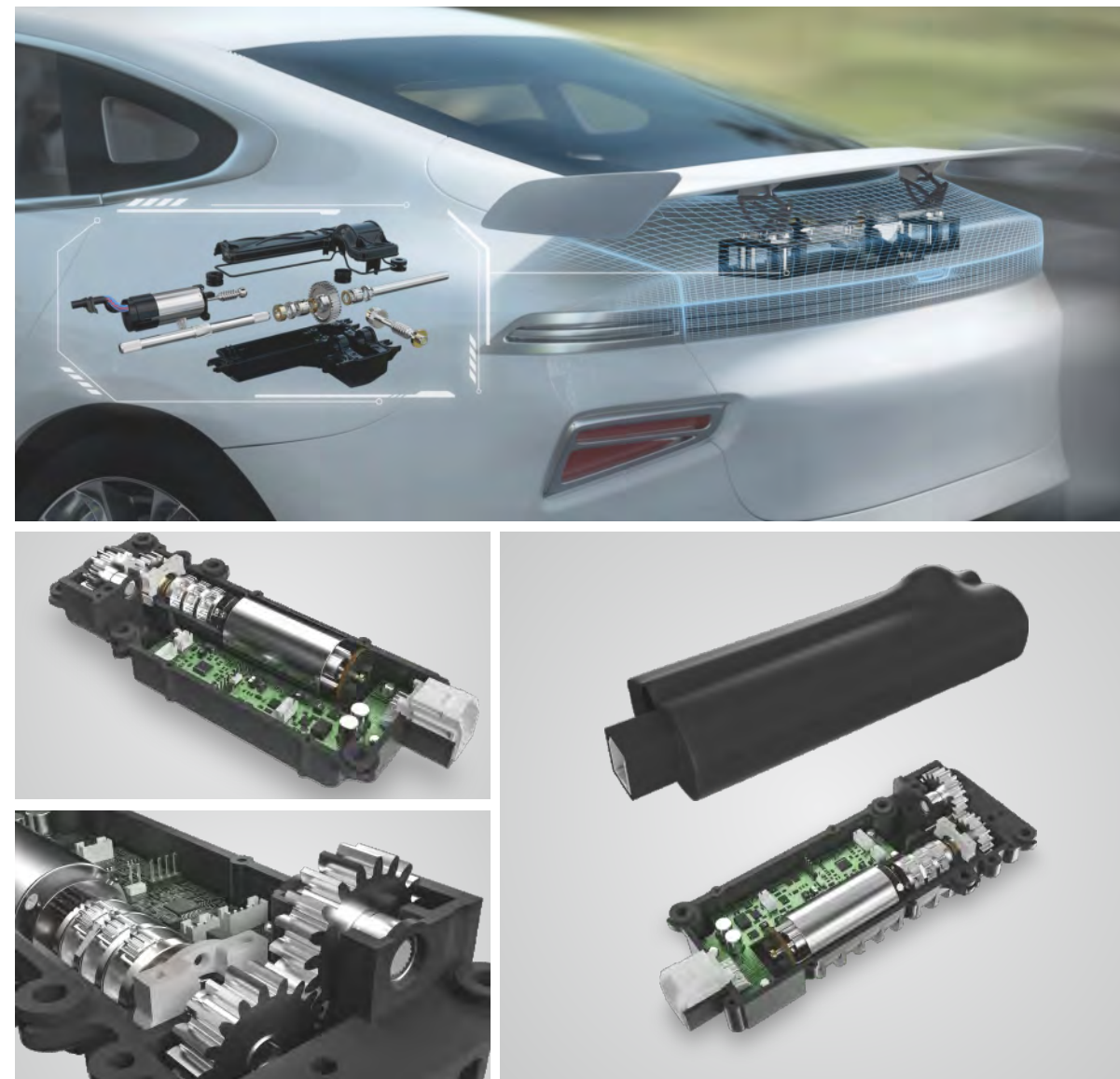
产品说明：

公司新能源充电枪锁止执行器，通过调整充电枪锁止齿轮箱模数和材料对环境的适应性性能，并通过巧妙的驱动结构，使充电枪正向运动时充电插头稳定保持在插座或固定座的扣位内，实现锁定功能。

Product Description:

The company's new energy charging gun locking actuator adjusts the adaptability of the charging gun locking gearbox module and material to the environment, and through a clever driving structure, stabilizes the charging plug in the socket or fixed seat when the charging gun moves forward, achieving the locking function.

汽车尾翼执行器 | ACTIVE REAR SPOILER LIFT ACTUATOR



产品说明：

兆威尾翼升降执行器，利用空间紧凑的蜗轮蜗杆传动，实现汽车尾翼不同挡位的升降调节，实现自锁及多级悬停。

Product Description:

The rear spoiler lift actuator utilizes a compact worm and gear transmission system to enable multi-level adjustment of the rear spoiler. It provides self-locking functionality and supports multiple hover positions for enhanced aerodynamic performance and vehicle stability.

两轮车ABS | TWO WHEELED VEHICLE ABS



产品说明：
兆威两轮刹车ABS,主要用于摩托车刹车系统之上,产品通过驱动马达带动齿轮箱转动,具有运行稳定、寿命长的特点。

Product Description:
Zhaowei two wheel brake ABS is mainly used in motorcycle brake systems. The product is driven by a motor to rotate the gearbox, and has the characteristics of stable operation and long service life.

热管理阀门 | THERMAL MANAGEMANT ACTUATOR



产品说明：
兆威热管理执行器由直流无刷电机+齿轮传动模组组成,通过电机驱动水阀,调节各管路流量分配,使电机电池处于最适合的温度环境,实现热量有效利用。

Product Description:
The thermal management actuator consists of a DC brushless motor and a gear transmission module. By driving water valves, it adjusts the flow distribution across different pipelines, ensuring the optimal temperature environment for the motor and battery. This facilitates effective heat utilization and improved system efficiency.

工业自动化

Industrial Equipment Drive

兆威机电深度洞察工业化升级的驱动应用和客户需求，基于多年技术积淀和匠心制造，以品质为根本，开发出适合市场和客户需求的产品，包括滚筒电机、阀门执行器、精密设备、通讯设备等平台化产品。

兆威秉承精益求精理念，不断挑战驱动技术应用，完成高品质、高性能微型驱动生产，赋能工业化蓬勃发展。

ZHAOWEI deeply understands the evolving demands of industrial upgrades and drive applications. Leveraging years of technical expertise and advanced manufacturing, we prioritize quality as the foundation for developing products tailored to market and customer needs. Our offerings include platform-based solutions such as drum motors, valve actuators, drive systems for precision equipment and communication devices.

Adhering to a philosophy of continuous improvement, ZHAOWEI consistently pushes the boundaries of drive technology applications, delivering high-quality, high-performance micro-drive solutions that empower industrial advancement.

工业风/水阀门 | INDUSTRIAL AIR / WATER VALVE



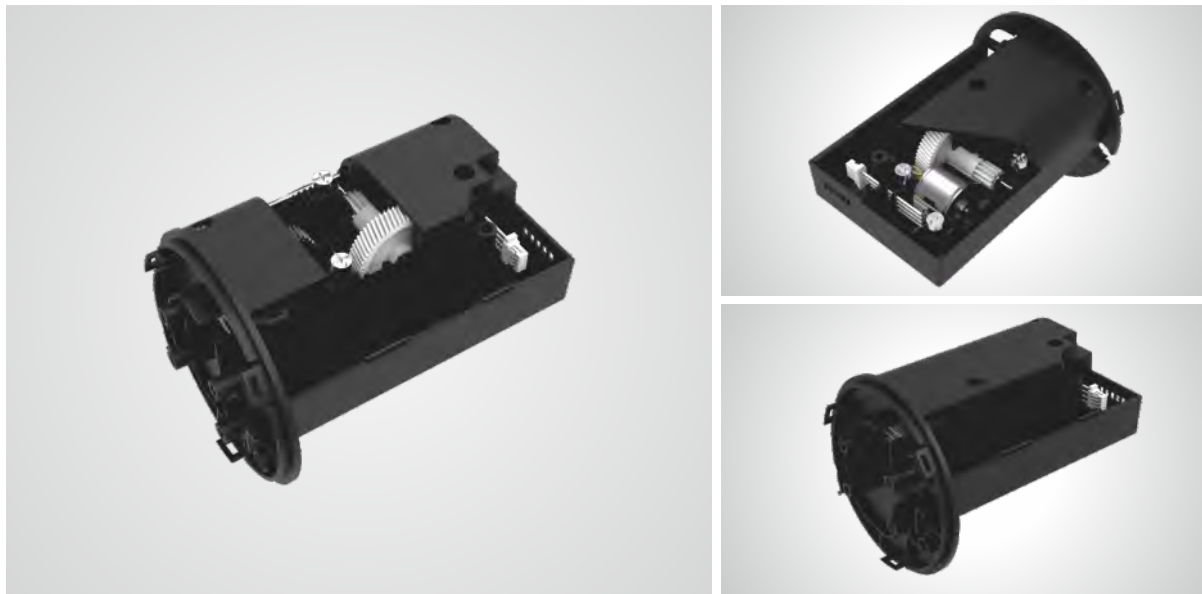
产品说明：

兆威风/水阀执行器集中电控、齿轮箱传动、驱动电机一体化设计，具备一定自锁力，具有体积小、耐高温、负载能力大、噪音小、成本低、寿命长等特点。

Product Description:

The Zhaowei wind/water valve actuator is designed with centralized electronic control, gearbox transmission, and integrated drive motor, which has a certain self-locking force. It has the characteristics of small size, high temperature resistance, large load capacity, low noise, low cost, and long service life.

安防监控智能云台驱动系统 | INTELLIGENT PTZ DRIVE SYSTEM FOR SECURITY MONITORING

**产品说明：**

兆威安防监控智能云台驱动系统，采用兆威自研齿轮箱，实现安防镜头旋转、仰俯等动作，具有定位精度高、噪音低、寿命长等特点。

Product Description:

The Zhaowei security monitoring intelligent pan tilt drive system is selected from Zhaowei's self-developed gearbox, which realizes the rotation, tilt and other actions of the security lens. It has the characteristics of high positioning accuracy, low noise, and long service life.

滚筒电机解决方案 | DRUM MOTOR SOLUTION

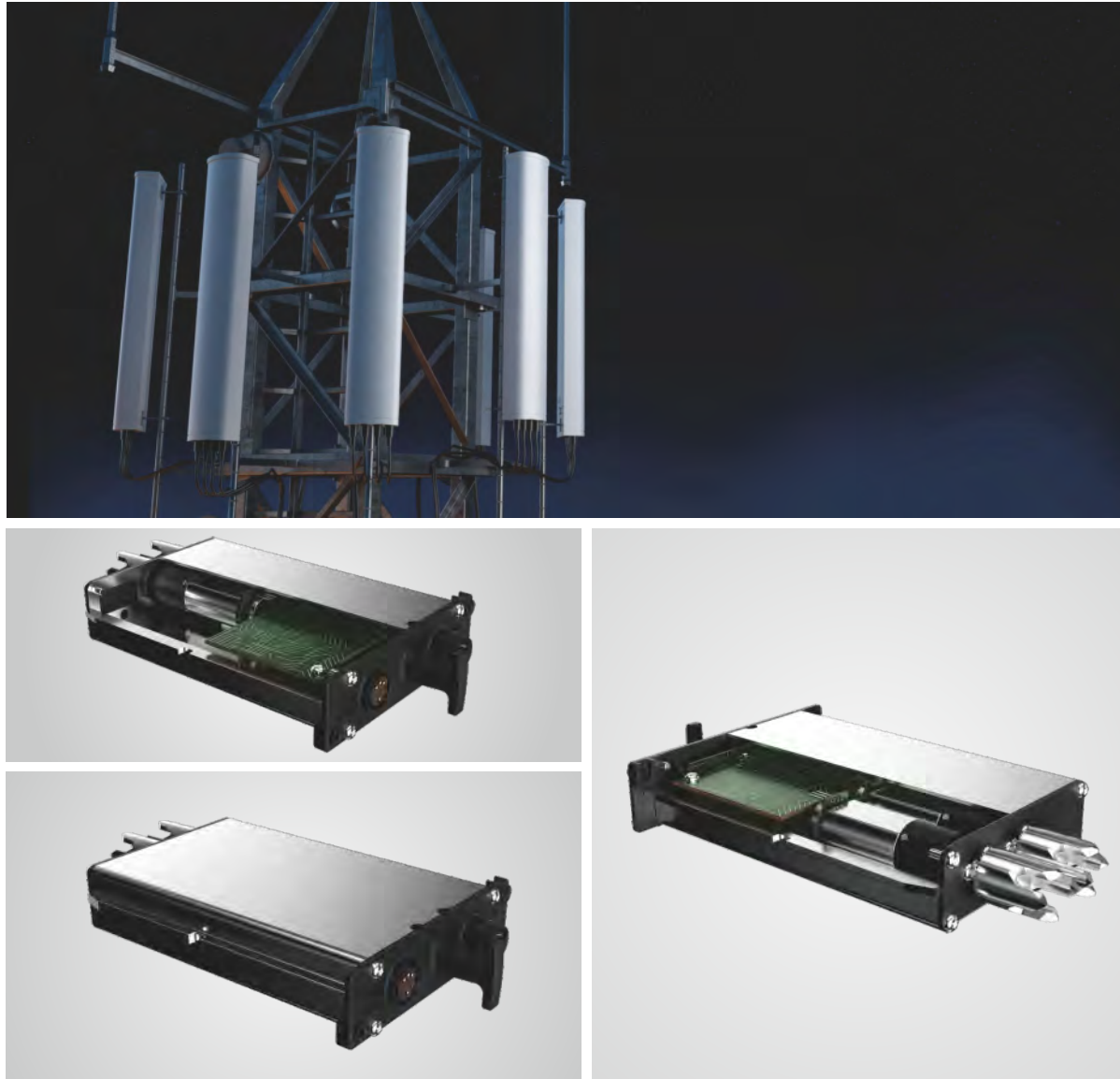
**产品说明：**

兆威推出全新滚筒电机平台，采用均为自研高性能齿轮箱、电机和控制器，为客户带来稳定高效的滚筒电机解决方案。该方案拥有多种直径、长度、功率组合，满足客户定制化搭配。

Product Description:

The newly launched drum motor platform incorporates ZHAOWEI's self-developed high-performance gearboxes, motors, and controllers. With various diameter, length, and power combinations, it delivers stable, efficient, and customizable solutions for client needs.

RCU模组 | RCU MODULE

**产品说明：**

兆威为客户提供的RCU模组中涵盖硬件及驱动模块设计的整套解决方案，配合客户的软件系统，可用来远程调节基站天线辐射信号的下倾角，进而调整网络覆盖位置及范围等。

Product Description:

ZHAOWEI's RCU module includes a comprehensive design for hardware and drive modules, integrated with client software systems. It allows remote adjustment of base station antenna tilt angles, optimizing network coverage and range.

智慧医疗

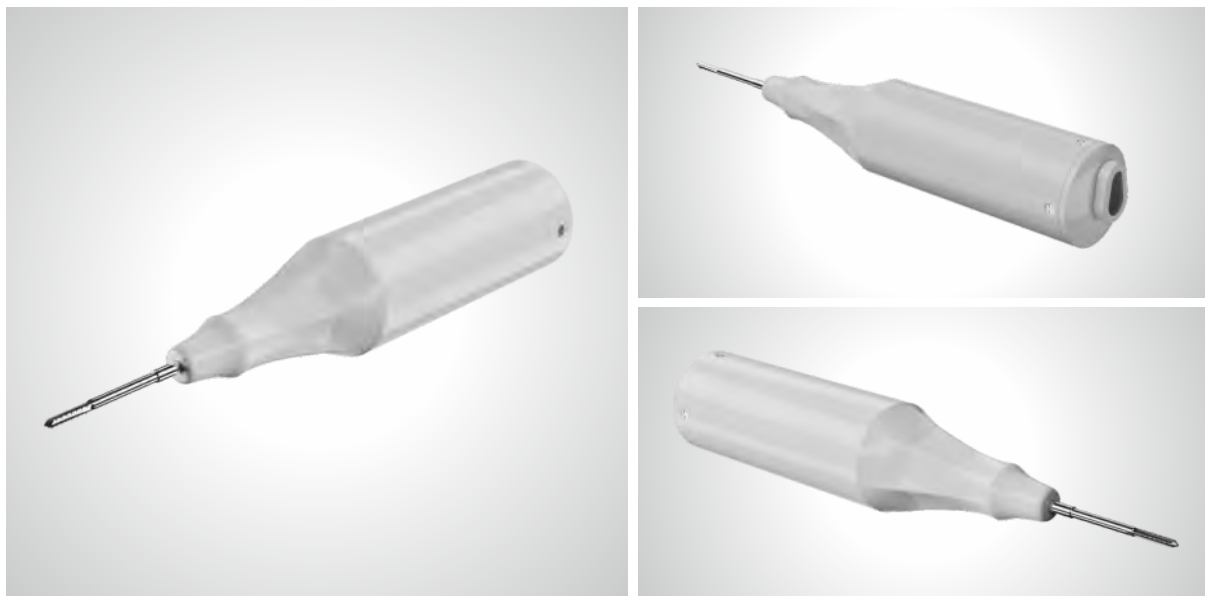
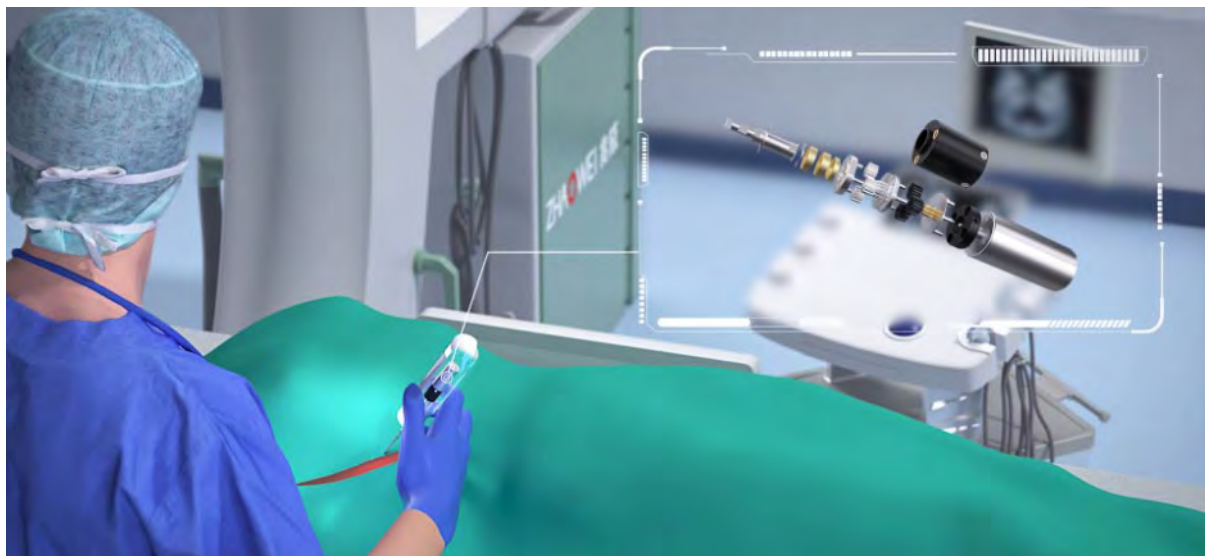
Medical Micro Drive Systems

随着医疗技术发展，微型驱动系统在医疗领域应用越发广泛，例如医疗注射泵、外科手术器械、医疗植入设备、康复设备等。其中，医疗手术机器人，凭借精细操作，备受各大医疗器械公司重视。

以上产品对微型驱动系统性能要求精密，兆威拥有多年医疗微型驱动系统研发制造经验，建有自动化无尘车间，配合MES生产管理体系，提高医疗驱动产品生产效率，致力为全球医疗器械客户提供微型驱动优质解决方案。

The evolution of medical technology has expanded the applications of micro drive systems in areas such as medical infusion pumps, surgical instruments, medical implants, rehabilitation devices. ZHAOWEI specializes in high-precision micro drive systems for the medical field. Our automated cleanrooms and MES production management systems enhance efficiency and ensure superior solutions for global medical device clients.

钻骨电机 | DRILLING MOTOR



产品说明：

兆威钻骨电机选用高频无刷电机保证切割钻头的高速旋转，同时其具有低噪的优点，在钻头两侧设计有同步清洗切碎屑清理液喷射的管道，通过独立于钻头驱动结构外的壳体边缘喷出，实现对创口的及时清洗。

Product Description:

The Zhaowei bone drilling motor uses a high-frequency brushless motor to ensure the high-speed rotation of the cutting drill bit, and it has the advantage of low noise. There are pipes designed on both sides of the drill bit for synchronously cleaning cutting debris cleaning fluid, which is sprayed out through the edge of the shell independent of the drill bit driving structure to achieve timely cleaning of the wound.

骨科手术创面清洗泵驱动系统 | DRIVE SOLUTION FOR ORTHOPEDIC SURGICAL WOUND IRRIGATION PUMP



产品说明：

兆威骨科手术创面清洗泵系统，用于骨科手术中洗流里调节。本产品通过直流电机+面齿轮传动对流量进行控制，多挡位调节功能，可根据手术要求进行合理选择，控制流量大小给出。

Product Description:

Zhaowei Orthopedic Surgical Wound Cleaning Pump System is used for adjusting the washing flow during orthopedic surgery. This product controls the flow rate through a DC motor and face gear transmission, with multi gear adjustment function. It can be selected reasonably according to surgical requirements to control the flow rate.

电动吻合器驱动系统 | ELECTRIC STAPLER DRIVE SYSTEM



产品说明：

兆威微创电动吻合器驱动系统，采用电机带动行星齿轮箱传动模式，驱动皮肤钉合器的前后移动，从而实现缝合功能，具备力矩大、结构紧凑、噪音低等特点。

Product Description:

The Zhaowei Minimally Invasive Electric Stapler Drive System adopts a motor driven planetary gearbox transmission mode to drive the forward and backward movement of the skin stapler, thereby achieving the suturing function. It has the characteristics of high torque, compact structure, and low noise.

胰岛素泵驱动系统 | INSULIN PUMP DRIVE SYSTEM



产品说明：

兆威胰岛素注射泵，采用步进电机搭配平行传动模式，由螺母丝杆结构推动注射活塞，根据人体所需剂量将胰岛素注入到患者皮下，达到控制胰岛素注射量的目的，具有运行平稳、噪音低等特点，适用于绝大多数胰岛素注射设备。

Product Description:

The Zhaowei insulin injection pump adopts a stepper motor combined with a parallel transmission mode. The injection piston is driven by a nut screw structure, and insulin is injected subcutaneously into the patient according to the required dosage of the human body, achieving the goal of controlling insulin injection volume. It has the characteristics of smooth operation and low noise, and is suitable for the vast majority of insulin injection equipment.

智能家居

Smart Home

在智能化的时代下，家居已经智能与省心结合，为智能家居带来全新体验。兆威秉承“致力微型驱动领域进步，共创智能美好生活”的使命愿景，以微型驱动赋能家居办公、厨卫家电、母婴用品、骑行装备等场景，协同全球客户，共创智能美好生活。

In the era of intelligence, home furnishings have combined intelligence and ease of mind, bringing a new experience to smart homes. Zhaowei adheres to the mission vision of "dedicating itself to the advancement of micro drivers and creating an intelligent and beautiful life together", empowering intelligent cleaning, kitchen and bathroom appliances, maternal and child products, cycling equipment and other scenarios with micro drivers, collaborating with global customers to create an intelligent and beautiful life.



洗地机驱动解决方案 | SOLUTION FOR FLOOR SCRUBBER DRIVER



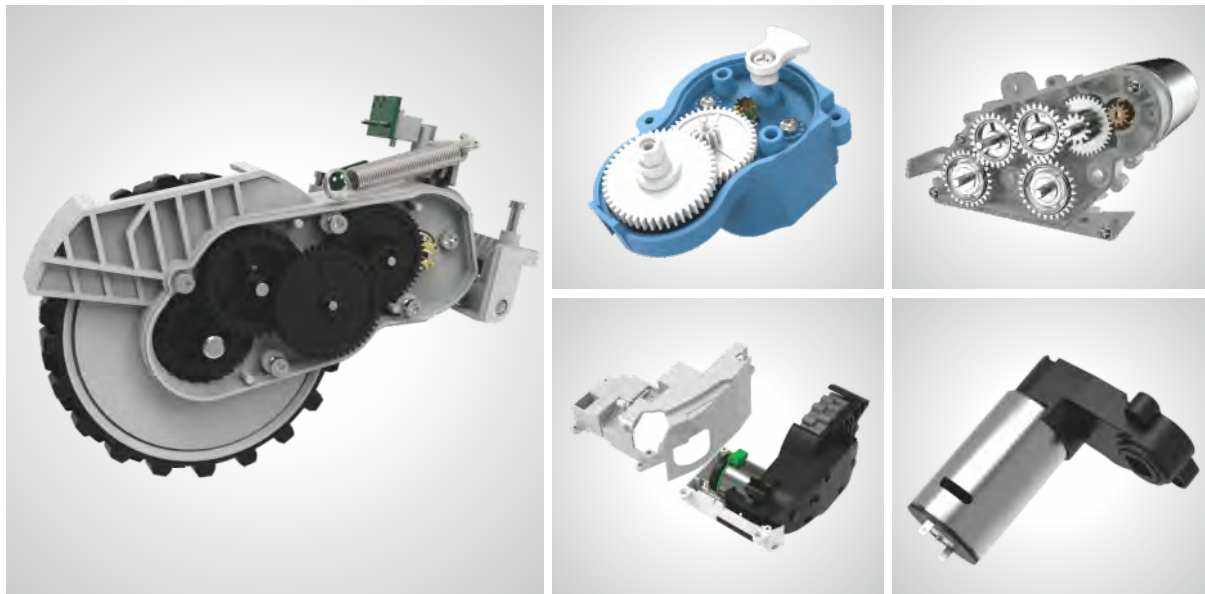
产品说明：

兆威洗地机驱动模组由直流电机和平行轴传动齿轮机构组成，控制清扫信号输入后，电机驱动主动齿轮与从动齿轮的啮合，传递运动和动力组，带动洗地机的滚筒进行清扫，实现高低速不同清洁模式。

Product Description:

The Zhaowei floor scrubber drive module consists of a DC motor and a parallel axis transmission gear mechanism. After controlling the cleaning signal input, the motor drives the meshing of the driving gear and the driven gear, transmitting motion and power to drive the drum of the floor scrubber for cleaning, achieving different cleaning modes of high and low speed.

扫地机驱动解决方案 | VACUUM CLEANER DRIVE SOLUTION

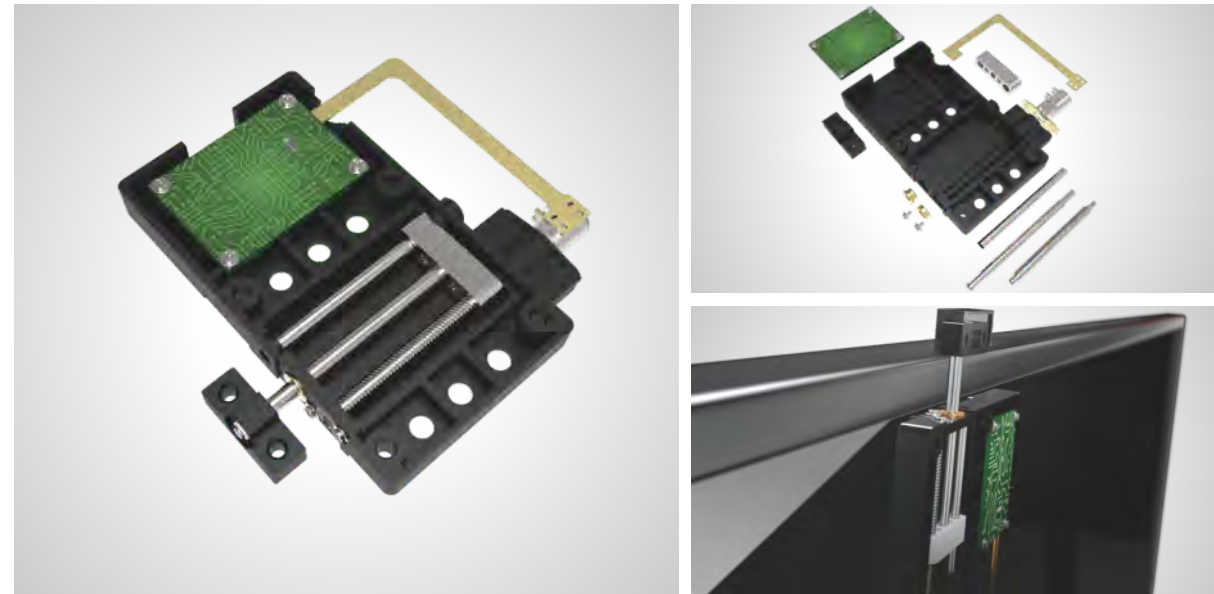
**产品说明：**

兆威扫地机驱动解决方案，通过传动系统创新设计，和防发丝缠绕等结构优化，为客户带来扫地机全套驱动解决方案，其中包括主刷、边刷、拖地/洗地、前后驱动等多种电机，具有噪音低、扭矩大等特点。

Product Description:

The robot vacuum drive solution features innovative transmission designs and optimized anti-hair entanglement structures, providing a comprehensive drive system for vacuum robots. This includes components for the main brush, side brush, mopping, scrubbing, and front/rear-wheel drives, characterized by low noise, high torque, and enhanced reliability.

电视机摄像头驱动系统 | DRIVE SYSTEMS FOR TV POP-UP CAMERA

**产品说明：**

电视机摄像头驱动系统，采用步进电机+行星齿轮箱结构，通过双导杆输出，保证运行稳定不卡顿，且传动效率高、噪音低。升降式摄像头具有可隐藏，占用外部空间小等优点，不仅提高了屏占比，也使产品更美观。

Product Description:

ZHAOWEI TV pop-up camera drive system adopts stepping motor and planetary gearbox structure, and double guide bars output to ensure stable operation without jamming, high transmission efficiency and low noise. This pop-up camera design has advantages of being hidden and occupying less external space, which improves screen ratio, also makes the television more beautiful.

智能家居门锁控制系统 | DRIVE SYSTEMS FOR DOOR LOCK



产品说明：
智能门锁驱动系统采用多级平行齿轮箱传动，通过齿轮箱传动拉动锁芯，能有效的控制锁芯的开锁、闭锁功能。这种设计使得锁芯可控、可靠性高、寿命长，开锁的速度快。同时齿轮箱带自锁功能，电池断电时可通过手动开关锁。

Product Description:
ZHAOWEI intelligent door lock drive system adopts multi-stage parallel transmission gearbox, can pull and push the lock cylinder to effectively control locking and unlocking functions of door lock. This design makes the lock cylinder controllable with high reliability, long service life and fast feedback. The gearbox has self-locking function, switch can be manual controlled when battery is powered off.

智能电动窗帘驱动系统 | DRIVE SYSTEMS FOR ELECTRIC CURTAIN



产品说明：
该窗帘传动模组采用行星齿轮箱多级传动，在满足力矩同时部分齿轮采用塑胶人字齿形设计，解决了管状电机驱动系统噪音大的问题，同时寿命也大大提高。

Product Description:
ZHAOWEI electric curtain drive system adopts a multi-stage planetary transmission gearbox. This design partially adopts plastic herringbone tooth structure, can meet torque requirement, solve problem of high noise of tubular motor drive system, and greatly improve service life.

冰箱门开合驱动系统 | DRIVE SYSTEMS FOR FRIDGE DOOR OPENING AND CLOSING

**产品说明：**

该系统结合距离感应器（红外线传感器等）可解决现有冰箱开关门不方便的弊端，通过网络控制、开关控制、语音控制控制驱动装置向门体传递驱动力可实现冰箱门稳定开合。

Product Description:

Combined with distance sensors (e.g. infrared sensor), the drive system transmits driving force to the fridge door, realizes stable fridge door opening and closing, and can be controlled through internet control component, switch control component, and voice control component.

智能马桶翻盖驱动系统 | DRIVE SYSTEMS FOR SMART TOILET LID

**产品说明：**

为解决双个翻盖面板的困难及翻盖时间长及力矩寿命的问题，我们研发出阻尼减速驱动系统机构，采用斜齿及行星驱动系统双重结构，能轻松翻起马桶的面盖。

Product Description:

To solve the difficulty of flipping double toilet lids and long time flipping process, and increase torque and lifetime, ZHAOWEI developed a damping speed reduction drive mechanism. The system adopts dual structure of helical gears and planetary drive mechanism, to achieve toilet lid stable flipping-up function.

儿童安全座椅 | CHILD SAFETY SEAT ACTUATORS



产品说明：

齿轮箱通过平行传动，实现减速增矩的作用，最终带动蜗杆与客户处斜齿轮配合，带动儿童座椅实现旋转和倾角运行。

Product Description:

Through parallel transmission, ZHAOWEI gearboxes achieve torque multiplication and speed reduction, driving worm gears to interact with client-specific helical gears. This enables smooth rotation and angle adjustment for child safety seats.

消费电子

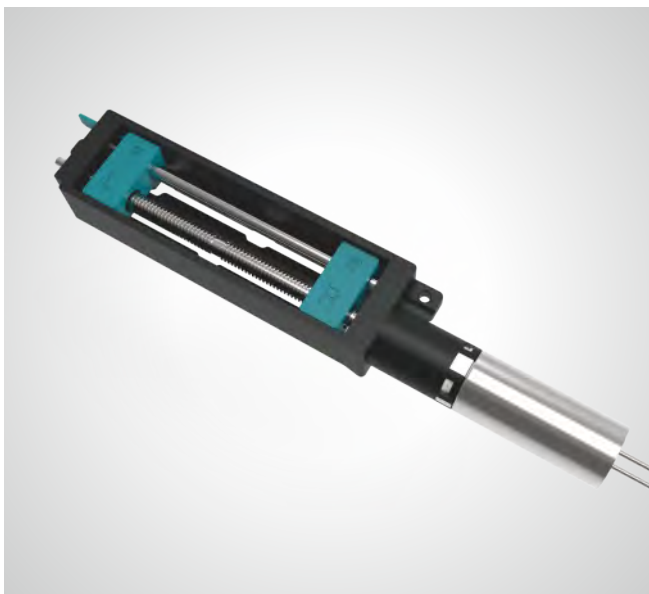
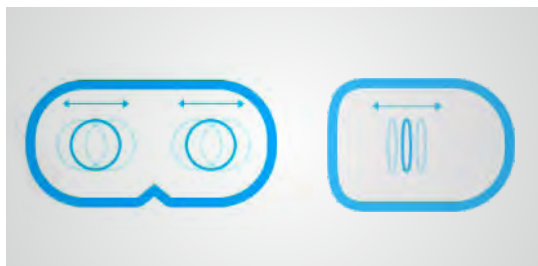
Consumer Electronics

如今，“轻、薄、快”几乎已经成为消费电子产品的代名词，而兆威在创立之初便确立了“精密 微小 超薄”的技术路线，在2014年成功研发出 $\Phi 3.4\text{mm}$ 行星减速箱，多年来兆威不断追求技术创新，制造工艺突破，愿协同全球客户，赋能虚拟现实、3C电子、美容养生等消费电子行业进步。

Nowadays, "light, thin, and fast" has almost become synonymous with consumer electronics products. At the beginning of its establishment, Zhaowei established the technical route of "precision, micro, and ultra-thin". In 2014, it successfully developed a planetary gearbox with a diameter of 3.4mm. For many years, Zhaowei has been continuously pursuing technological innovation, making breakthroughs in manufacturing processes, and is willing to collaborate with global customers to empower the progress of consumer electronics industries such as virtual reality, 3C electronics, and beauty and health.



IPD瞳距调节模组 | IPD PUPIL DISTANCE ADJUSTMENT MODULE

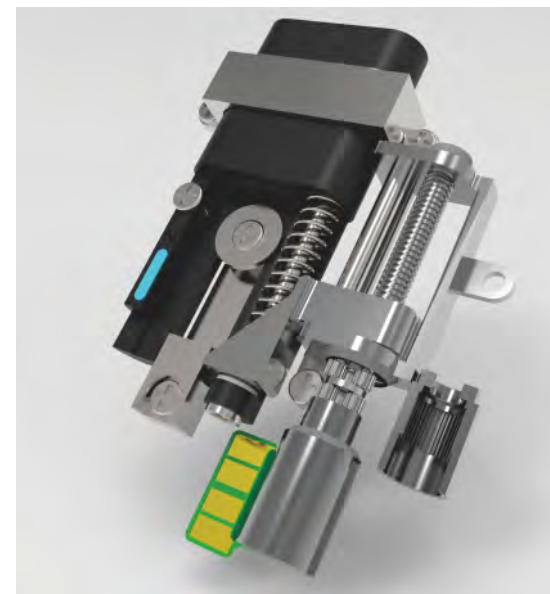
**产品说明：**

兆威瞳距调节装置是一种调节智能穿戴设备两个镜片之间的间距，以与使用者瞳距相适配的驱动装置，主要应用于VR头盔、VR眼镜等设备。本产品通过先进工艺和精巧设计，简化组装工艺、提高传递效率和调节精度，减少传动噪音，在降本增效的同时，还能更好保证使用者获得较佳观看效果。

Product Description:

The Zhaowei Pupil Distance Adjustment Device is a driving device that adjusts the distance between two lenses of smart wearable devices to match the distance between the user's pupils. It is mainly used in VR helmets, VR glasses, and other devices. This product simplifies the assembly process, improves transmission efficiency and adjustment accuracy, reduces transmission noise through advanced technology and exquisite design. While reducing costs and increasing efficiency, it can also better ensure that users obtain better viewing effects.

手机摄像头升降驱动系统 | DRIVE SYSTEMS FOR POP-UP PHONE CAMERA

**产品说明：**

采用步进电机+行星减速器+丝杆设计成的驱动系统，实现了有限体积（厚度4.6mm）内的摄像头稳定低噪升降，解决了全面屏前置摄像头的安置问题。

Product Description:

This drive system consists of stepper motor, planetary reducer and lead screw, it realizes stable lifting of phone front camera with low noise in a limited space (thickness 4.6mm), and solves placement of full-screen phone front camera.

电动云台驱动系统 | DRIVE SYSTEMS FOR MOTORIZED PAN & TILT HEAD

**产品说明：**

采用永磁直流电机和斜齿轮传动结构, 解决了电动云台抖动和噪音问题, 提高了产品稳定性及使用寿命。

Product Description:

ZHAOWEI motorized pan & tilt head drive system adopts permanent magnet DC motor and helical gear transmission structure, solves jitter and noise problems, and improves product stability and service life.

按摩器驱动系统 | DRIVE SYSTEMS FOR MASSAGER

**产品说明：**

通过低噪音直流无刷马达和高精密蜗轮蜗杆, 平行直齿轮传动模组作用力输出, 四轴输出力作用于人体头部, 肩部, 背部按摩实现低噪音仿生人手按, 揉, 压等动作, 使用寿命长。

Product Description:

This system adopts a drive module with a low noise brushless DC motor, high precision worm, gear, and parallel spur gear pairs, to drive output shafts to work on four massage balls and simulates manual pressing and kneading on the head, shoulder and back, and has a long service life.

智能学习机俯仰调节模组 | SMART LEARNING DEVICE TILT ADJUSTMENT MODULE



产品说明：
兆威智能学习机俯仰调节模组，将马达通电后通过平行传动减速增力，带动丝杆转动，输出螺母上下移动，输出螺母和输入支架连接，带动翻转齿轮箱运动，同时带动摄像头组件旋转。

Product Description:
The pitch adjustment module of the Zhaowei intelligent learning machine, after the motor is powered on, reduces the speed and increases the force through parallel transmission, drives the screw to rotate, and the output nut moves up and down. The output nut is connected to the input bracket, which drives the flipping gearbox to move and also drives the camera component to rotate.

学习机摄像头升降驱动系统 | DRIVE SYSTEMS FOR LEARNING LAPTOP POP-UP CAMERA



产品说明：
兆威优化了学习机外置摄像头方案，将摄像头模组隐藏到学习机内部，从而实现产品一体化；学习机升降摄像头的应用，用户在使用的时候摄像头模组可以向下拍摄课本内容，实现线上线下互动等场景。提升学生用户体验的同时，也提升了产品科技感。

Product Description:
ZHAOWEI optimized learning laptop external camera solution by hiding the camera module inside the learning laptop, and realized product integration. With pop-up camera application for learning laptop, the camera module can tilt down and shoot textbook content on the desk during the process, and realizes online and offline interaction and other scenarios. This application enhances student experience, also enhances product technology.

笔记本隐藏摄像头驱动系统 | LAPTOP KEYBOARD HIDDEN CAMERA LIFT DRIVE SYSTEM

**产品说明：**

通过4mm金属行星齿轮箱结合步进电机、丝杆、滑块，来实现笔记本键盘上类似键盘的摄像头按钮升降机构的智能升、降和稳定性。

Product Description:

The hidden camera lift drive system for laptop keyboards incorporates a 4mm-diameter metal planetary gearbox, a stepper motor, a screw, and a sliding block. This system allows for intelligent, stable elevation of the camera, resembling a keyboard key, for seamless integration and enhanced usability.

视频会议驱动系统 | DRIVE SYSTEMS FOR VIDEO CONFERENCE EQUIPMENT

**产品说明：**

视频会议系统驱动系统的主要问题是回程差。通过对整个驱动系统的结构及设计进行优化，将驱动系统的回程差控制在小弧度以内，实现产品的低噪音。

Product Description:

Main problem of drive system for video conference equipment is the backlash. ZHAOWEI optimizes structural design of the entire drive system and controlled backlash within a small arc, achieves low noise and precise angle adjustment.

脚部按摩器驱动系统 | DRIVE SYSTEMS FOR FOOT MASSAGER



产品说明：
洗脚盆上脚部按摩器驱动系统通过蜗轮蜗杆和平行齿轮箱的作用力使得用户在使用洗脚盆按摩器具时，按摩球头的角度可以自适应用户的需求而进行调节，增大了适用范围。

Product Description:
The foot massager drive system in a foot spa employs a worm and gear mechanism combined with a parallel gearbox. It enables the massage ball heads to adaptively adjust their angles to meet user needs, expanding the range of use and enhancing the overall massage experience.

健身器材驱动系统 | DRIVE SYSTEMS FOR FITNESS EQUIPMENT



产品说明：
通过优化调整跑步机踏板调节齿轮箱结构结合无刷电机，智能调整跑步机踏板角度，实现根据运动强度需求改变跑步机踏板的运动轨迹。

Product Description:
ZHAOWEI optimizes treadmill pedal angle adjusting gearbox structure by cooperating with the brushless motor to realize intelligent treadmill angle adjustment according to exercise intensity.

儿童抒腹仪驱动系统 | DRIVE SYSTEMS FOR CHILDREN ABDOMINAL MASSAGER



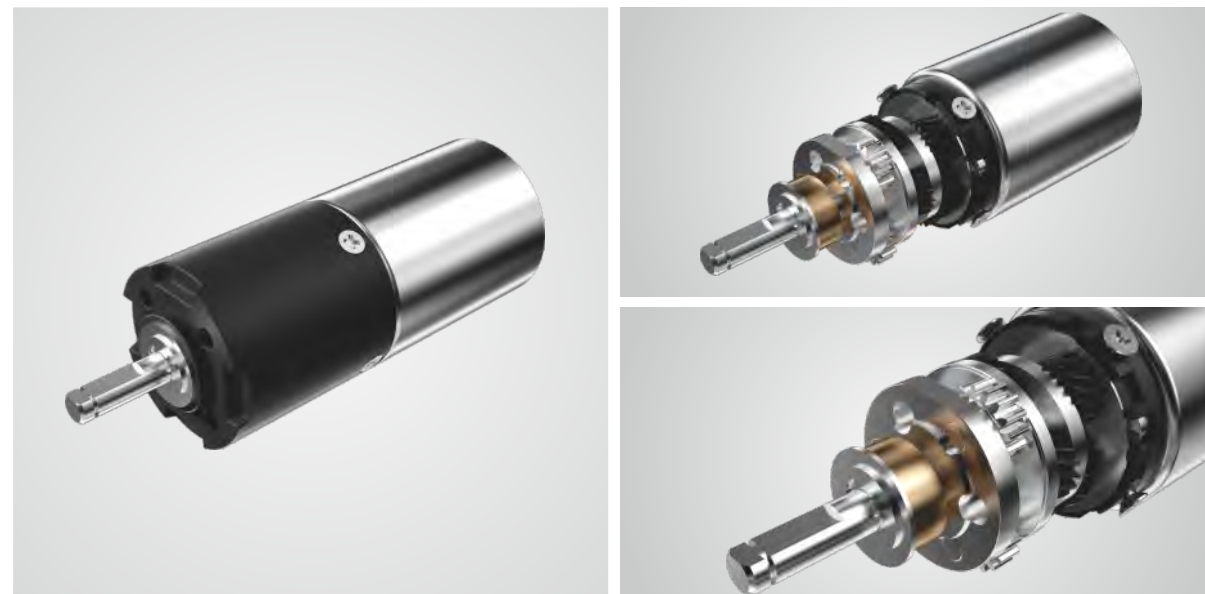
产品说明：

通过低噪音直流无刷马达，高精度平行轴齿轮和内齿传动齿轮模组作用，输出旋转运动，通过发热砭石滚动作用于少年儿童腹部，促进儿童肠胃消化，产品使用寿命长。

Product Description:

This system adopts a low noise brushless DC motor and high precision parallel shaft gears, through the internal gear transmission method, to rotate and heat bianstone massage balls that work on children's abdomen. The abdominal massager can promote digestion and has a long service life.

24mm按摩器驱动系统 | DRIVE SYSTEMS FOR MASSAGER (24MM)



产品说明：

通过低噪音直流有刷马达或无刷马达和高精密斜齿轮，直齿轮传动模组作用力输出，施加圆周力于人体颈部按摩，仿生人手按，揉，压等动作，提高产品使用寿命。

Product Description:

This system adopts a low noise brushed DC motor (or brushless DC motor), high precision helical gears, and parallel gears, to apply circular force through massage ball on the neck to simulate manual pressing and kneading, and has a long service life.

美容仪驱动系统 | DRIVE SYSTEMS FOR SKINCARE DEVICE



产品说明：

通过低噪音直流有刷马达和高精密平行轴斜齿轮传动，输出旋转运动及振动，作用于人面部进行护理美容，使用寿命长。

Product Description:

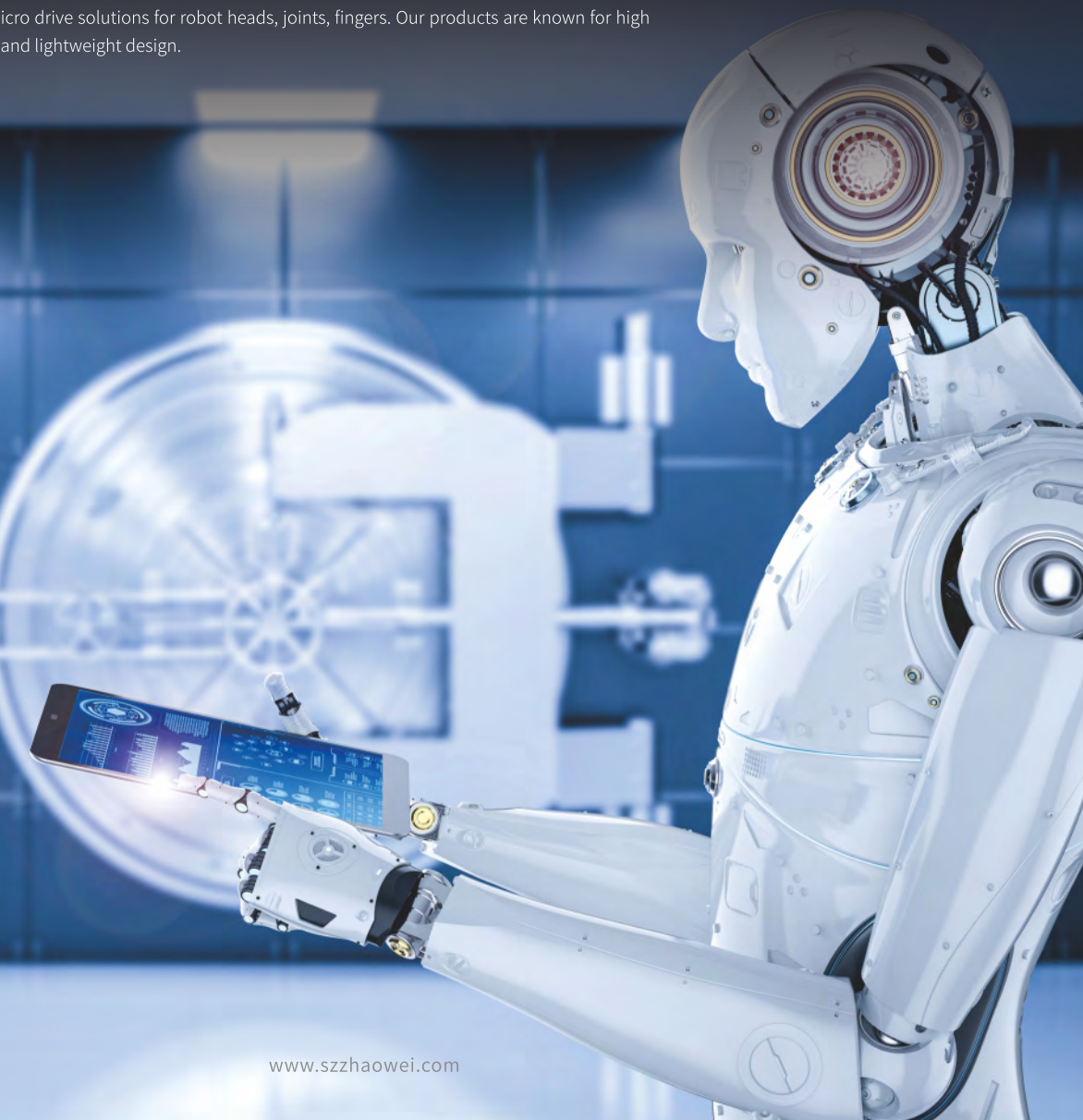
This drive system adopts a low noise brushed DC motor and high precision parallel shafted helical gears, and drives the device to rotate and vibrate, and work on face to achieve cosmetic results. It has a long service life.

机器人 Robot

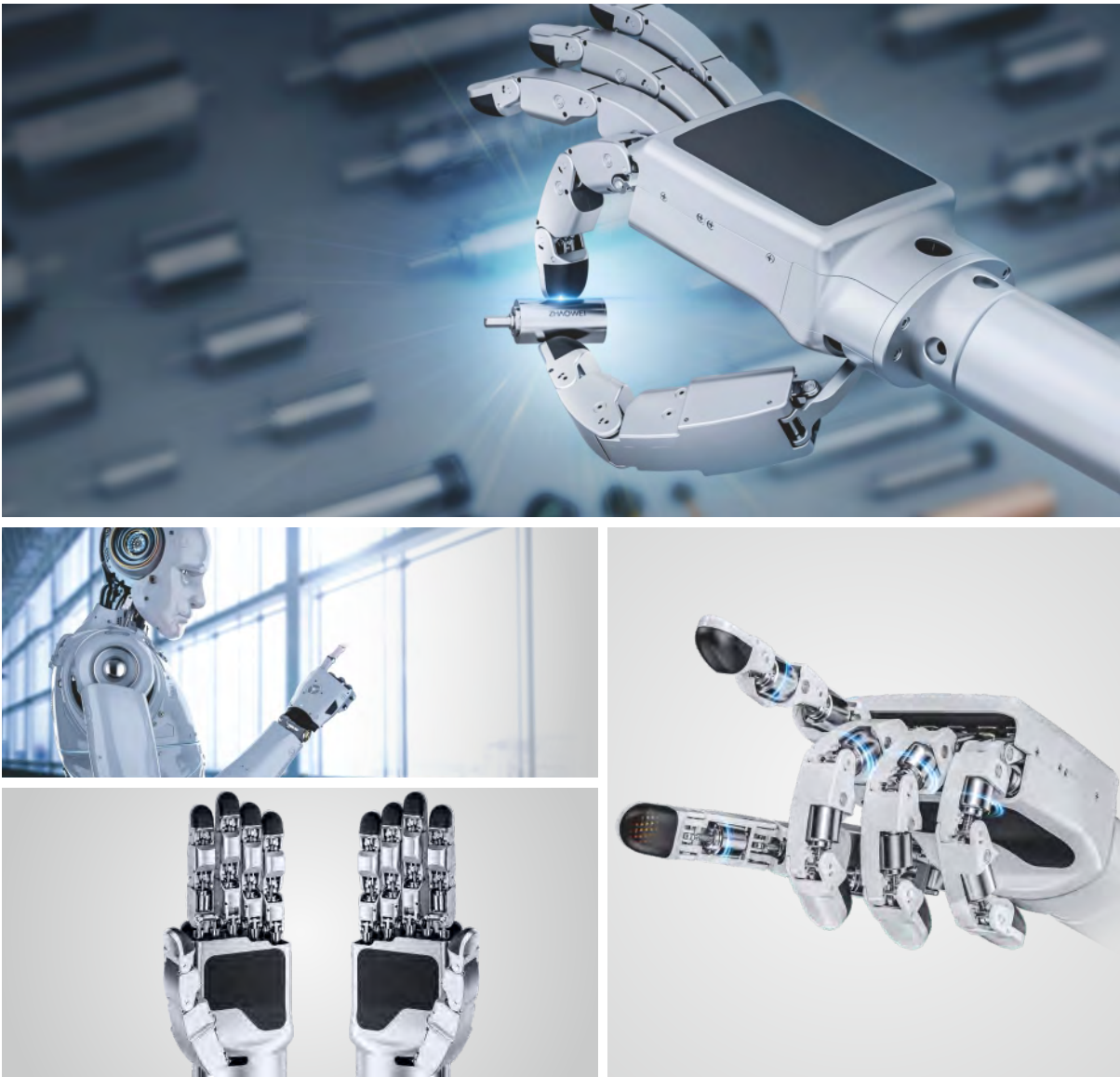
机器人产业作为当代科技进步与经济结构转型的重要交汇点，从工业生产、物流运输、医疗手术、深海作业、高空无人机、生活服务、智能制造等场景，几乎都有机器人的身影。

兆威始终关注机器人前沿技术，从微型驱动领域出发，致力帮助机器人实现应用落地。兆威基于对精密减速箱、高性能电机、电控系统的产品组合，适用于机器人头部、关节、手指等运动执行等应用，具有精度高、尺寸小、重量轻等特点。

Robotics is a key intersection of technological advancement and economic transformation, with applications spanning industrial production, logistics and transportation, medical surgery, deep-sea exploration, aerial drones, smart living, intelligent manufacturing. ZHAOWEI focuses on cutting-edge robotic technologies, offering micro drive solutions for robot heads, joints, fingers. Our products are known for high precision, compact size, and lightweight design.



仿生机器人灵巧手 | BIONIC ROBOTIC DEXTEROUS HAND



产品说明：
兆威仿生机器人灵巧手，集结构、软硬件系统研发于一体。主要应用于机器人领域，可与各种柔性机器人配合使用，具有多自由度和高功率密度的特点，可完成复杂灵巧的抓握动作。

Product Description:
The ZHAOWEI bionic robotic hand integrates structural design with software and hardware development. It features high power density and multi-degree freedom, enabling complex and dexterous grasping actions in robotic applications.

机器人关节驱动系统 | DRIVE SYSTEMS FOR ROBOT JOINT



产品说明：
该系统多为动力类舵机，对减速器的寿命要求高对噪音更敏感。其设计重心放在齿轮参数优化，同时在减速器内部增加离合机构，当机器跌倒减速器受到外接冲击时，齿轮能得到保护，实现小空间大传动比的特性，能完成传动轴六自由度的转换。

Product Description:
This system is mostly a servomotor, which has high requirements for service life of the reducer and is more sensitive to noise. The design focuses on gear parameters optimization, and installs a clutch mechanism on the reducer, when the machine falls and the reducer is subjected to external impact, it can protect gears. This system achieves a large reduction ratio in small space, and the output shaft can move freely in six directions.

标准齿轮箱系列 STANDARD GEARBOXES

兆威为客户提供行星齿轮箱、直角电机齿轮箱、正传动齿轮箱，以及零背隙齿轮箱四种选择，每一款都有合适的使用场景。产品尺寸覆盖3.4mm至42mm直径范围，减速比从3.9到1526。其中零背隙齿轮箱，空载平均空回<1°，能够更好的满足一些高精尖行业应用。

ZHAOWEI offers planetary gearboxes, right-angle gear motors, spur gearboxes, and zero-backlash gearboxes, each tailored to specific applications. Product dimensions range from 3.4mm to 42mm in diameter, with reduction ratios from 3.9 to 1526. And the zero-backlash gearbox, with an average no-load backlash of less than 1°, better meets the needs of high-precision industries.



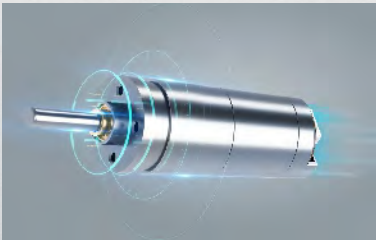
SMD行星齿轮箱
SMD planetary gearbox



MD行星齿轮箱
MD planetary gearbox



PD行星齿轮箱
PD planetary gearbox



零背隙齿轮箱
Zero backlash gearbox



PL直角电机齿轮箱
PL right-angle gear motor



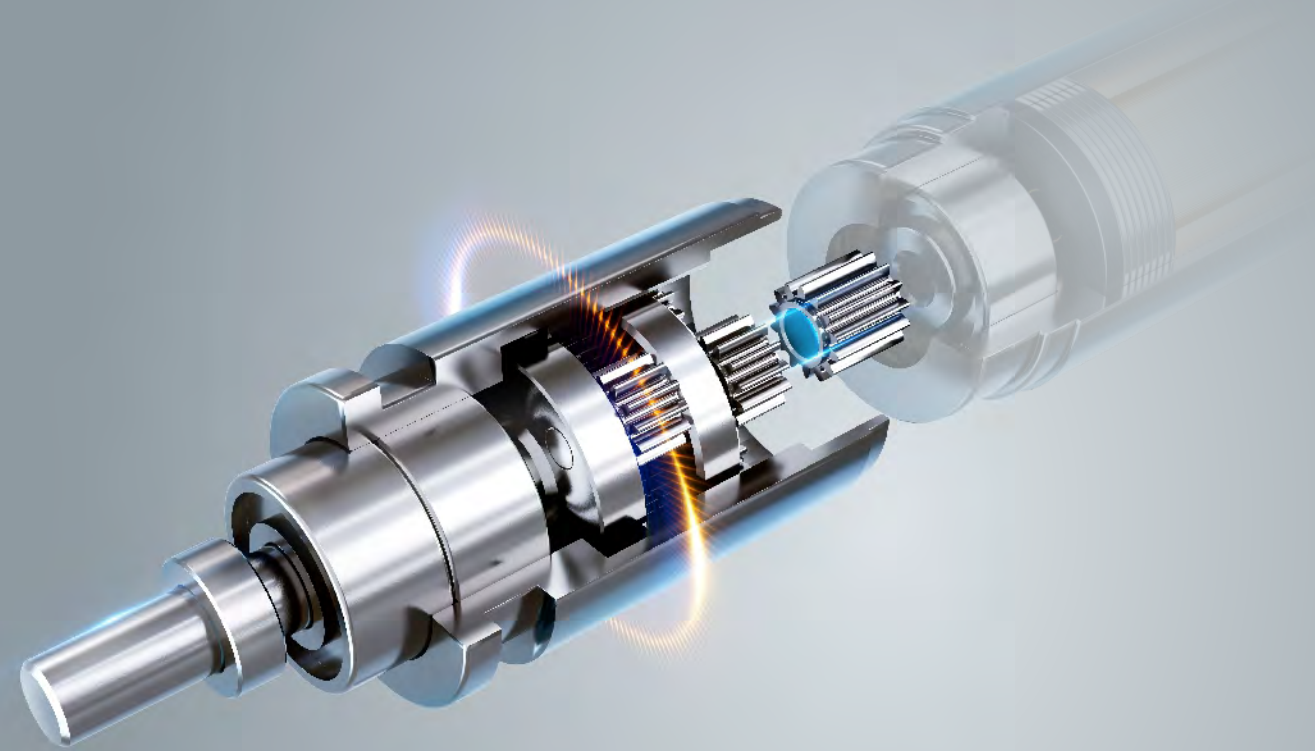
MC正传动减速箱
MC spur gearbox

SMD行星齿轮箱

SMD planetary gearbox

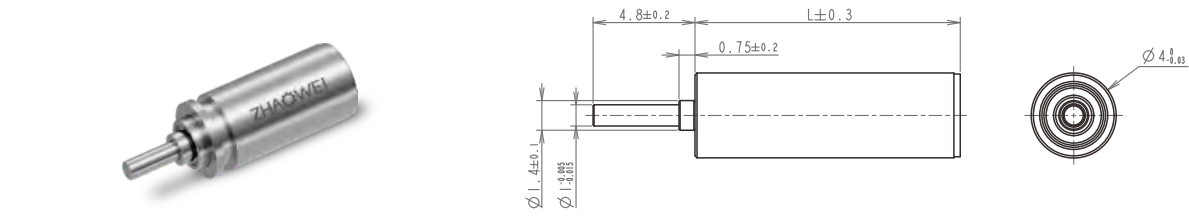
SMD行星齿轮箱是兆威专门开发的高性能产品，能够在小体积下输出更大扭矩，具有噪音低、间隙小，适合用于传输高扭矩和高转速的应用场景。此外，我们还可搭配无刷、有刷、步进电机等高性能产品，具有模块化组合功能。

Specially developed for high-performance applications, this compact gearbox delivers high torque with low noise and minimal backlash, making it ideal for high-speed, high-torque scenarios. It is compatible with brushless, brushed, and stepper motors, offering modular combinations.



SMD004004

Φ4mm 行星齿轮箱



技术数据					
齿轮箱级数		1	2	3	4
连续输出转矩 (Max)	Nm	0.001	0.002	0.006	0.015
瞬间容许力矩(Max)	Nm	0.002	0.003	0.008	0.02
减速比	/	4.8	23.0	110.6	531.0
外直径	mm	4	4	4	4
齿轮箱长度L1	mm	7.7	9.3	10.9	12.5
最大效率	%	87	76	70	65
建议温度范围	℃	-40~+80	-40~+80	-40~+80	-40~+80
齿轮箱重量 (Max)	G	1	1.2	1.3	1.5
最大传输功率 (连续)	W	0.15	0.17	0.12	0.08
最大传输功率 (瞬时)	W	0.2	0.21	0.15	0.10
空载平均空回	°	5	5	5	5
最大轴向载荷 (动态)	N	5	5	5	5
最大径向载荷 (离法兰4mm处)	N	3	3	4	4
输出端轴承		滚珠轴承		滚珠轴承	
轴向间隙	mm	0~0.1		0~0.1	

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

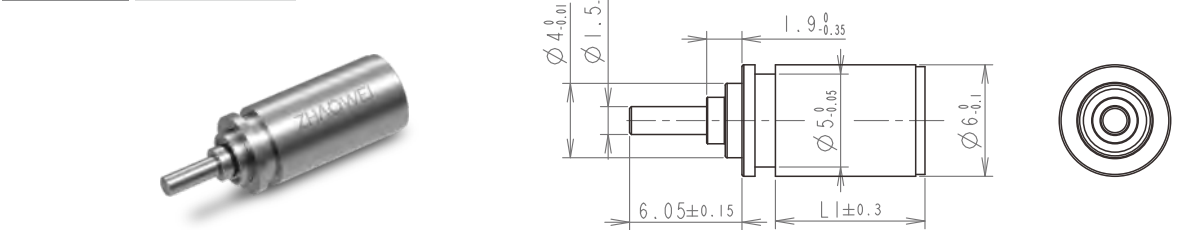
模块化组合					
组合产品	型号	级数			
		1	2	3	4
直流电机	0408 φ4石墨电刷	15.8	17.4	19.0	20.6
	0412 φ4石墨电刷	20.0	21.6	23.2	24.8
无刷电机	MC0409 Φ4mm 空心杯无刷电机	16.2	17.8	19.4	21.0
编码器	/	磁编			

典型应用产品数据											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定容许力矩 (NM)	齿轮箱瞬间容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(mA Max)	转矩(N.m)					
ZWSMD004004-4.8-X	5	9375	140	6250	180	0.0002	16.2	0.001	0.002	4.8	7.7
ZWSMD004004-23-X	5	1957	140	1304	180	0.0003	17.8	0.002	0.003	23.0	9.3
ZWSMD004004-111-X	5	407	140	271	180	0.0015	19.4	0.006	0.008	110.6	10.9
ZWSMD004004-531-X	5	85	140	57	180	0.0069	21.0	0.015	0.02	530.8	12.5

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

SMD006006

Φ6mm 行星齿轮箱



技术数据						
齿轮箱级数		1	2	3	4	5
连续输出转矩 (Max)	Nm	0.002	0.005	0.01	0.03	0.03
瞬间容许力矩(Max)	Nm	0.005	0.01	0.02	0.06	0.06
减速比	/	3.9	15	57	221	854
外直径	mm	6	6	6	6	6
齿轮箱长度L1	mm	5.8	8.2	10.6	13	15.4
最大效率	%	83	69	57	65	47
建议温度范围	℃	-30~+85	-30~+85	-30~+85	-30~+85	-30~+85
齿轮箱重量 (Max)	G	1.7	2.1	2.5	2.9	3.3
最大传输功率 (连续)	W	0.63	0.39	0.2	0.15	0.04
最大传输功率 (瞬时)	W	0.79	0.49	0.25	0.18	0.05
空载平均空回	°	1.8	2	2.2	2.5	2.8
最大轴向载荷 (动态)	N	5	5	5	5	5
最大径向载荷 (离法兰4mm处)	N	5	6	7	8	8
输出端轴承		滚珠轴承	滚珠轴承	滚珠轴承	滚珠轴承	滚珠轴承
轴向间隙	mm	0~0.1	0~0.1	0~0.1	0~0.1	0~0.1

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

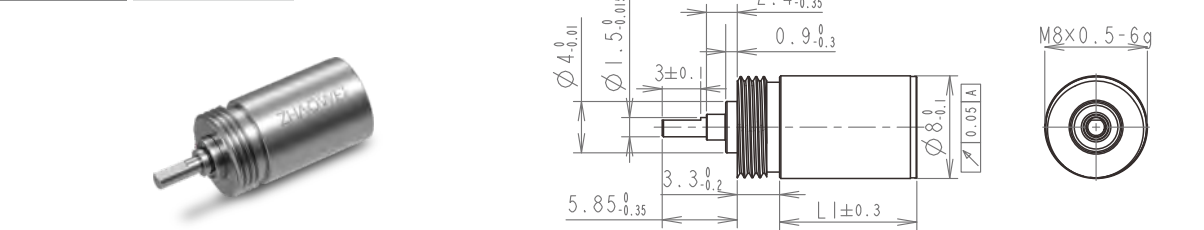
模块化组合						
组合产品	型号	级数				
		1	2	3	4	5
直流电机	/					
无刷电机	MO0623 Φ6mm □□□□□□□□	28	30	33	35	37
编码器	CB-ST-6	磁编				

典型应用产品数据											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定容许力矩 (NM)	齿轮箱瞬间容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(mA Max)	转矩(N.m)					
ZWSMD006006-04-X	12	16437	150	12133	350	0.002	28.8	0.002	0.005	3.9	5.8
ZWSMD006006-15-X	12	4261	150	3146	355	0.005	31.2	0.005	0.01	14.9	8.2
ZWSMD006006-57-X	12	1105	160	816	360	0.010	33.6	0.01	0.02	57.4	10.6
ZWSMD006006-221-X	12	286	170	211	365	0.030	36	0.03	0.06	221.3	13
ZWSMD006006-854-X	12	74	180	55	370	0.030	38.4	0.03	0.06	853.7	15.4

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

SMD008008

Φ8mm 行星齿轮箱



技术数据						
齿轮箱级数		1	2	3	4	5
连续输出转矩 (Max)	Nm	0.01	0.02	0.06	0.08	0.1
瞬间容许力矩(Max)	Nm	0.015	0.03	0.09	0.12	0.15
减速比	/	4	16, 36	64, 216	256, 1296	1024
外直径	mm	8	8	8	8	8
齿轮箱长度L1	mm	5.5	8.1	10.7	13.3	15.9
最大效率	%	90	81	73	65	59
建议温度范围	℃	-30~+85	-30~+85	-30~+85	-30~+85	-30~+85
齿轮箱重量 (Max)	G	2.6	3.2	3.8	4.4	5
最大传输功率 (连续)	W	0.84	0.52	0.39	0.13	0.04
最大传输功率 (瞬时)	W	1.05	0.65	0.49	0.16	0.05
空载平均空回	°	1.8	2	2.2	2.5	3
最大轴向载荷 (动态)	N	5	5	5	5	5
最大径向载荷 (离法兰4mm处)	N	5	6	7	8	8
输出端轴承		滚珠轴承	滚珠轴承	滚珠轴承	滚珠轴承	滚珠轴承
轴向间隙	mm	0~0.1	0~0.1	0~0.1	0~0.1	0~0.1

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

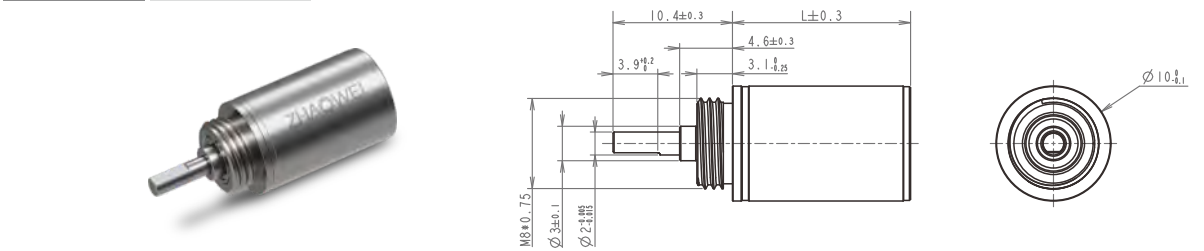
模块化组合						
组合产品	型号	级数				
		1	2	3	4	5
直流电机	MP0816 Φ8mm 石墨电刷	22.5	25.1	27.7	30.3	32.9
	MO0832 Φ8mm 空心杯无刷电机	37.50	40.10	42.70	45.30	47.90
无刷电机	MC0824 Φ8mm 空心杯无刷电机	29.50	32.10	34.70	37.30	39.90
编码器	CB-ST-8	磁编				

典型应用产品数据											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定容许力矩 (NM)	齿轮箱瞬间容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(A Max)	转矩(N.m)					
ZWSMD008008-04-X	12	9625	120	6375	0.55	0.01	29.5	0.01	0.015	4	5.5
ZWSMD008008-16-X	12	2406	130	1594	0.6	0.03	32.1	0.02	0.03	16	8.1
ZWSMD008008-36-X	12	1069	130	708	0.6	0.01		0.008	0.012	36	
ZWSMD008008-64-X	12	602	140	398	0.6	0.06	34.7	0.06	0.09	64	10.7
ZWSMD008008-216-X	12	178	140	118	0.6	0.02		0.02	0.03	216	
ZWSMD008008-256-X	12	150	150	100	0.65	0.08	37.3	0.08	0.12	256	13.3
ZWSMD008008-1296-X	12	30	150	20	0.65	0.04		0.04	0.06	1296	
ZWSMD008008-1024-X	12	38	160	25	0.7	0.10	39.9	0.1	0.15	1024	15.9

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

SMD010010

Φ10mm 行星齿轮箱



技术数据						
齿轮箱级数		1	2	3	4	5
连续输出转矩 (Max)	Nm	0.01	0.03	0.1	0.15	0.15
瞬间容许力矩(Max)	Nm	0.02	0.05	0.15	0.2	0.2
减速比	/	4	16	64	256	1024
外直径	mm	10	10	10	10	10
齿轮箱长度L1	mm	8.6	12.1	15.5	18.5	21.9
最大效率	%	90	80	70	60	55
建议温度范围	℃	-40~+100	-40~+100	-40~+100	-40~+100	-40~+100
齿轮箱重量 (Max)	G	6.6	7	7.6	8.1	8.6
最大传输功率 (连续)	W	1.6	1.2	1	0.4	0.1
最大传输功率 (瞬时)	W	2	1.5	1.3	0.5	0.13
空载平均空回	°	1.5	1.8	2	2.2	2.5
最大轴向载荷 (动态)	N	5	5	5	5	5
最大径向载荷 (离法兰4mm处)	N	5	10	15	20	25
输出端轴承		滚珠轴承	滚珠轴承	滚珠轴承	滚珠轴承	滚珠轴承
轴向间隙	mm	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

*注： 以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

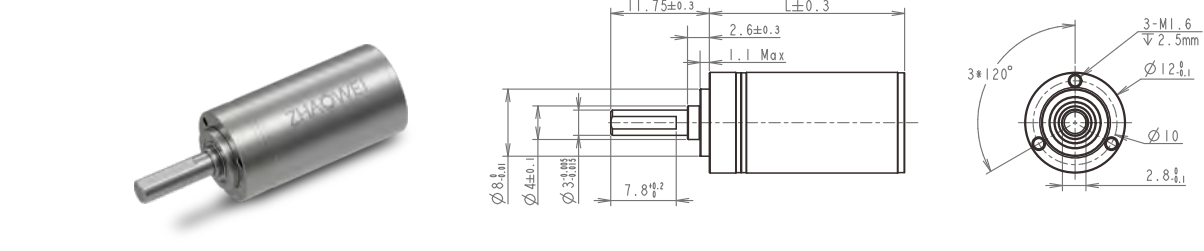
模块化组合						
组合产品	型号	级数				
		1	2	3	4	5
直流电机	1015 Φ10mm 石墨电刷	23.6	27.1	30.5	33.5	36.9
	1020 Φ10mm 石墨电刷	29.3	32.8	36.2	39.2	42.6
无刷电机	1026 Φ10mm 空心杯无刷电机	36.6	40.1	43.5	46.5	49.9
编码器	CB-ST-10	磁编				

典型应用产品数据											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定容许力矩 (NM)	齿轮箱瞬间容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(A Max)	转矩(NM)					
ZWSMD010010-4-X	12	9167	120	7361	1	0.005	36.6	0.01	0.02	4	8.6
ZWSMD010010-5-X	12	6226	120	5000	1	0.007	40.1	0.03	0.05	5	
ZWSMD010010-16-X	12	2063	120	1656	1	0.019				16	12.1
ZWSMD010010-20-X	12	1650	120	1325	1	0.024				20	
ZWSMD010010-25-X	12	1320	120	1060	1	0.030				25	
ZWSMD010010-64-X	12	516	120	414	1	0.067	43.5	0.1	0.15	64	15.5
ZWSMD010010-80-X	12	413	120	331	1	0.084				80	
ZWSMD010010-100-X	12	330	120	265	1	0.105				100	
ZWSMD010010-125-X	12	264	120	212	1	0.131				125	
ZWSMD010010-256-X	12	129	120	116	0.8	0.150	46.5	0.15	0.2	256	18.5
ZWSMD010010-320-X	12	103	120	95	0.8	0.150				320	
ZWSMD010010-400-X	12	83	120	78	0.8	0.150				400	
ZWSMD010010-500-X	12	66	120	63	0.8	0.150				500	
ZWSMD010010-625-X	12	53	120	51	0.8	0.150	49.9	0.15	0.2	625	21.9
ZWSMD010010-1024-X	12	32	120	31	0.8	0.150				1024	
ZWSMD010010-1280-X	12	26	120	25	0.8	0.150				1280	
ZWSMD010010-1600-X	12	21	120	20	0.8	0.150				1600	
ZWSMD010010-2000-X	12	17	120	16	0.8	0.150				2000	
ZWSMD010010-2500-X	12	13	120	13	0.8	0.150				2500	
ZWSMD010010-3125-X	12	11	120	10	0.8	0.150				3125	

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

SMD012012

Φ12mm 行星齿轮箱



技术数据				
齿轮箱级数		2	3	4
连续输出转矩 (Max)	Nm	0.25	0.3	0.35
瞬间容许力矩(Max)	Nm	0.3	0.38	0.41
减速比	/	16, 21, 26, 28, 35	62, 83, 103, 111, 138, 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734, 794, 913, 987, 1135, 1227, 1526
外直径	mm	12	12	12
齿轮箱长度L1	mm	17.5	23.3	27.8
最大效率	%	75	65	55
建议温度范围	℃	-40~+100	-40~+100	-40~+100
齿轮箱重量 (Max)	G	12.4	15.5	18.6
最大传输功率 (连续)	W	2.2	1.1	0.6
最大传输功率 (瞬时)	W	2.8	1.4	0.8
空载平均空回	°	1.5	1.8	2.1
最大轴向载荷 (动态)	N	20	20	20
最大径向载荷 (离法兰4mm处)	N	45	60	60
输出端轴承		滚珠轴承	滚珠轴承	滚珠轴承
轴向间隙	mm	< 0.1	< 0.1	< 0.1

*注： 以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

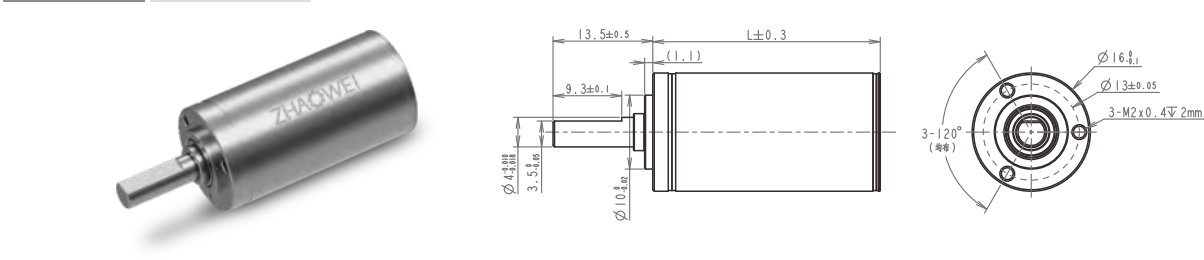
模块化组合				
组合产品	型号	级数		
		2	3	4
直流电机	1220 Φ12mm 石墨电刷	37.5	43.3	47.8
	1228 Φ12mm 石墨电刷	45.7	51.5	56.0
无刷电机	1226 Φ12mm 空心杯无刷电机	43.6	49.4	53.9
	1232 Φ12mm 空心杯无刷电机	49.5	55.3	59.8
编码器	CB-ST-8	磁编		

典型应用产品数据											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定容许力矩 (NM)	齿轮箱瞬间容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(A Max)	转矩(NM)					
ZWSMD012012-16	12	1836	117	1836	1	0.028	43.5	0.25	0.3	16	17.5
ZWSMD012012-21	12	1365	117	1365	1	0.037				21	
ZWSMD012012-26	12	1098	117	1098	1	0.046				26	
ZWSMD012012-28	12	1015	117	1015	1	0.050				28	
ZWSMD012012-35	12	816	117	816	1	0.063	49.3	0.3	0.38	35	23.3
ZWSMD012012-62	12	465	117	465	1	0.095				62	
ZWSMD012012-83	12	346	117	346	1	0.128				83	
ZWSMD012012-103	12	278	117	278	1	0.159				103	
ZWSMD012012-111	12	257	117	257	1	0.172				111	
ZWSMD012012-138	12	207	117	207	1	0.214				138	
ZWSMD012012-150	12	191	117	191	1	0.231				150	
ZWSMD012012-172	12	166	117	166	1	0.266				172	
ZWSMD012012-186	12	154	117	154	1	0.288	53.8	0.35	0.35	186	27.8
ZWSMD012012-231	12	124	117	124	1	0.357				231	
ZWSMD012012-243	12	118	117	118	0.8	0.318				243	
ZWSMD012012-326	12	88	117	71	0.8	0.350				326	
ZWSMD012012-406	12	70	117	60	0.8	0.350				406	
ZWSMD012012-439	12	65	117	56	0.8	0.350				439	
ZWSMD012012-546	12	52	117	47	0.8	0.350				546	
ZWSMD012012-590	12	48	117	44	0.8	0.350				590	
ZWSMD012012-679	12	42	117	38	0.8	0.350				679	
ZWSMD012012-734	12	39	117	36	0.8	0.350				734	
ZWSMD012012-794	12	36	117	33	0.8	0.350				794	
ZWSMD012012-913	12	31	117	29	0.8	0.350				913	
ZWSMD012012-987	12	29	117	27	0.8	0.350				987	
ZWSMD012012-1135	12	25	117	24	0.8	0.350				1135	
ZWSMD012012-1227	12	23	117	22	0.8	0.350				1227	
ZWSMD012012-1526	12	19	117	18	0.8	0.350				1526	

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

SMD016016

Φ16mm 行星齿轮箱



技术数据				
齿轮箱级数		2	3	4
连续输出转矩 (Max)	Nm	0.55	0.8	0.9
瞬间容许力矩(Max)	Nm	0.7	1	1.1
减速比	/	16, 21, 26, 28, 35, 44	62, 83, 103, 111, 138, 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734, 794, 913, 987, 1135, 1227, 1526
外直径	mm	16	16	16
齿轮箱长度L1	mm	25.8	30.8	35.7
最大效率	%	80	70	60
建议温度范围	℃	-30~+100	-30~+100	-30~+100
齿轮箱重量 (Max)	G	32.8	36.8	40.8
最大传输功率 (连续)	W	8	4	1.5
最大传输功率 (瞬时)	W	10	4.4	1.5
空载平均空回	°	0.5	0.5	0.5
最大轴向载荷 (动态)	N	30	30	30
最大径向载荷 (离法兰4mm处)	N	80	90	90
输出端轴承		滚珠轴承	滚珠轴承	滚珠轴承
轴向间隙	mm	0~0.1	0~0.1	0~0.1

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

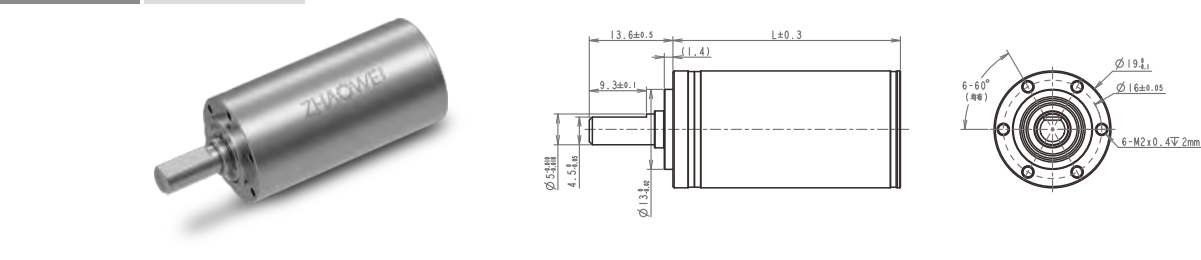
模块化组合				
组合产品	型号	级数		
		2	3	4
直流电机	1625石墨电刷	50.8	55.8	60.7
无刷电机	MC1628 无刷电机	53.8	58.8	63.7
编码器	CB-ST-16	磁编		

典型应用产品数据											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定 容许力矩 (NM)	齿轮箱瞬间 容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(A Max)	转矩(N.m)					
ZWSMD016016-16	24	3000	150	2500	1.15	0.055	53.8	0.55	0.7	16	25.8
ZWSMD016016-21	24	2286	150	1905	1.15	0.072				21	
ZWSMD016016-26	24	1846	150	1538	1.15	0.089				26	
ZWSMD016016-28	24	1714	150	1429	1.15	0.096				28	
ZWSMD016016-35	24	1371	150	1143	1.15	0.120				35	
ZWSMD016016-44	24	1091	150	909	1.15	0.151				44	
ZWSMD016016-62	24	774	170	645	1.2	0.213	58.8	0.8	1	62	30.8
ZWSMD016016-83	24	578	170	482	1.2	0.286				83	
ZWSMD016016-103	24	466	170	388	1.2	0.354				103	
ZWSMD016016-111	24	432	170	360	1.2	0.382				111	
ZWSMD016016-138	24	348	170	290	1.2	0.475				138	
ZWSMD016016-150	24	320	170	267	1.2	0.516				150	
ZWSMD016016-172	24	279	170	233	1.2	0.592				172	
ZWSMD016016-186	24	258	170	215	1.2	0.640				186	
ZWSMD016016-231	24	208	170	173	1.2	0.795				231	
ZWSMD016016-243	24	198	190	165	1.25	1.100				243	
ZWSMD016016-326	24	147	190	123	1.25	1.100				326	
ZWSMD016016-406	24	118	190	99	1.25	1.100				406	
ZWSMD016016-439	24	109	190	91	1.25	1.100				439	
ZWSMD016016-546	24	88	190	73	1.25	1.100				546	
ZWSMD016016-590	24	81	190	68	1.25	1.100				590	
ZWSMD016016-679	24	71	190	59	1.25	1.100	679				
ZWSMD016016-734	24	65	190	54	1.25	1.100	734				
ZWSMD016016-794	24	60	190	50	1.25	1.100	794				
ZWSMD016016-913	24	53	190	44	1.25	1.100	913				
ZWSMD016016-987	24	49	190	41	1.25	1.100	987				
ZWSMD016016-1135	24	42	190	35	1.25	1.100	1135				
ZWSMD016016-1227	24	39	190	33	1.25	1.100	1227				
ZWSMD016016-1526	24	31	190	26	1.25	1.100	1526				

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

SMD019019

Φ19mm 行星齿轮箱



技术数据				
齿轮箱级数		2	3	4
连续输出转矩 (Max)	Nm	0.9	1.6	2
瞬间容许力矩(Max)	Nm	1.15	2	2.5
减速比	/	16, 21, 26, 28, 35	62, 83, 103, 111, 138, 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734, 794, 913, 987, 1135, 1227, 1526
外直径	mm	19	19	19
齿轮箱长度L1	mm	29.9	37	41
最大效率	%	80	70	60
建议温度范围	℃	-30~+100	-30~+100	-30~+100
齿轮箱重量 (Max)	G	40.2	60.2	62.2
最大传输功率 (连续)	W	15	7	2
最大传输功率 (瞬时)	W	19	9	3
空载平均空回	°	0.7	0.7	0.7
最大轴向载荷 (动态)	N	40	40	40
最大径向载荷 (离法兰4mm处)	N	100	120	120
输出端轴承		滚珠轴承	滚珠轴承	滚珠轴承
轴向间隙	mm	0~0.1	0~0.1	0~0.1

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

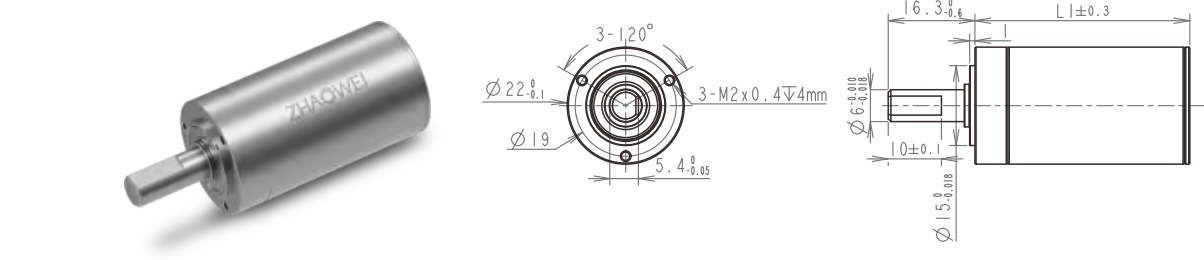
模块化组合				
组合产品	型号	级数		
		2	3	4
直流电机	MP1931Φ19mm 石墨电刷	60.9	68.0	72.0
	1625 石墨电刷	54.9	62.0	66.0
无刷电机	2248 无刷电机	77.9	85.0	89.0
编码器	CB-ST-16	磁编		

典型应用产品数据											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定容许力矩 (NM)	齿轮箱瞬间容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(A Max)	转矩(N.m)					
ZWSMD019019-16	12	513	200	331	1.5	0.126	60.9	0.9	1.15	16	29.9
ZWSMD019019-21	12	390	200	252	1.5	0.165				21	
ZWSMD019019-26	12	315	200	204	1.5	0.204				26	
ZWSMD019019-28	12	293	200	189	1.5	0.220				28	
ZWSMD019019-35	12	234	200	151	1.5	0.275				35	
ZWSMD019019-44	12	186	200	120	1.5	0.345				44	
ZWSMD019019-62	12	132	250	85	1.6	0.426	68	1.6	2	62	37
ZWSMD019019-83	12	99	250	64	1.6	0.570				83	
ZWSMD019019-103	12	80	250	51	1.6	0.707				103	
ZWSMD019019-111	12	74	250	48	1.6	0.762				111	
ZWSMD019019-138	12	59	250	38	1.6	0.948				138	
ZWSMD019019-150	12	55	250	35	1.6	1.030				150	
ZWSMD019019-172	12	48	250	31	1.6	1.181				172	
ZWSMD019019-186	12	44	250	28	1.6	1.277				186	
ZWSMD019019-231	12	35	250	23	1.6	1.586	72	2	2.5	231	41
ZWSMD019019-243	12	34	250	22	1.6	1.600				243	
ZWSMD019019-326	12	25	300	16	1.7	2.500				326	
ZWSMD019019-406	12	20	300	13	1.7	2.500				406	
ZWSMD019019-439	12	19	300	12	1.7	2.500				439	
ZWSMD019019-546	12	15	300	10	1.7	2.500				546	
ZWSMD019019-590	12	14	300	9	1.7	2.500				590	
ZWSMD019019-679	12	12	300	8	1.7	2.500				679	
ZWSMD019019-734	12	11	300	7	1.7	2.500				734	
ZWSMD019019-794	12	10	300	7	1.7	2.500				794	
ZWSMD019019-913	12	9	300	6	1.7	2.500				913	
ZWSMD019019-987	12	8	300	5	1.7	2.500				987	
ZWSMD019019-1135	12	7	300	5	1.7	2.500				1135	
ZWSMD019019-1227	12	7	300	4	1.7	2.500				1227	
ZWSMD019019-1526	12	5	300	3	1.7	2.500				1526	

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

SMD022022

Φ22mm 行星齿轮箱



技术数据						
齿轮箱级数	1	2	3	4	5	
连续输出转矩 (Max)	Nm 1	2.9	4.3	5.5	5.2	
瞬间容许力矩(Max)	Nm 1.25	3.6	5.3	6.5	6.5	
减速比	/ 3.71	9.7, 14	43, 66	94, 112, 134, 159, 190, 246	415, 592, 989, 1526	
外直径	mm 22	22	22	22	22	
齿轮箱长度L1	mm 24.3	32.8	40.4	46.5	52.6	
最大效率	% 96	92	90	87	83	
建议温度范围	℃ -30~+85	-30~+85	-30~+85	-30~+85	-30~+85	
齿轮箱重量 (Max)	G 53	65	76	88	102	
最大传输功率 (连续)	W 66	36	20	11	6	
最大传输功率 (瞬时)	W 82.5	45	25	14	7	
最大连续转矩	Nm 1	2.9	4.3	5.5	5.2	
最大瞬时转矩	Nm 1.25	3.6	5.3	6.5	6.5	
空载平均空回	° 0.5	0.5	0.5	0.5	0.5	
最大轴向载荷 (动态)	N 80	80	80	80	80	
最大径向载荷 (离法兰4mm处)	N 100	145	150	150	150	
输出端轴承	滚珠轴承	滚珠轴承	滚珠轴承	滚珠轴承	滚珠轴承	
轴向间隙	mm 0~0.1	0~0.1	0~0.1	0~0.1	0~0.1	

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

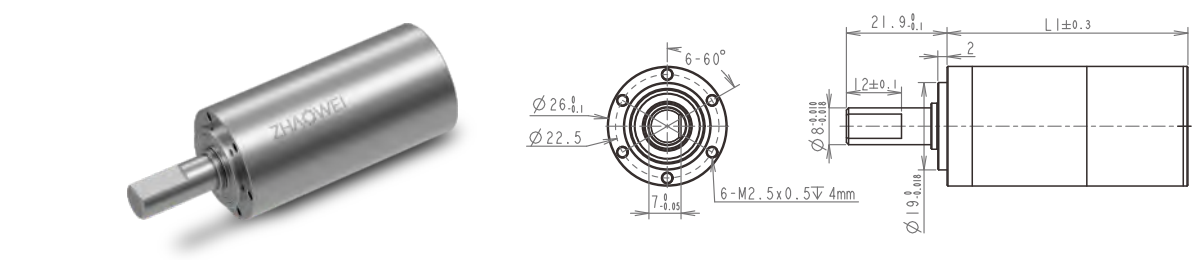
模块化组合						
组合产品	型号	级数				
		1	2	3	4	5
直流电机	MP1931 Φ19mm 石墨电刷	56.1	64.6	72.2	78.3	84.4
	MP2238 Φ22mm 石墨电刷	62.5	71	78.6	84.7	90.8
无刷电机	MO1925 Φ19mm 外转子无刷电机	49.3	57.8	65.4	71.5	77.6
	MC2232 Φ22mm 空心杯无刷电机	56.3	64.8	72.4	78.5	84.6
	MC2250 Φ22mm 空心杯无刷电机	74.3	82.8	90.4	96.5	102.6
编码器	CB-ST-16	磁编				

典型应用产品数据											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定 容许力矩 (NM)	齿轮箱瞬间 容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(A Max)	转矩(N.m)					
ZWSMD022022-3.71	24	1914	150	1482	1	0.06	56.3	1	1.25	3.71	24.3
ZWSMD022022-9.7	24	732	200	567	1.2	0.14	64.8	2.9	3.6	9.7	32.8
ZWSMD022022-14	24	507	200	393	1.2	0.20				14	
ZWSMD022022-43	24	165	250	128	1.5	0.60	72.4	4.3	5.3	43	40.4
ZWSMD022022-66	24	108	250	83	1.5	0.92				66	
ZWSMD022022-94	24	76	300	59	1.8	1.27	78.5	5.5	6.5	94	46.5
ZWSMD022022-112	24	63	300	49	1.8	1.51				112	
ZWSMD022022-134	24	53	300	41	1.8	1.81				134	
ZWSMD022022-159	24	45	300	35	1.8	2.14				159	
ZWSMD022022-190	24	37	300	29	1.8	2.56				190	
ZWSMD022022-246	24	29	300	22	1.8	3.32	84.6	5.2	6.5	246	52.6
ZWSMD022022-415	24	17	350	13	2.2	5.34				415	
ZWSMD022022-592	24	12	350	9	2.2	7.62				592	
ZWSMD022022-989	24	7	350	6	2.2	12.72				989	
ZWSMD022022-1526	24	5	350	4	2.2	19.63				1526	

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

SMD026026

Φ26mm 行星齿轮箱



技术数据				
齿轮箱级数	2	3	4	
连续输出转矩 (Max)	Nm 3	5	6.3	
瞬间容许力矩(Max)	Nm 4	7	8	
减速比	/ 16, 21, 26, 28, 35	62,83, 103,111, 138,150, 172,186, 231	243, 326, 406, 439, 546, 590, 679, 734, 794, 913, 987, 1135, 1227, 1526	
外直径	mm 26	26	26	
齿轮箱长度L1	mm 35.9	44.9	52.4	
最大效率	% 92	90	87	
建议温度范围	℃ -40~+100	-40~+100	-40~+100	
齿轮箱重量 (Max)	G 120	132	145	
最大传输功率 (连续)	W 60	30	15	
最大传输功率 (瞬时)	W 75	40	20	
空载平均空回	° 0.5	0.5	0.5	
最大轴向载荷 (动态)	N 110	110	110	
最大径向载荷 (离法兰4mm处)	N 180	180	180	
输出端轴承	滚珠轴承	滚珠轴承	滚珠轴承	
轴向间隙	mm 0~0.1	0~0.1	0~0.1	

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

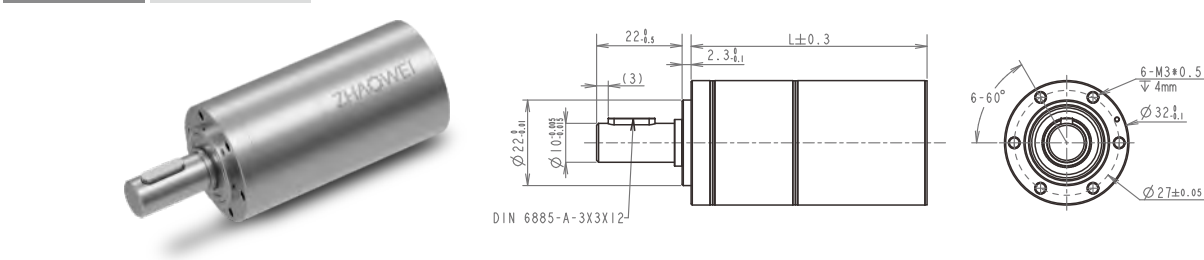
模块化组合				
组合产品	型号	级数		
		2	3	4
直流电机	MP2238 Φ22mm 石墨电刷	74.10	83.10	90.60
	MP2430 Φ24mm 石墨电刷	67.10	76.10	83.60
	MP2543 Φ25mm 空心杯碳刷电机	79.40	88.40	95.90
	MP2554 Φ25mm 空心杯碳刷电机	79.40	88.40	95.90
无刷电机	MC2453 Φ24mm 无刷空心杯电机	88.90	97.90	105.40
编码器	CB-ST-22	磁编		

典型应用产品数据												
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定 容许力矩 (NM)	齿轮箱瞬间 容许力矩 (NM)	减速比	减速箱长 L1(mm)	
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(A Max)	转矩(N.m)						
ZWSMD026026-16-X	24	813	460	747	3	0.3	88.9	3	4	16	35.9	
ZWSMD026026-21-X	24	619	460	569	3	0.4				21		
ZWSMD026026-26-X	24	500	460	460	3	0.5				26		
ZWSMD026026-28-X	24	464	460	427	3	0.5				28		
ZWSMD026026-35-X	24	371	460	341	3	0.6				35		
ZWSMD026026-62-X	24	210	580	193	3.5	1.1	97.9	5	7	62	44.9	
ZWSMD026026-83-X	24	157	580	144	3.5	1.5				83		
ZWSMD026026-103-X	24	126	580	116	3.5	1.9				103		
ZWSMD026026-111-X	24	117	580	108	3.5	2.0				111		
ZWSMD026026-138-X	24	94	580	87	3.5	2.5				138		
ZWSMD026026-150-X	24	87	580	80	3.5	2.7				150		
ZWSMD026026-172-X	24	76	580	69	3.5	3.1				172		
ZWSMD026026-186-X	24	70	580	64	3.5	3.3				186		
ZWSMD026026-231-X	24	56	580	52	3.5	4.2				231		
ZWSMD026026-243-X	24	53	700	49	4	4.2				243		
ZWSMD026026-326-X	24	40	700	37	4	5.7				326		
ZWSMD026026-406-X	24	32	700	29	4	7.1				406		
ZWSMD026026-439-X	24	30	700	27	4	7.6				439		
ZWSMD026026-546-X	24	24	700	22	4	9.5				546		
ZWSMD026026-590-X	24	22	700	20	4	10.3	590					
ZWSMD026026-679-X	24	19	700	18	4	11.8	679					
ZWSMD026026-734-X	24	18	700	16	4	12.8	734	105.4	6.3	8	734	52.4
ZWSMD026026-794-X	24	16	700	15	4	13.8	794					
ZWSMD026026-913-X	24	14	700	13	4	15.9	913					
ZWSMD026026-987-X	24	13	700	12	4	17.2	987					
ZWSMD026026-1135-X	24	11	700	11	4	19.7	1135					
ZWSMD026026-1227-X	24	11	700	10	4	21.3	1227					
ZWSMD026026-1526-X	24	9	700	8	4	26.6				1526		

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

SMD032032

Φ32mm 行星齿轮箱



技术数据					
齿轮箱级数		1	2	3	4
连续输出转矩 (Max)	Nm	2.20	4.80	10.40	12.60
瞬间容许力矩(Max)	Nm	2.70	6.00	13.00	16.00
减速比	/	3.9, 5.3	16, 21, 26, 28, 35	62, 83, 103, 111, 138, 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734, 794, 913, 987, 1135, 1227, 1526
外直径	mm	32	32	32	32
齿轮箱长度	mm	32.0	47.0	62.0	77.0
最大效率	%	96	93	90	87
建议温度范围	℃	-40~+100	-40~+100	-40~+100	-40~+100
齿轮箱重量 (Max)	G	167	231	287	350
最大传输功率 (连续)	W	242	160	70	25
最大传输功率 (瞬时)	W	300	160	85	30
空载平均空回	°	0.4	0.7	0.8	0.8
最大轴向载荷 (动态)	N	110	110	110	110
最大径向载荷 (离法兰4mm处)	N	150	200	250	250
输出端轴承		滚珠轴承	滚珠轴承	滚珠轴承	滚珠轴承
轴向间隙	mm	0~0.1	0~0.1	0~0.1	0~0.1

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

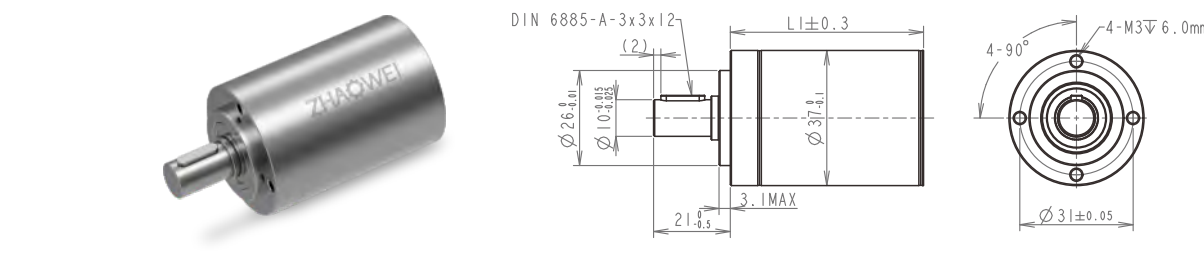
模块化组合					
组合产品	型号	级数			
		1	2	3	4
直流电机	Φ30mm 石墨电刷	74	87.50	103.50	117.50
无刷电机	Φ32mm 无刷空心杯电机	102	115.50	131.50	145.50
编码器	CB-ST-16	磁编			

典型应用产品数据											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定容许力矩 (NM)	齿轮箱瞬间容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(A Max)	转矩(N.m)					
ZWSMD032032-3.9-X	24.0	1286	150	1051	1.0	0.097	74.0	2.2	2.7	3.9	32.0
ZWSMD032032-5.3-X	24.0	1068	150	774	1.0	0.132				5.3	
ZWSMD032032-16-X	24.0	363	150	263	1.0	0.377				16	
ZWSMD032032-21-X	24.0	270	150	196	1.0	0.507	87.5	4.8	6.0	21	45.5
ZWSMD032032-26-X	24.0	217	150	157	1.0	0.630				26	
ZWSMD032032-28-X	24.0	201	150	146	1.0	0.681				28	
ZWSMD032032-35-X	24.0	162	150	117	1.0	0.847				35	
ZWSMD032032-62-X	24.0	92	150	67	1.0	1.439				62	
ZWSMD032032-83-X	24.0	68	150	50	1.0	1.935	103.5	10.4	13.0	83	61.5
ZWSMD032032-103-X	24.0	55	150	40	1.0	2.406				103	
ZWSMD032032-111-X	24.0	51	150	37	1.0	2.602				111	
ZWSMD032032-138-X	24.0	41	150	30	1.0	3.236				138	
ZWSMD032032-150-X	24.0	38	150	27	1.0	3.500				150	
ZWSMD032032-172-X	24.0	33	150	24	1.0	4.023				172	
ZWSMD032032-186-X	24.0	30	150	22	1.0	4.351				186	
ZWSMD032032-231-X	24.0	25	150	18	1.0	5.410				231	
ZWSMD032032-243-X	24.0	23	150	17	1.0	5.490				243	
ZWSMD032032-326-X	24.0	17	150	13	1.0	7.383	117.5	12.6	16.0	326	75.5
ZWSMD032032-406-X	24.0	14	150	10	1.0	9.180				406	
ZWSMD032032-439-X	24.0	13	150	9	1.0	9.929				439	
ZWSMD032032-546-X	24.0	10	150	8	1.0	12.345				546	
ZWSMD032032-590-X	24.0	10	150	8	1.0	12.600				590	
ZWSMD032032-679-X	24.0	8	150	7	1.0	12.600				679	
ZWSMD032032-734-X	24.0	8	150	7	1.0	12.600				734	
ZWSMD032032-794-X	24.0	7	150	6	1.0	12.600				794	
ZWSMD032032-913-X	24.0	6	150	5	1.0	12.600				913	
ZWSMD032032-987-X	24.0	6	150	5	1.0	12.600				987	
ZWSMD032032-1135-X	24.0	5	150	4	1.0	12.600				1135	
ZWSMD032032-1227-X	24.0	5	150	4	1.0	12.600				1227	
ZWSMD032032-1526-X	24.0	4	150	3	1.0	12.600				1526	

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

SMD038038

Φ38mm 行星齿轮箱



技术数据				
齿轮箱级数		1	2	3
连续输出转矩 (Max)	Nm	2.3	5.4	9.3
瞬间容许力矩(Max)	Nm	2.9	6.8	11.6
减速比	/	3.9	16, 26	62, 83, 103, 111, 138, 150, 172, 186, 231
外直径	mm	37	37	37
齿轮箱长度	mm	32.3	45.4	52.9
最大效率	%	96	93	90
建议温度范围	℃	-40~+100	-40~+100	-40~+100
齿轮箱重量 (Max)	G	240	320	420
最大传输功率 (连续)	W	185	90	45
最大传输功率 (瞬时)	W	230	115	60
空载平均空回	°	0.5	0.5	0.5
最大轴向载荷 (动态)	N	240	240	240
最大径向载荷 (离法兰4mm处)	N	200	250	250
输出端轴承		滚珠轴承	滚珠轴承	滚珠轴承
轴向间隙	mm	0~0.1	0~0.1	0~0.1

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

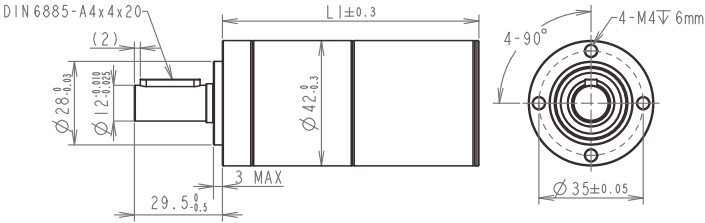
模块化组合				
组合产品	型号	级数		
		1	2	3
直流电机	3571 Φ35mm 空心杯电刷	103.3	116.4	123.9
	3857 Φ38mm 石墨电刷	89.3	102.4	109.9
无刷电机	3657 Φ36mm 无刷电机	89.3	102.4	109.9
编码器	CB-ST-22	磁编		

典型应用产品数据											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定容许力矩 (NM)	齿轮箱瞬间容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(A Max)	转矩(N.m)					
ZWSMD038038-3.9-X	24	2085	600	1836	4	0.5	103.3	2.3	2.9	3.9	32.3
ZWSMD038038-16-X	24	508	600	448	4.5	1.8	116.4	5.4	6.8	16	
ZWSMD038038-26-X	24	313	600	275	4.5	3.0				26	
ZWSMD038038-62-X	24	131	700	115	5	6.9	123.9	9.3	11.6	62	52.9
ZWSMD038038-83-X	24	98	700	86	5	9.2				83	
ZWSMD038038-103-X	24	79	700	70	5	11.4				103	
ZWSMD038038-111-X	24	73	700	65	5	12.3				111	
ZWSMD038038-138-X	24	59	700	52	5	15.3				138	
ZWSMD038038-150-X	24	54	700	48	5	16.7				150	
ZWSMD038038-172-X	24	47	700	42	5	19.1				172	
ZWSMD038038-186-X	24	44	700	38	5	20.7				186	
ZWSMD038038-231-X	24	35	700	31	5	25.7				231	

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

SMD042042

Φ42mm 行星齿轮箱



技术数据					
齿轮箱级数		1	2	3	4
连续输出转矩 (Max)	Nm	4.5	18	32	35
瞬间容许力矩(Max)	Nm	7	24	46	50
减速比	/	3.9, 5.3	16, 21, 26, 28, 35	62, 83, 103, 111, 138, 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679,734, 794, 913, 987, 1135, 1227, 1526
外直径	mm	42	42	42	42
齿轮箱长度	mm	47.8	66.4	86	104.5
最大效率	%	96	93	90	87
建议温度范围	℃	-40~+100	-40~+100	-40~+100	-40~+100
齿轮箱重量 (Max)	G	400	540	660	800
最大传输功率 (连续)	W	650	460	200	40
最大传输功率 (瞬时)	W	820	580	250	50
空载平均空回	°	0.5	0.5	0.5	0.5
最大轴向载荷 (动态)	N	200	200	200	200
最大径向载荷 (离法兰4mm处)	N	350	525	750	750
输出端轴承		滚珠轴承	滚珠轴承	滚珠轴承	滚珠轴承
轴向间隙	mm	0~0.1	0~0.1	0~0.1	0~0.1

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

模块化组合					
组合产品	型号	级数			
		1	2	3	4
直流电机	3571 Φ35mm 空心杯电刷	118.8	137.4	157	175.5
	4088 Φ40mm 无刷空心杯电机	135.8	154.4	174	192.5
无刷电机	4260 Φ42mm 无刷电机	107.8	126.4	146	164.5
编码器	CB-ST-22	磁编			

典型应用产品数据											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定容许力矩 (NM)	齿轮箱瞬间容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(A Max)	转矩(N.m)					
ZWSMD042042-3.9-X	24	2085	600	1836	9	0.5	118.8	4.5	7	3.9	47.8
ZWSMD042042-5.3-X	24	1534	600	1351	9	0.6				5.3	
ZWSMD042042-16-X	24	508	600	448	9	1.8				16	
ZWSMD042042-21-X	24	387	600	341	9	2.4	138	18	24	21	67
ZWSMD042042-26-X	24	313	600	275	9	3.0				26	
ZWSMD042042-28-X	24	290	600	256	9	3.2				28	
ZWSMD042042-35-X	24	232	600	205	9	4.0				35	
ZWSMD042042-62-X	24	131	700	115	9.5	6.9	157	32	46	62	86
ZWSMD042042-83-X	24	98	700	86	9.5	9.2				83	
ZWSMD042042-103-X	24	79	700	70	9.5	11.4				103	
ZWSMD042042-111-X	24	73	700	65	9.5	12.3				111	
ZWSMD042042-138-X	24	59	700	52	9.5	15.3				138	
ZWSMD042042-150-X	24	54	700	48	9.5	16.7				150	
ZWSMD042042-172-X	24	47	700	42	9.5	19.1				172	
ZWSMD042042-186-X	24	44	700	38	9.5	20.7				186	
ZWSMD042042-231-X	24	35	700	31	9.5	25.7	175.5	35	50	231	104.5
ZWSMD042042-243-X	24	33	800	29	10	26.4				243	
ZWSMD042042-326-X	24	25	800	22	10	35.4				326	
ZWSMD042042-406-X	24	20	800	18	10	44.1				406	
ZWSMD042042-439-X	24	19	800	16	10	47.7				439	
ZWSMD042042-546-X	24	15	800	13	10	59.3				546	
ZWSMD042042-590-X	24	14	800	12	10	64.1				590	
ZWSMD042042-679-X	24	12	800	11	10	73.8				679	
ZWSMD042042-734-X	24	11	800	10	10	79.8				734	
ZWSMD042042-794-X	24	10	800	9	10	86.3				794	
ZWSMD042042-913-X	24	9	800	8	10	99.2				913	
ZWSMD042042-987-X	24	8	800	7	10	107.3				987	
ZWSMD042042-1135-X	24	7	800	6	10	123.4				1135	
ZWSMD042042-1227-X	24	7	800	6	10	133.4				1227	
ZWSMD042042-1526-X	24	5	800	5	10	165.8				1526	

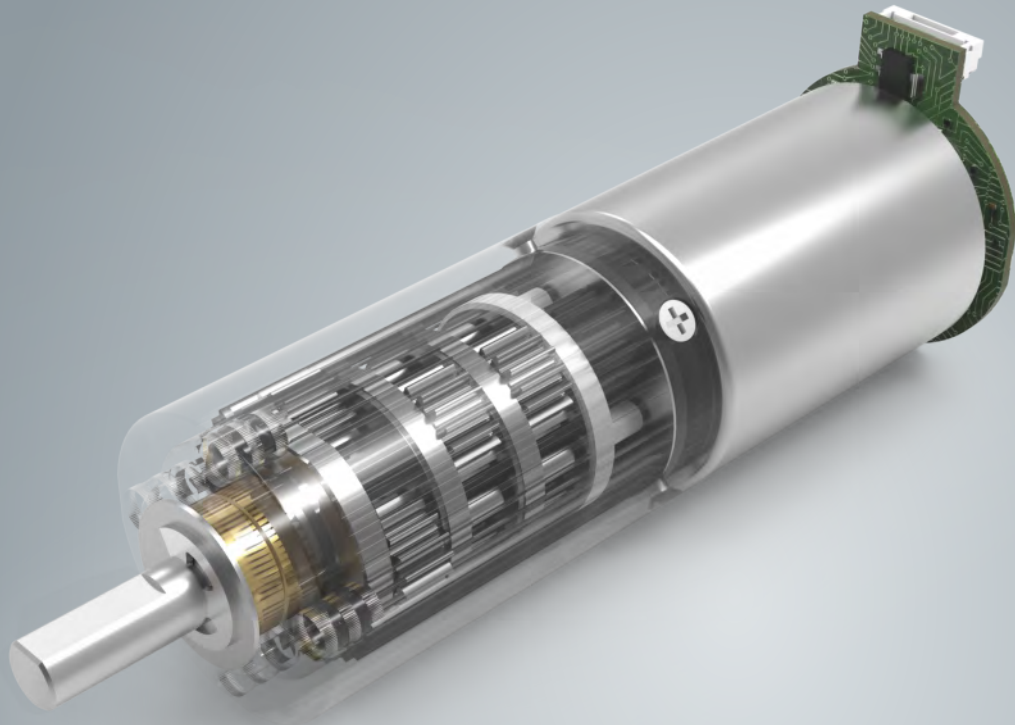
*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

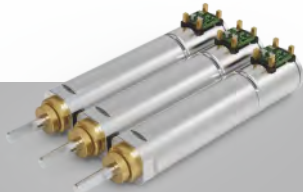
MD行星齿轮箱

MD planetary gearbox

除了高性能行星齿轮箱之外，兆威还拥有MD行星齿轮箱，金属外壳能够具有更高强度，对抗震动、高温、灰尘的能力更强，在工业自动化、医疗器械等领域性能优异。

Featuring a durable metal casing, the MD planetary gearbox excels in vibration resistance, high-temperature endurance, and dust protection, making it ideal for industrial automation and medical devices.





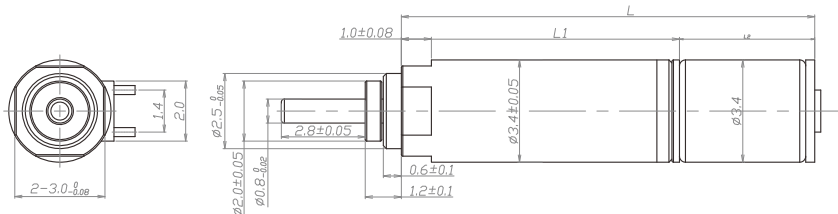
MD003003

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	3.4mm	轴承	Bearing	含油轴承 oil-impregnated bearings
材质	Material	五金 Metal	轴向窜动	Axial Play	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤0.3N
齿轮箱回程差	Backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	5	25	125	625
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	50	50	50	50
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	150	150	150	150
齿轮箱效率 (%)	Gearbox efficiency (%)	85	73	65	58
长度 (mm)	Gearbox length L1 (mm)	6	7.5	9	10.5

技术插图 | Technical Drawing

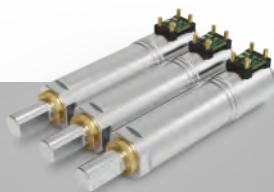


马达规格参数 Motor Specifications

马达	Motor type	步进电机 Stepper motor	输入速度	Input speed	≤10000rpm
电压	Voltage	3V	负载电流	Load current	50mA max

型号 Model	Speed at 2400pps 2400pps频率转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	gf.cm	gf.cm		mm	mm
MD003003-5	1440.0	50	150	5	6.0	10.75
MD003003-25	288.0	50	150	25	7.5	12.25
MD003003-125	57.6	50	150	125	9.0	13.75
MD003003-625	11.5	50	150	625	10.5	15.25

注:可根据客户要求定制 Specifications can be customized per customer requirements.



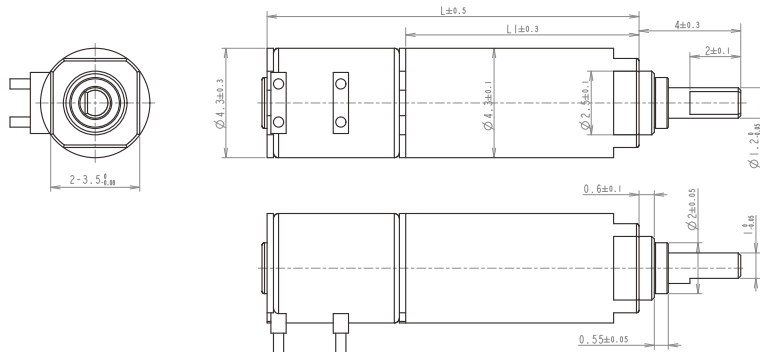
MD004004

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	4.3mm	轴承	Bearing	含油轴承 oil-impregnated bearings
材质	Material	五金 Metal	轴向窜动	Axial Play	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤0.3N
齿轮箱回程差	Backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	6	36	216	1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	70	70	70	70
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	200	200	200	200
齿轮箱效率 (%)	Gearbox efficiency (%)	85	73	65	58
长度 (mm)	Gearbox length L1 (mm)	6.18	7.67	9.17	10.72

技术插图 | Technical Drawing

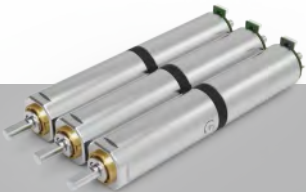


马达规格参数 Motor Specifications

马达	Motor type	步进电机 Stepper motor	输入速度	Input speed	≤10000rpm
电压	Voltage	3V	负载电流	Load current	50mA max

型号 Model	Speed at 2000pps 2000pps频率转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	gf.cm	gf.cm		mm	mm
MD004004-6	1000.0	140	400	6	6.18	11.78
MD004004-36	166.6	140	400	36	7.67	13.27
MD004004-216	27.7	140	400	216	9.17	14.77
MD004004-1296	4.6	140	400	1296	10.72	16.32

注:可根据客户要求定制 Specifications can be customized per customer requirements.



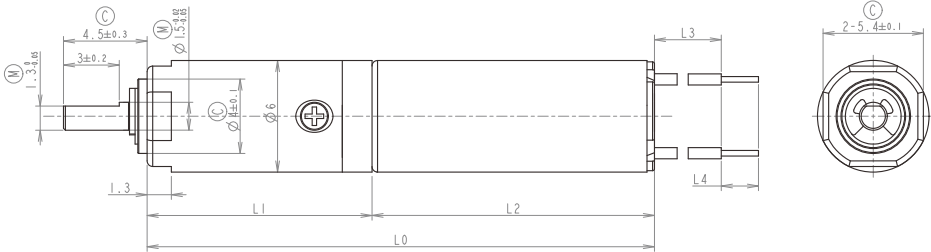
MD006006

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	6mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial Play	≤0.3mm	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤0.5N	≤5N
齿轮箱回程差	Backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	5 / 6	23 / 31 / 41	110 / 148 / 198 / 266	531 / 711 / 952 / 1275 / 1708
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	330	330	330	600
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	800	800	800	1500
齿轮箱效率 (%)	Gearbox efficiency (%)	87	74	63	56
长度 (mm)	Gearbox length L1 (mm)	9.7	12.1	14.5	16.9

技术插图 | Technical Drawing





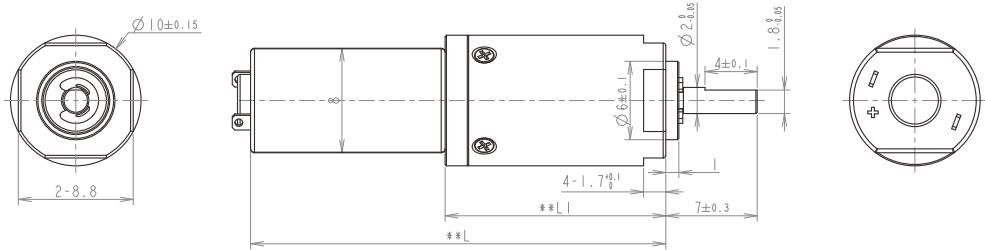
MD010010

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	10mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial Play	≤0.3mm	≤0.2mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤2N	≤7N
齿轮箱回程差	Backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	3 / 5	13 / 19 / 28	46 / 69 / 102 / 151	168 / 249 / 368 / 546 / 809
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	1000	1000	1000	1000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	2000	2000	2000	2000
齿轮箱效率 (%)	Gearbox efficiency (%)	87	74	63	56
长度 (mm)	Gearbox length L1 (mm)	9.7	12.8	15.9	19

技术插图 | Technical Drawing

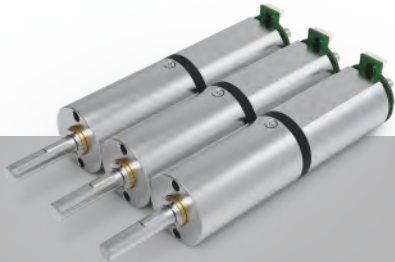


马达规格参数 Motor Specifications

马达(可选项) Motor type (optional)	直流有刷电机、空心杯电机、步进电机 Brushed DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选项) Voltage (optional)	3-24V	负载电流 Load current	150mA max

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
MD010010-3	3917	7500	1000	2000	3	9.7	24.7
MD010010-5	2645	5000	1000	2000	5		
MD010010-13	1085	2308	1000	2000	13	12.8	27.8
MD010010-19	742	1579	1000	2000	19		
MD010010-28	504	1071	1000	2000	28		
MD010010-46	307	652	1000	2000	46	15.9	30.9
MD010010-69	204	435	1000	2000	69		
MD010010-102	138	294	1000	2000	102		
MD010010-151	93	199	1000	2000	151		
MD010010-168	84	179	1000	2000	168	19	34
MD010010-249	57	120	1000	2000	249		
MD010010-368	38	82	1000	2000	368		
MD010010-546	26	55	1000	2000	546		
MD010010-809	17	37	1000	2000	809		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



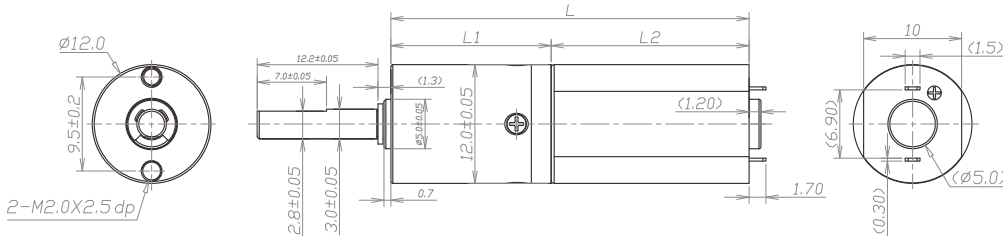
MD012012

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	12mm	轴承	Bearing	含油轴承 oil-impregnated bearings
材质	Material	五金 Metal	轴向窜动	Axial Play	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤10N
齿轮箱回程差	Backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	300	1000	1500	2000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	1000	3000	4500	5000
齿轮箱效率 (%)	Gearbox efficiency (%)	87	74	63	56
长度 (mm)	Gearbox length L1 (mm)	12.4	16.2	20	23.8

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选项) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选项) Voltage (optional)	3-24V	负载电流 Load current	250mA max

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
MD012012-4	1875	7500	300	1000	4	12.4	32.4
MD012012-6	1250	5000	300	1000	6		
MD012012-16	469	1875	1000	3000	16	16.2	36.2
MD012012-24	313	1250	1000	3000	24		
MD012012-36	208	833	1000	3000	36		
MD012012-64	117	469	1500	4500	64	20	40
MD012012-96	78	313	1500	4500	96		
MD012012-144	52	208	1500	4500	144		
MD012012-216	35	139	1500	4500	216		
MD012012-256	29	117	2000	5000	256	23.8	43.8
MD012012-384	20	78	2000	5000	384		
MD012012-576	13	52	2000	5000	576		
MD012012-864	9	35	2000	5000	864		
MD012012-1296	6	23	2000	5000	1296		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



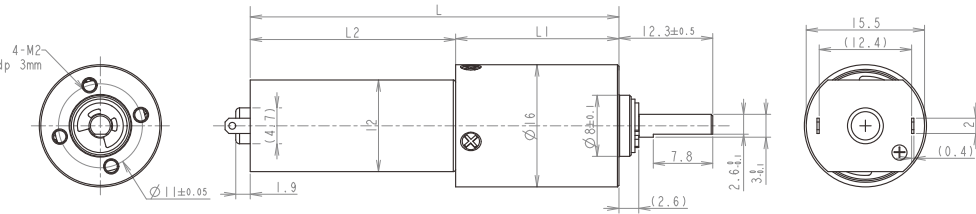
MD016016

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	16mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial Play	≤0.3mm	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤20N	≤30N
齿轮箱回程差	Backlash	≤2°	工作温度	Operating temperature range	-30 ~ +100°C	

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	5000	5000	5000	5000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	10000	10000	10000	10000
齿轮箱效率 (%)	Gearbox efficiency (%)	90	85	80	75
长度 (mm)	Gearbox length L1 (mm)	11.5	14.8	18.1	21.4

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	300mA max

参考数据 (马达定义值: 6V 8000rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 6V & 8000rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
MD016016-4	1875	7500	5000	10000	4	11.5	38.4
MD016016-6	1250	5000	5000	10000	6		
MD016016-16	469	1875	5000	10000	16	14.8	41.7
MD016016-24	313	1250	5000	10000	24		
MD016016-36	208	833	5000	10000	36		
MD016016-64	117	469	5000	10000	64	18.1	45.0
MD016016-96	78	313	5000	10000	96		
MD016016-144	52	208	5000	10000	144		
MD016016-216	35	139	5000	10000	216		
MD016016-256	29	117	5000	10000	256	21.4	48.3
MD016016-384	20	78	5000	10000	384		
MD016016-576	13	52	5000	10000	576		
MD016016-864	9	35	5000	10000	864		
MD016016-1296	6	23	5000	10000	1296		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



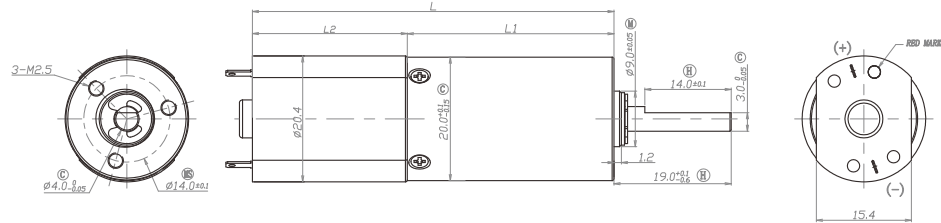
MD020020

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	20mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial Play	≤0.3mm	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤50N	≤75N
齿轮箱回程差	Backlash	≤2° 可定制 Customizable	工作温度	Operating temperature range	-30 ~ +100°C	

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	10000	10000	10000	10000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	25000	25000	25000	25000
齿轮箱效率 (%)	Gearbox efficiency (%)	90	81	72	65
长度 (mm)	Gearbox length L1 (mm)	17.6	22.9	28.2	33.5

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	300mA max

参考数据 (马达定义值: 12V 7200rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 12V & 7200rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
MD020020-4	1875	7500	10000	25000	4	17.6	42.7
MD020020-6	1250	5000	10000	25000	6		
MD020020-16	469	1875	10000	25000	16	22.9	48
MD020020-24	313	1250	10000	25000	24		
MD020020-36	208	833	10000	25000	36		
MD020020-64	117	469	10000	25000	64	28.2	53.3
MD020020-96	78	313	10000	25000	96		
MD020020-144	52	208	10000	25000	144		
MD020020-216	35	139	10000	25000	216		
MD020020-256	29	117	10000	25000	256	33.5	58.6
MD020020-384	20	78	10000	25000	384		
MD020020-576	13	52	10000	25000	576		
MD020020-864	9	35	10000	25000	864		
MD020020-1296	6	23	10000	25000	1296		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



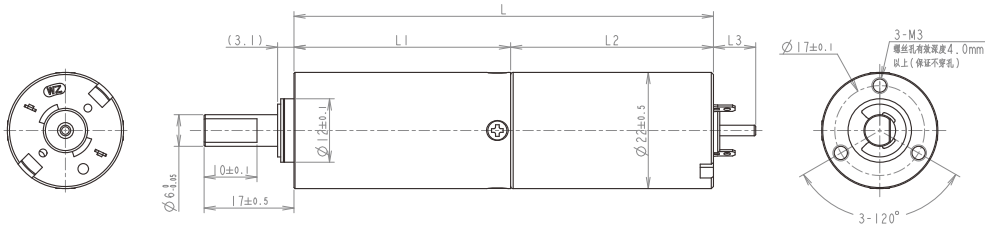
MD022022

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	22mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial Play	≤0.1mm	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤120N	≤170N
齿轮箱回程差	Backlash	≤2° 可定制 Customizable	工作温度	Operating temperature range	-30 ~ +100°C	

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	15000	15000	15000	15000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	36000	36000	36000	36000
齿轮箱效率 (%)	Gearbox efficiency (%)	90	85	80	75
长度 (mm)	Gearbox length L1 (mm)	19.1	26.4	33.7	41

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流无刷电机、空心杯电机、步进电机 Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	300mA max

参考数据 (马达定义值: 24V 8300rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 24V & 8300rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
MD022022-4	1875	7500	15000	36000	4	19.1	57.5
MD022022-6	1250	5000	15000	36000	6		
MD022022-16	469	1875	15000	36000	16	26.4	64.8
MD022022-24	313	1250	15000	36000	24		
MD022022-36	208	833	15000	36000	36		
MD022022-64	117	469	15000	36000	64	33.7	72.1
MD022022-96	78	313	15000	36000	96		
MD022022-144	52	208	15000	36000	144		
MD022022-216	35	139	15000	36000	216		
MD022022-256	29	117	15000	36000	256	41	79.4
MD022022-384	20	78	15000	36000	384		
MD022022-576	13	52	15000	36000	576		
MD022022-864	9	35	15000	36000	864		
MD022022-1296	6	23	15000	36000	1296		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



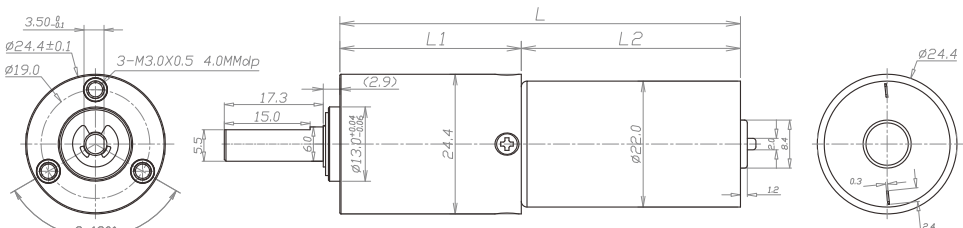
MD024024

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	24mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial Play	≤0.2mm	≤0.2mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤100N	≤272N
齿轮箱回程差	Backlash	≤2° 可定制 Customizable	工作温度	Operating temperature range	-30 ~ +100°C	

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	20000	20000	20000	20000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	60000	60000	60000	60000
齿轮箱效率 (%)	Gearbox efficiency (%)	85	75	65	55
长度 (mm)	Gearbox length L1 (mm)	19	25	32	39

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	300mA max

参考数据 (马达定义值: 12V 6000rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 12V & 6000rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
MD024024-4	1150	1500	20000	60000	4	19.0	49.8
MD024024-6	767	1000	20000	60000	6		
MD024024-16	288	375	20000	60000	16	25.0	55.8
MD024024-24	192	250	20000	60000	24		
MD024024-36	128	167	20000	60000	36		
MD024024-64	72	94	20000	60000	64	32.0	62.8
MD024024-96	48	63	20000	60000	96		
MD024024-144	32	42	20000	60000	144		
MD024024-216	21	38	20000	60000	216		
MD024024-256	18	23	20000	60000	256	39.0	69.8
MD024024-384	12	16	20000	60000	384		
MD024024-576	8	10	20000	60000	576		
MD024024-864	5	7	20000	60000	864		
MD024024-1296	4	5	20000	60000	1296		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



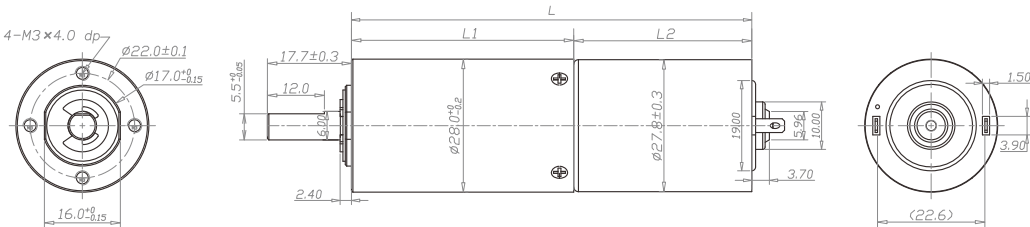
MD028028

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	28mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial Play	≤0.1mm	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤120N	≤170N
齿轮箱回程差	Backlash	≤2° 可定制 Customizable	工作温度	Operating temperature range	-30 ~ +100℃	

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	40000	40000	40000	40000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	120000	120000	120000	120000
齿轮箱效率 (%)	Gearbox efficiency (%)	87	64	51	41
长度 (mm)	Gearbox length L1 (mm)	21.3	29.8	38.3	46.8

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、步进电机 Brushed DC motor, Brushless DC motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	400mA max

参考数据 (马达定义值: 24V 7700rpm) 下表根据马达定义值测试, 数据只作为参考值。Parameter (values at 24V & 7700rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
MD028028-4	1658	1925	40000	120000	4	21.3	58.8
MD028028-6	1105	1283	33000	100000	6		
MD028028-16	413	472	40000	120000	16	29.8	67.3
MD028028-24	276	312	40000	120000	24		
MD028028-36	181	211	33000	100000	36		
MD028028-64	104	119	40000	120000	64	38.3	75.8
MD028028-96	69	79	40000	120000	96		
MD028028-144	46	54	40000	120000	144		
MD028028-216	31	35	33000	100000	216		
MD028028-256	26	30	40000	120000	256	46.8	84.3
MD028028-384	17	19	40000	120000	384		
MD028028-576	12	13	40000	120000	576		
MD028028-864	8	9	40000	120000	864		
MD028028-1296	5	6	33000	100000	1296		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



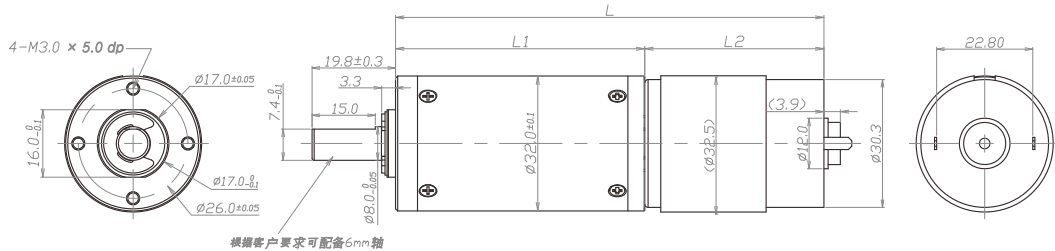
MD032032

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	32mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial Play	≤0.3mm	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤120N	≤180N
齿轮箱回程差	Backlash	≤3° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +75℃	

齿轮级数 Gearbox Stages		2	3	4
减速比	Reduction ratio	16 / 23 / 33	67 / 94 / 133 / 188	272 / 383 / 541 / 764 / 1078
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	50000	50000	50000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	150000	150000	150000
齿轮箱效率 (%)	Gearbox efficiency (%)	85	80	75
长度 (mm)	Gearbox length L1 (mm)	39.1	49.1	59.1

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机 Brushed DC motor, Brushless DC motor	输入速度 Input speed	≤12000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	300mA max

参考数据 (马达定义值: 24V 7700rpm) 下表根据马达定义值测试, 数据只作为参考值。Parameter (values at 24V & 7700rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
MD032032-16	469	1875	50000	150000	16	39.1	81.6
MD032032-23	313	1250	50000	150000	23		
MD032032-33	227	909	50000	150000	33		
MD032032-67	112	448	50000	150000	67	49.1	91.6
MD032032-94	80	319	50000	150000	94		
MD032032-133	56	226	50000	150000	133		
MD032032-188	40	160	50000	150000	188		
MD032032-272	28	110	50000	150000	272	59.1	101.6
MD032032-383	20	78	50000	150000	383		
MD032032-541	14	56	50000	150000	541		
MD032032-764	10	39	50000	150000	764		
MD032032-1078	7	28	50000	150000	1078		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



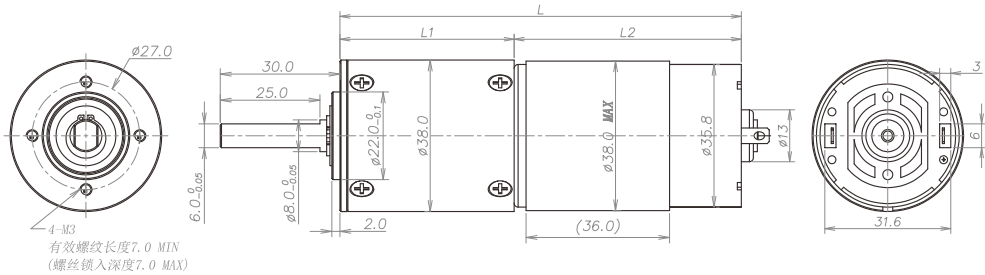
MD038038

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	38mm	轴承	Bearing	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial Play	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤300N
齿轮箱回程差	Backlash	≤2° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +100℃

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	4 / 6	16 / 25 / 39	64 / 100 / 156 / 244	256 / 400 / 625 / 977 / 1526
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	80000	80000	80000	80000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	240000	240000	240000	240000
齿轮箱效率 (%)	Gearbox efficiency (%)	90	85	80	75
长度 (mm)	Gearbox length L1 (mm)	30.7	43.7	56.7	69.7

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、步进电机 Brushed DC motor, Brushless DC motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	300mA max

参考数据 (马达定义值: 24V 6100rpm) 下表根据马达定义值测试, 数据只作为参考值。Parameter (values at 24V & 6100rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
MD038038-4	1525	7500	80000	240000	4	30.7	87.7
MD038038-6.25	976	4800	80000	240000	6.25		
MD038038-16	381	1875	80000	240000	16	43.7	100.7
MD038038-25	244	1200	80000	240000	25		
MD038038-39	156	769	80000	240000	39	56.7	113.7
MD038038-64	95	469	80000	240000	64		
MD038038-100	61	300	80000	240000	100		
MD038038-156	39	192	80000	240000	156		
MD038038-244	25	123	80000	240000	244	69.7	126.7
MD038038-256	24	117	80000	240000	256		
MD038038-400	15	75	80000	240000	400		
MD038038-625	10	48	80000	240000	625		
MD038038-977	6	31	80000	240000	977		
MD038038-1526	4	20	80000	240000	1526		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.

PD行星齿轮箱

PD planetary gearbox

与MD行星齿轮箱对应的是PD行星齿轮箱, 相比之下, PD行星齿轮箱采用塑胶外壳, 在保证足够性能的前提下, 质量更轻, 噪音更低, 在消费电子、智能家居等产品中非常适用。

The PD planetary gearbox, with its lightweight plastic casing, offers reduced noise without compromising performance. It is ideal for consumer electronics and smart home products.





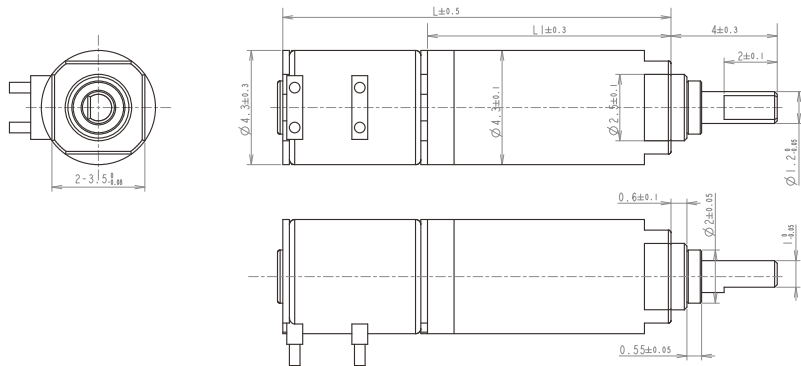
PD004004

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	4.3mm	轴承	Bearing	含油轴承 oil-impregnated bearings
材质	Material	塑料 Plastic	轴向窜动	Axial Play	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤0.3N
齿轮箱回程差	Backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	6	36	216	1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	70	70	70	70
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	200	200	200	200
齿轮箱效率 (%)	Gearbox efficiency (%)	85	73	65	58
长度 (mm)	Gearbox length L1 (mm)	6.18	7.67	9.17	10.72

技术插图 | Technical Drawing

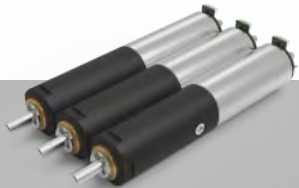


马达规格参数 Motor Specifications

马达 Motor type	步进电机 Stepper motor	输入速度 Input speed	≤10000rpm
电压 Voltage	3V	负载电流 Load current	50mA max

型号 Model	Speed at 2000pps 2000pps频率转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	gf.cm	gf.cm		mm	mm
PD004004-6	1000.0	140	400	6	6.18	11.78
PD004004-36	166.6	140	400	36	7.67	13.27
PD004004-216	27.7	140	400	216	9.17	14.77
PD004004-1296	4.6	140	400	1296	10.72	16.32

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



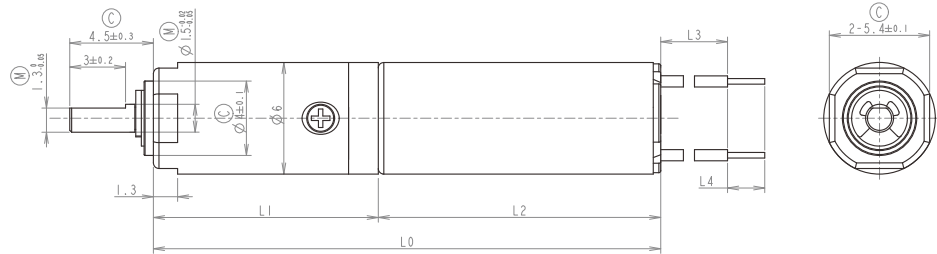
PD006006

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	6mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial Play	≤0.3mm	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤0.3N	≤4N
齿轮箱回程差	Backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	5 / 6	23 / 31 / 41	110 / 148 / 198 / 266	531 / 711 / 952 / 1275 / 1708
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	250	250	250	250
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	600	600	600	600
齿轮箱效率 (%)	Gearbox efficiency (%)	85	72	57	49
长度 (mm)	Gearbox length L1 (mm)	9.7	12.1	14.5	16.9

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	空心杯电机、步进电机 Coreless motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选择) Voltage (optional)	3-12V	负载电流 Load current	100mA max

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	ReductionRatio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
PD006006-5	1563	6250	250	600	4.8	9.7	23.7
PD006006-6	1166	4666	250	600	6.43		
PD006006-23	326	1302	250	600	23.04	12.1	26.1
PD006006-31	243	972	250	600	30.86		
PD006006-41	181	726	250	600	41.33		
PD006006-110	68	271	250	600	110.6	14.5	28.5
PD006006-148	51	203	250	600	148.1		
PD006006-198	38	151	250	600	198.4		
PD006006-266	28	113	250	600	265.7		
PD006006-531	14	57	250	600	530.8	16.9	30.9
PD006006-711	11	42	250	600	711.0		
PD006006-952	8	32	250	600	952.2		
PD006006-1275	6	24	250	600	1275.2		
PD006006-1708	4	18	250	600	1707.9		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



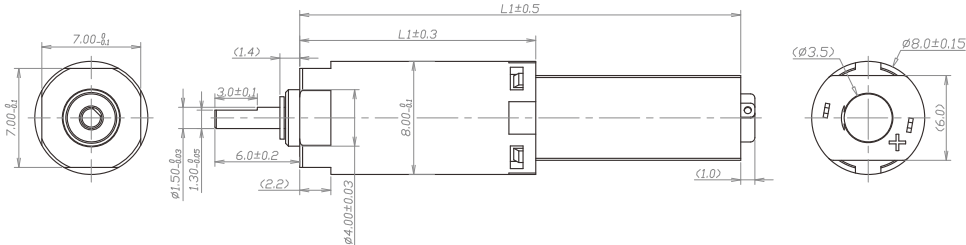
PD008008

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	8mm	轴承	Bearing	含油轴承 oil-impregnated bearings
材质	Material	塑料 Plastic	轴向窜动	Axial Play	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤0.8N
齿轮箱回程差	Backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C

齿轮级数	Gearbox Stages	1	2	3	4
减速比	Reduction ratio	4 / 5	13 / 19 / 28	47 / 69 / 102 / 152	168 / 249 / 369 / 546 / 809
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	50	100	200	400
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	200	300	600	900
齿轮箱效率 (%)	Gearbox efficiency (%)	85	73	65	58
长度 (mm)	Gearbox length L1 (mm)	8.6	11.3	14	16.7

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选项) Motor type (optional)	直流有刷电机、步进电机 Brushed DC motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选项) Voltage (optional)	3-12V	负载电流 Load current	150mA max

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
PD008008-4	3111	4233	50	200	3.6	8.6	23.1
PD008008-5	2100	2857	50	200	5.3		
PD008008-13	864	1122	100	300	13.0	11.3	25.8
PD008008-19	583	758	100	300	19.2		
PD008008-28	394	511	100	300	28.4		
PD008008-47	240	306	200	600	46.7	14.0	28.5
PD008008-69	162	207	200	600	69.1		
PD008008-102	109	140	200	600	102.4		
PD008008-152	74	94	200	600	151.7		
PD008008-168	67	84	300	900	168.0	16.7	31.2
PD008008-249	45	56	300	900	248.8		
PD008008-369	30	38	300	900	368.6		
PD008008-546	21	26	300	900	546.1		
PD008008-809	14	17	300	900	809.1		

注：可根据客户要求定制 Specifications can be customized per customer requirements.



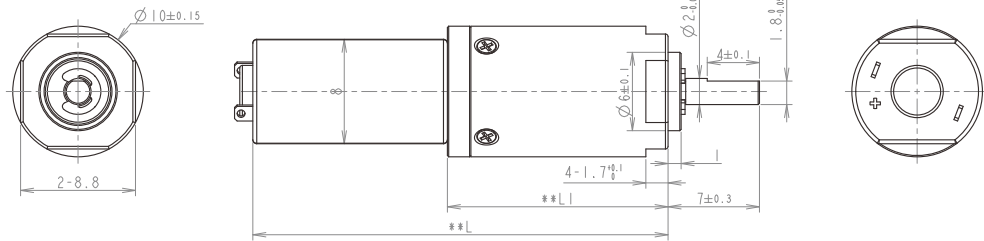
PD010010

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	10mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial Play	≤0.3mm	≤0.2mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤1N	≤7N
齿轮箱回程差	Backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数	Gearbox Stages	1	2	3	4
减速比	Reduction ratio	3 / 5	13 / 19 / 28	46 / 69 / 102 / 151	168 / 249 / 368 / 546 / 809
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	500	500	500	500
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	1000	1000	1000	1000
齿轮箱效率 (%)	Gearbox efficiency (%)	85	73	65	58
长度 (mm)	Gearbox length L1 (mm)	9.7	12.8	15.9	19

技术插图 | Technical Drawing

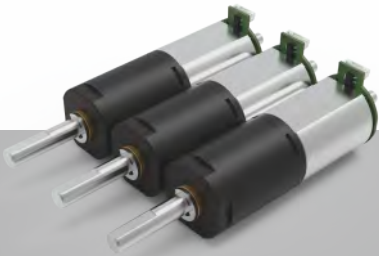


马达规格参数 Motor Specifications

马达(可选项) Motor type (optional)	直流有刷电机、空心杯电机、步进电机 Brushed DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选项) Voltage (optional)	3-24V	负载电流 Load current	150mA max

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
PD010010-3	3917	7500	500	1000	3	9.7	24.7
PD010010-5	2645	5000	500	1000	5		
PD010010-13	1085	2308	500	1000	13	12.8	27.8
PD010010-19	742	1579	500	1000	19		
PD010010-28	504	1071	500	1000	28		
PD010010-46	307	652	500	1000	46	15.9	30.9
PD010010-69	204	435	500	1000	69		
PD010010-102	138	294	500	1000	102		
PD010010-151	93	199	500	1000	151		
PD010010-168	84	179	500	1000	168	19	34
PD010010-249	57	120	500	1000	249		
PD010010-368	38	82	500	1000	368		
PD010010-546	26	55	500	1000	546		
PD010010-809	17	37	500	1000	809		

注：可根据客户要求定制 Specifications can be customized per customer requirements.



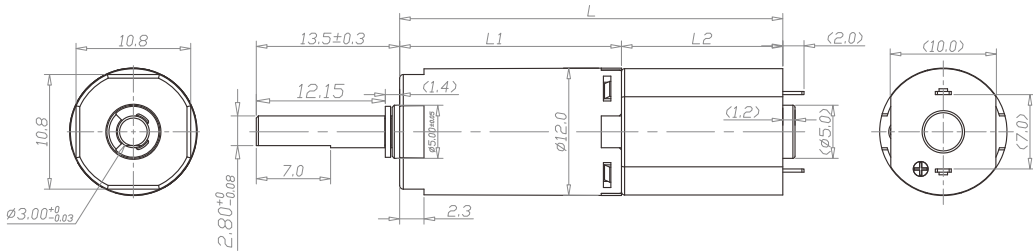
PD012012

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	12mm	轴承	Bearing	含油轴承 oil-impregnated bearings
材质	Material	塑料 Plastic	轴向窜动	Axial Play	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤5N
齿轮箱回程差	Backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C

齿轮级数	Gearbox Stages	1	2	3	4
减速比	Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	200	400	600	850
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	500	800	1200	1700
齿轮箱效率 (%)	Gearbox efficiency (%)	85	73	65	58
长度 (mm)	Gearbox length L1 (mm)	9.5	13.3	17.1	20.9

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	250mA max

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
PD012012-4	1875	7500	200	500	4	9.5	24.5
PD012012-6	1250	5000	200	500	6		
PD012012-16	469	1875	400	800	16	13.3	28.3
PD012012-24	313	1250	400	800	24		
PD012012-36	208	833	400	800	36		
PD012012-64	117	469	600	1200	64	17.1	32.1
PD012012-96	78	313	600	1200	96		
PD012012-144	52	208	600	1200	144		
PD012012-216	35	139	600	1200	216		
PD012012-256	29	117	850	1700	256	20.9	35.9
PD012012-384	20	78	850	1700	384		
PD012012-576	13	52	850	1700	576		
PD012012-864	9	35	850	1700	864		
PD012012-1296	6	23	850	1700	1296		

注:可根据客户要求定制 Specifications can be customized per customer requirements.



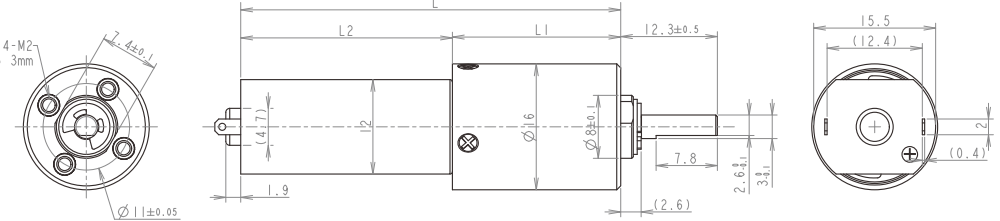
PD016016

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	16mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial Play	≤0.3mm	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤10N	≤20N
齿轮箱回程差	Backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数	Gearbox Stages	1	2	3	4
减速比	Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	3000	3000	3000	3000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	6000	6000	6000	6000
齿轮箱效率 (%)	Gearbox efficiency (%)	85	73	65	58
长度 (mm)	Gearbox length L1 (mm)	11.5	14.8	18.1	21.4

技术插图 | Technical Drawing



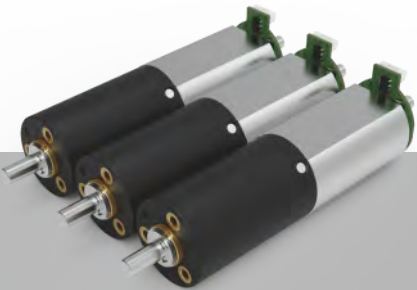
马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	300mA max

参考数据 (马达定义值: 6V 8000rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 6V & 8000rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
PD016016-4	1875	7500	3000	6000	4	11.5	38.4
PD016016-6	1250	5000	3000	6000	6		
PD016016-16	469	1875	3000	6000	16	14.8	41.7
PD016016-24	313	1250	3000	6000	24		
PD016016-36	208	833	3000	6000	36		
PD016016-64	117	469	3000	6000	64	18.1	45.0
PD016016-96	78	313	3000	6000	96		
PD016016-144	52	208	3000	6000	144		
PD016016-216	35	139	3000	6000	216		
PD016016-256	29	117	3000	6000	256	21.4	48.3
PD016016-384	20	78	3000	6000	384		
PD016016-576	13	52	3000	6000	576		
PD016016-864	9	35	3000	6000	864		
PD016016-1296	6	23	3000	6000	1296		

注:可根据客户要求定制 Specifications can be customized per customer requirements.



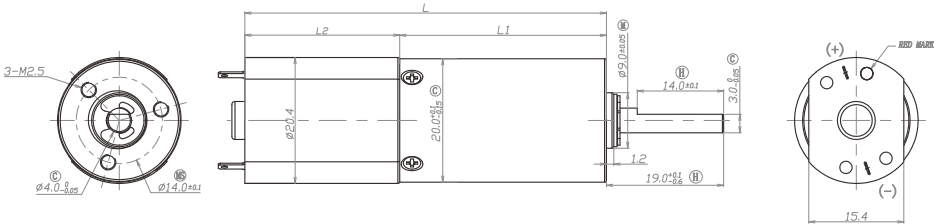
PD020020

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	20mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial Play	≤0.3mm	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤30N	≤50N
齿轮箱回程差	Backlash	≤3° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	6000	6000	6000	6000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	15000	15000	15000	15000
齿轮箱效率 (%)	Gearbox efficiency (%)	85	73	65	58
长度 (mm)	Gearbox length L1 (mm)	17.6	22.9	28.2	33.5

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	300mA max

参考数据 (马达定义值: 12V 7200rpm) 下表根据马达定义值测试, 数据只作为参考值。Parameter (values at 12V & 7200rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm			
PD020020-4	1875	7500	6000	15000	4	17.6	42.7
PD020020-6	1250	5000	6000	15000	6		
PD020020-16	469	1875	6000	15000	16	22.9	48
PD020020-24	313	1250	6000	15000	24		
PD020020-36	208	833	6000	15000	36		
PD020020-64	117	469	6000	15000	64	28.2	53.3
PD020020-96	78	313	6000	15000	96		
PD020020-144	52	208	6000	15000	144		
PD020020-216	35	139	6000	15000	216		
PD020020-256	29	117	6000	15000	256	33.5	58.6
PD020020-384	20	78	6000	15000	384		
PD020020-576	13	52	6000	15000	576		
PD020020-864	9	35	6000	15000	864		
PD020020-1296	6	23	6000	15000	1296		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



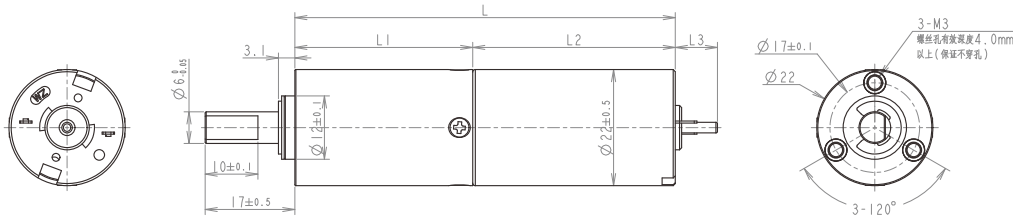
PD022022

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	22mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial Play	≤0.1mm	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤50N	≤100N
齿轮箱回程差	Backlash	≤3° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	8000	8000	8000	8000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	20000	20000	20000	20000
齿轮箱效率 (%)	Gearbox efficiency (%)	85	73	65	58
长度 (mm)	Gearbox length L1 (mm)	19.1	26.4	33.7	41

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流无刷电机、空心杯电机、步进电机 Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	300mA max

参考数据 (马达定义值: 24V 8300rpm) 下表根据马达定义值测试, 数据只作为参考值。Parameter (values at 24V & 8300rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm			
PD022022-4	1875	7500	8000	20000	4	19.1	57.5
PD022022-6	1250	5000	8000	20000	6		
PD022022-16	469	1875	8000	20000	16	26.4	64.8
PD022022-24	313	1250	8000	20000	24		
PD022022-36	208	833	8000	20000	36		
PD022022-64	117	469	8000	20000	64	33.7	72.1
PD022022-96	78	313	8000	20000	96		
PD022022-144	52	208	8000	20000	144		
PD022022-216	35	139	8000	20000	216		
PD022022-256	29	117	8000	20000	256	41	79.4
PD022022-384	20	78	8000	20000	384		
PD022022-576	13	52	8000	20000	576		
PD022022-864	9	35	8000	20000	864		
PD022022-1296	6	23	8000	20000	1296		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



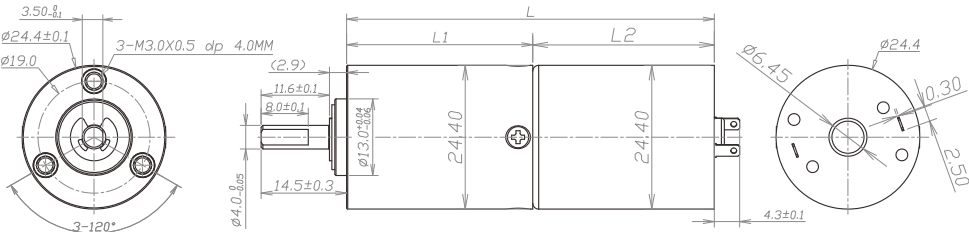
PD024024

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	24mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial Play	≤0.2mm	≤0.2mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤100N	≤272N
齿轮箱回程差	Backlash	≤3° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages		1	2	3	4
减速比	Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	15000	15000	15000	15000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	45000	45000	45000	45000
齿轮箱效率 (%)	Gearbox efficiency (%)	80	65	53	47
长度 (mm)	Gearbox length L1 (mm)	18.5	24.5	31.5	38.65

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	300mA max

参考数据 (马达定义值: 12V 6000rpm) 下表根据马达定义值测试, 数据只作为参考值。Parameter (values at 12V & 6000rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
PD024024-4	1150	1500	15000	45000	4	18.5	49.3
PD024024-6	767	1000	15000	45000	6		
PD024024-16	288	375	15000	45000	16	24.5	55.3
PD024024-24	192	250	15000	45000	24		
PD024024-36	128	167	15000	45000	36		
PD024024-64	72	94	15000	45000	64	31.5	62.3
PD024024-96	48	63	15000	45000	96		
PD024024-144	32	42	15000	45000	144		
PD024024-216	21	38	15000	45000	216		
PD024024-256	18	23	15000	45000	256	38.65	69.45
PD024024-384	12	16	15000	45000	384		
PD024024-576	8	10	15000	45000	576		
PD024024-864	5	7	15000	45000	864		
PD024024-1296	4	5	15000	45000	1296		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



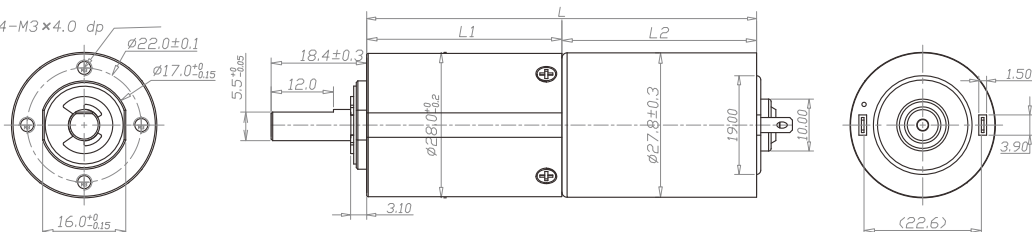
PD028028

齿轮箱规格 Gearbox Specifications

外径	Outer diameter	28mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial Play	≤0.1mm	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤50N	≤100N
齿轮箱回程差	Backlash	≤3° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages		2	3	4
减速比	Reduction ratio	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	15000	15000	15000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	60000	60000	60000
齿轮箱效率 (%)	Gearbox efficiency (%)	76	66	57
长度 (mm)	Gearbox length L1 (mm)	29.1	37.6	46.1

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、步进电机 Brushed DC motor, Brushless DC motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	400mA max

参考数据 (马达定义值: 24V 7700rpm) 下表根据马达定义值测试, 数据只作为参考值。Parameter (values at 24V & 7700rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
PD028028-16	413	472	15000	60000	16	29.1	66.6
PD028028-24	276	312	15000	60000	24		
PD028028-36	181	211	15000	60000	36		
PD028028-64	104	119	15000	60000	64	37.6	75.1
PD028028-96	69	79	15000	60000	96		
PD028028-144	46	54	15000	60000	144		
PD028028-216	31	35	15000	60000	216		
PD028028-256	26	30	15000	60000	256	46.1	83.6
PD028028-384	17	19	15000	60000	384		
PD028028-576	12	13	15000	60000	576		
PD028028-864	8	9	15000	60000	864		
PD028028-1296	5	6	15000	60000	1296		

注: 可根据客户要求定制 Specifications can be customized per customer requirements.



PD032032

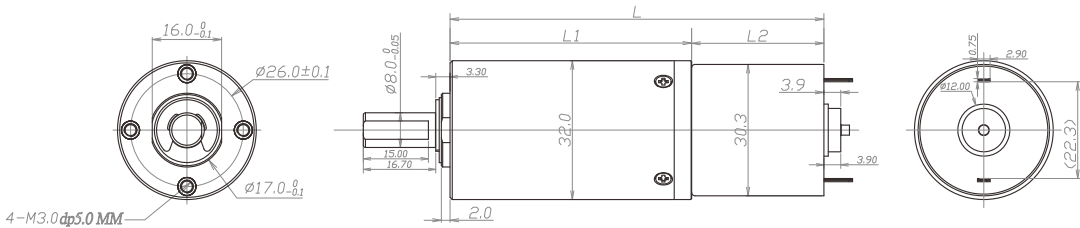
齿轮箱规格 Gearbox Specifications

外径	Outer diameter	32mm	轴承	Bearing	含油轴承 oil-impregnated bearings	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial Play	≤0.3mm	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial Load at Output Shaft	≤50N	≤100N
齿轮箱回程差	Backlash	≤3° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +75°C	

齿轮级数 Gearbox Stages

		2	3	4
减速比	Reduction ratio	16 / 23 / 33	67 / 94 / 133 / 188	272 / 383 / 541 / 764 / 1078
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	30000	30000	30000
瞬间容许力矩 (gf.cm)	Max. intermittent torque (gf.cm)	80000	80000	80000
齿轮箱效率 (%)	Gearbox efficiency (%)	73	65	58
长度 (mm)	Gearbox length L1 (mm)	35.7	45.7	55.7

技术插图 | Technical Drawing



马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机 Brushed DC motor, Brushless DC motor	输入速度 Input speed	≤12000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Load current	300mA max

参考数据 (马达定义值: 24V 7700rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 24V & 7700rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速	Max Speed 最高转速	Max Rated Torque 额定容许力矩	Max. Intermittent Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	rpm	gf.cm	gf.cm		mm	mm
PD032032-16	469	1875	30000	80000	16	35.7	78.2
PD032032-23	313	1250	30000	80000	23		
PD032032-33	227	909	30000	80000	33		
PD032032-67	112	448	30000	80000	67	45.7	88.2
PD032032-94	80	319	30000	80000	94		
PD032032-133	56	226	30000	80000	133		
PD032032-188	40	160	30000	80000	188		
PD032032-272	28	110	30000	80000	272	55.7	98.2
PD032032-383	20	78	30000	80000	383		
PD032032-541	14	56	30000	80000	541		
PD032032-764	10	39	30000	80000	764		
PD032032-1078	7	28	30000	80000	1078		

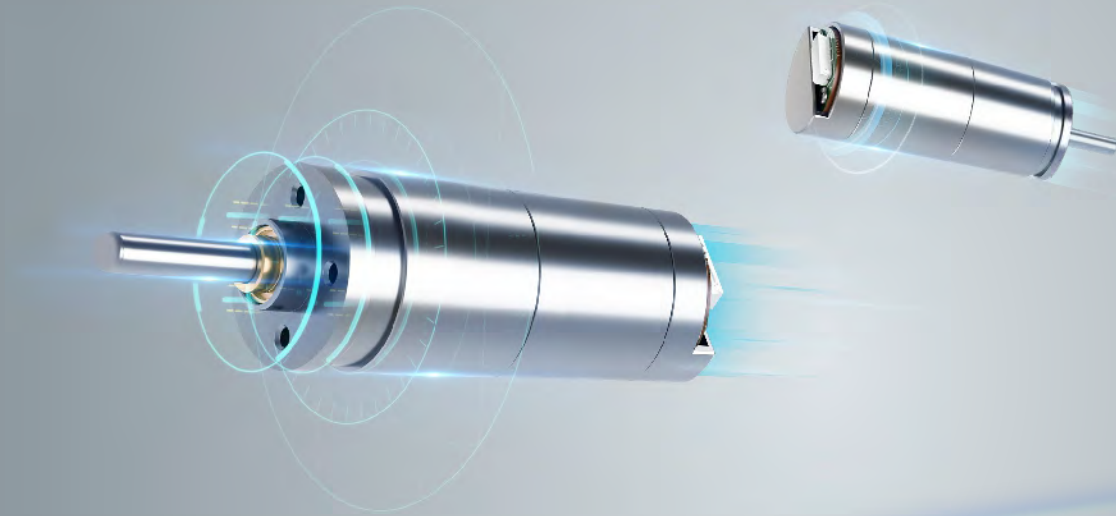
注:可根据客户要求定制 Specifications can be customized per customer requirements.

零背隙齿轮箱

Zero backlash gearbox

针对一些非常需要精准定位的光学和高精度设备应用,兆威零背隙齿轮箱,凭借回程差接近零的精准度和及其高的传动效率,为客户提供优秀的解决方案。

Designed for optical and high-precision equipment, this gearbox minimizes backlash (<1°) while delivering exceptional transmission efficiency.



GM20149-01

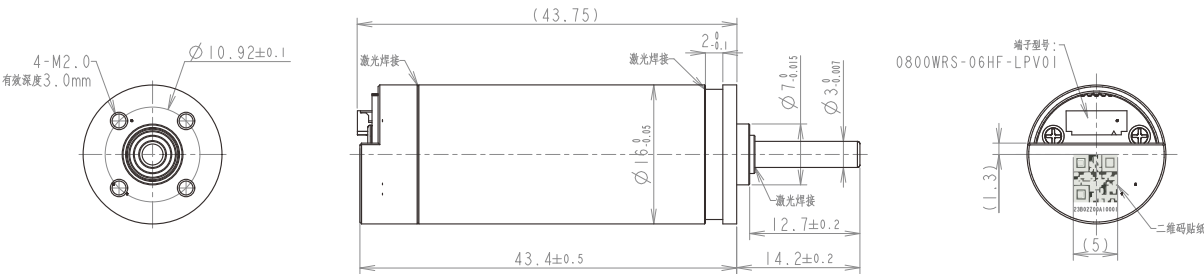
Φ16mm 正传动减速箱

主要参数

- 0.5W
- 0.1Nm
- 5.00N



技术插图



减速箱技术数据			
级数		4	
减速比		141.00	
最大连续传输功率	W	0.50	
最大瞬时传输功率	W	0.80	
最大连续转矩	Nm	0.100	
最大瞬时转矩	Nm	0.13	
最高连续输入转速	rpm	12000	
最高瞬时输入转速	rpm	15000	
最大效率	%	65.00	
空载平均空回	°	0.00	
最大轴向动态载荷	N	5.00	
最大径向载荷（离法兰6.5mm处）	N	25.00	
齿轮箱长度L1	mm	43.40	
重量	G	41.00	

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

推荐型号											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定容许力矩 (NM)	齿轮箱瞬间容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速 (rpm)	空载电流 (mA max)	负载转速 (rpm)	负载电流 (mA Max)	转矩 (Kg.cm)					
GM20149-01	12	90	22	50	120	1.00	43.4	0.100	0.200	141	43.4

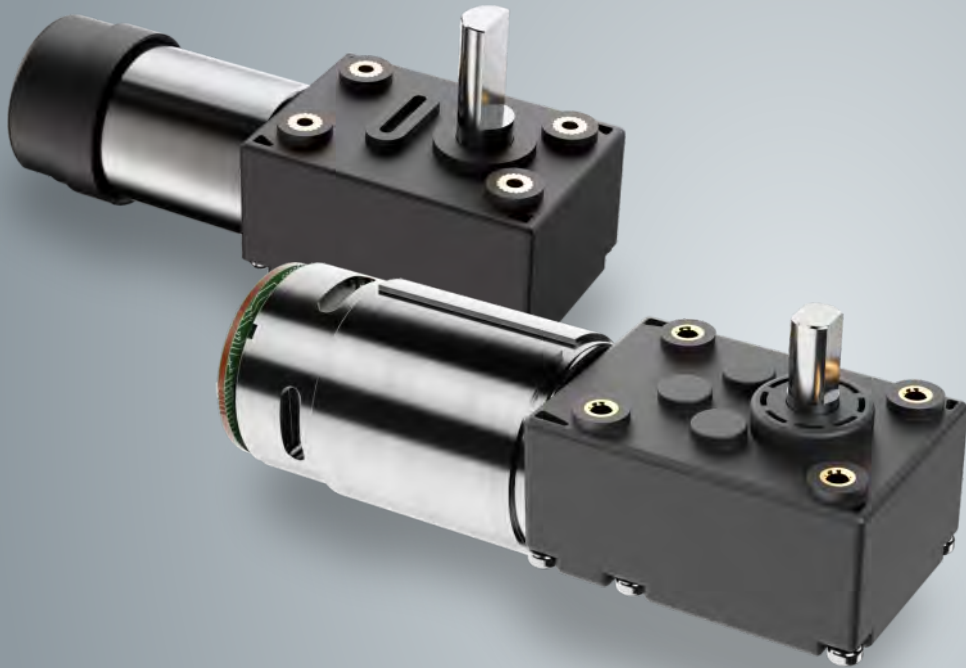
*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客服咨询。

PL直角电机齿轮箱

PL Right-Angle Gear Motor

兆威**PL**直角电机通过齿轮箱和电机精巧结构，实现直角**90°**动力传输，凭借使用高性能材质，可工作于温度变化范围大和特殊的环境条件。

The PL right-angle gear motor achieves precise 90° power transmission by combinations of gearbox and motor design. Featuring high-performance materials, it is capable of operating in extreme temperatures and challenging environments.

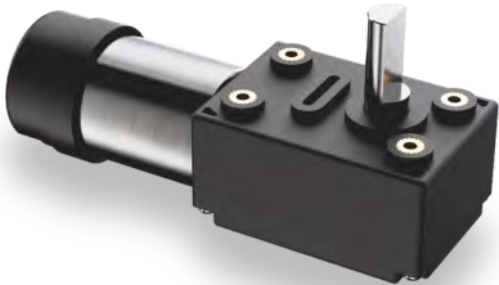


4632 直角电机系列

■ 典型应用：工业装备、医疗设备、门机系统等

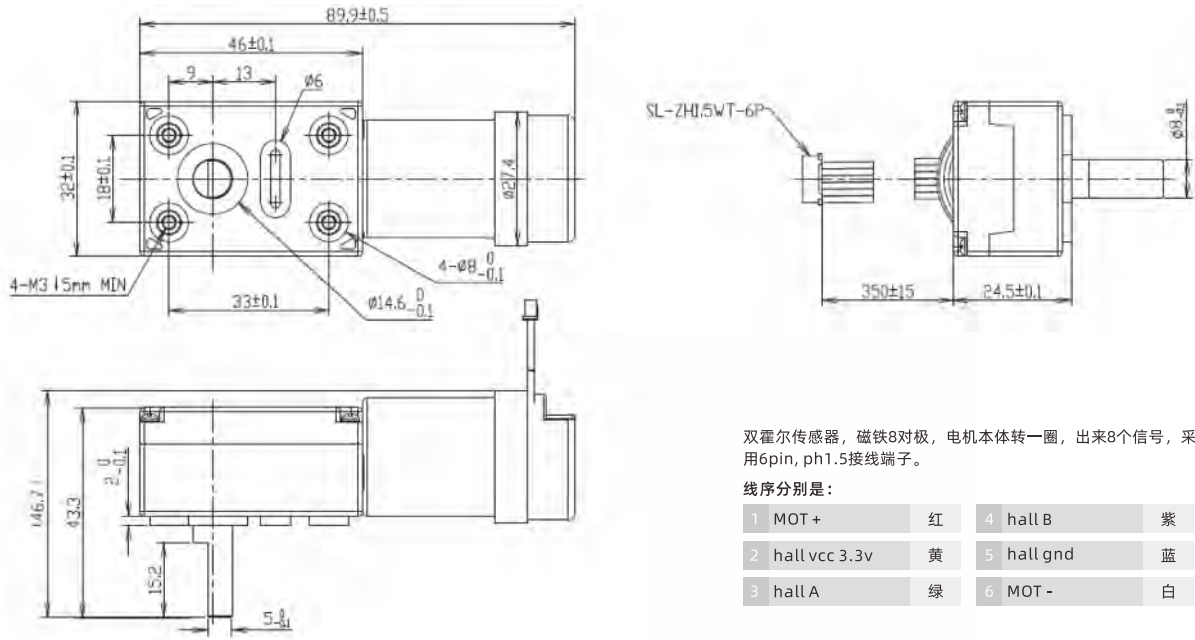
■ 输出功率：约0.6W~3.9W

■ 金属输出轴(可选直径6mm、8mm轴) 、可定制



技术数据													
型号	典型应用参数									齿轮箱最大 容许力矩	齿轮箱瞬间 容许力矩	减速比	减速箱长 L1
	使用范围	额定值	空载数据		负载数据			马达总长 L					
	电压	电压	转速	电流	转速	电流	转矩						
	VDC	VDC	rpm	mA(MAX)	rpm	A(MAX)	kgf.cm	N.m	mm				Kgf.cm
ZWPL4632-60-01	8~30	12	95	600	82	1.09	4.0	0.39	30.8	4.4	17.6	59.0	89.9
ZWPL4632-100-01	8~30	12	54	600	42	1.53	11.2	1.10	30.8	12	48	104.5	89.9
ZWPL4632-140-01	8~30	12	41	600	32	1.48	14.6	1.43	30.8	16	64	136.9	89.9
ZWPL4632-250-01	8~30	12	23	600	19	1.16	15.5	1.52	30.8	16	64	246.5	89.9
ZWPL4632-320-01	8~30	12	17	600	15	0.95	16.2	1.59	30.8	16	64	324.5	89.9
ZWPL4632-420-01	8~30	12	13	600	12	0.90	20.0	1.96	30.8	20	64	424.9	89.9
ZWPL4632-600-01	8~30	12	9	600	8	0.81	25.0	2.45	30.8	27	108	601.8	89.9
ZWPL4632-790-01	8~30	12	7	600	7	0.64	25.0	2.45	30.8	27	108	788.0	89.9
ZWPL4632-1040-01	8~30	12	5	600	5	0.49	25.0	2.45	30.8	30	120	1037.2	89.9

电机尺寸图



5840 直角电机系列

■ 典型应用：工业装备、医疗设备、门机系统等

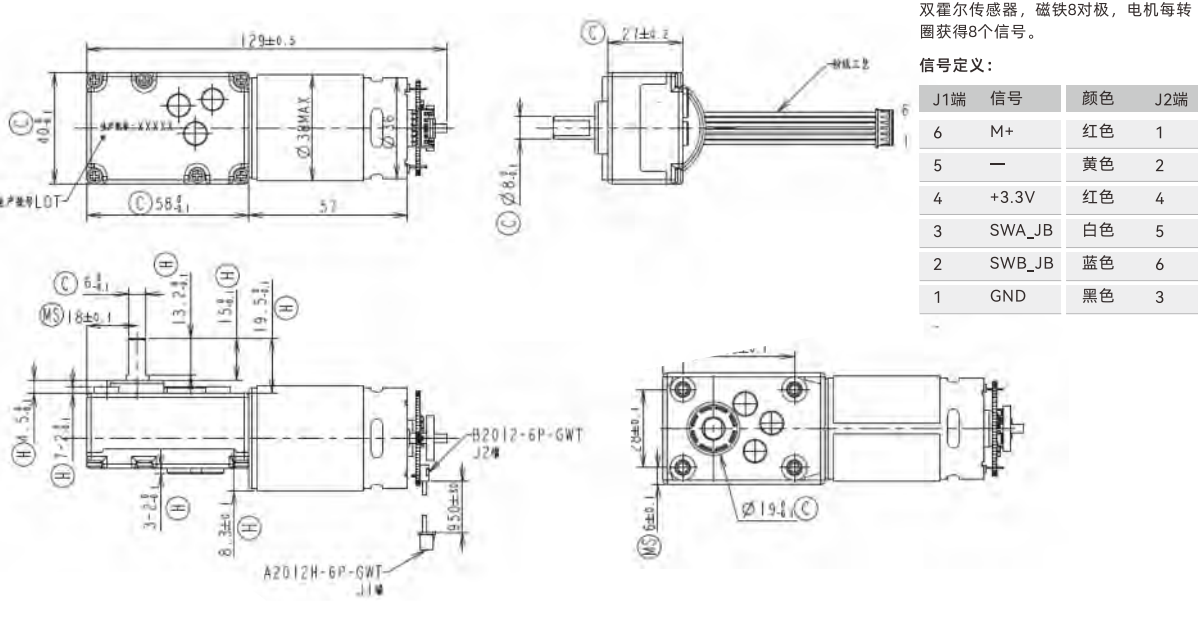
■ 输出功率：约2.1W~7.5W

■ 金属输出轴(可选直径6mm、8mm轴) 、可定制



技术数据													
型号	典型应用参数									齿轮箱最大容许力矩	齿轮箱瞬间容许力矩	减速比	减速箱长L1
	使用范围	额定值	空载数据		负载数据			马达总长L					
	电压	电压	转速	电流	转速	电流	转矩						
	VDC	VDC	rpm	mA(MAX)	rpm	A(MAX)	kgf.cm		N.m				mm
ZWPL5840-60-01	8~30	12	106	450	90	2.80	7.9	0.77	57	14	56	57.4	129
ZWPL5840-100-01	8~30	12	60	450	51	2.80	13.8	1.36	57	45	180	100.9	129
ZWPL5840-130-01	8~30	12	46	450	39	2.80	18.1	1.77	57	45	180	131.8	129
ZWPL5840-240-01	8~30	12	25	450	21	2.80	27.2	2.66	57	48	192	244.7	129
ZWPL5840-320-01	8~30	12	19	450	16	2.80	35.7	3.50	57	48	192	321.3	129
ZWPL5840-420-01	8~30	12	15	450	12	2.30	40.0	3.92	57	48	192	419.7	129
ZWPL5840-600-01	8~30	12	10	450	9	2.31	40.1	3.93	57	55	220	595.9	129
ZWPL5840-780-01	8~30	12	8	450	7	2.30	40.1	3.93	57	55	220	778.5	129
ZWPL5840-1030-01	8~30	12	6	450	5	2.30	40.2	3.94	57	65	260	1030.8	129

电机尺寸图



MC正传动减速箱

MC Spur Gearbox

兆威MC正传动减速箱，采用正齿传动设计，结构简单的同时，还具有效率高，低背隙，低噪音，特别适用于轻载静音场景。

The MC spur gear transmission design ensures high efficiency, low backlash, and minimal noise with a simple structure, perfect for light-load and silent operation scenarios.

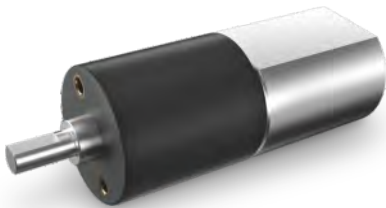


MC016

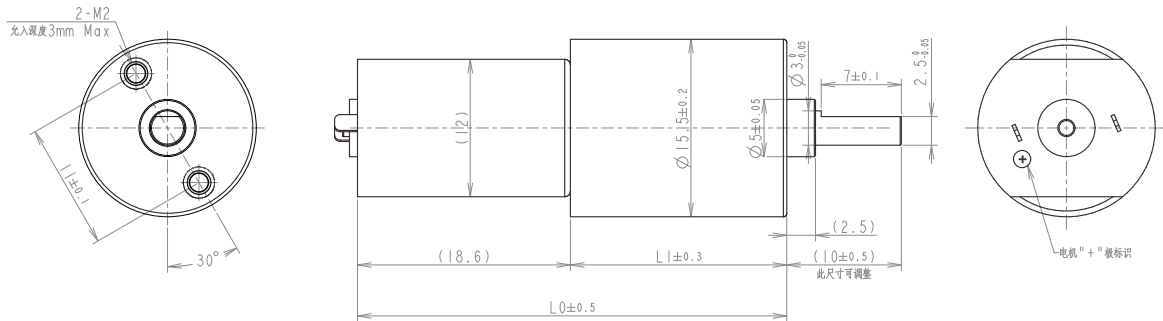
Φ16mm 正传动减速箱

主要参数

- 0.15~0.38W
- 0.01~0.12Nm
- 2.00N



技术插图



减速箱技术数据						
级数		3	4	5	6	7
减速比		13、20	30、41、55	84、113、154	210、255、283、384	525、707、1064
最大连续传输功率	W	0.38	0.33	0.30	0.26	0.15
最大瞬时传输功率	W	1.14	0.99	0.90	0.78	0.45
最大连续转矩	Nm	0.01	0.025	0.05	0.12	0.12
最大瞬时转矩	Nm	0.03	0.075	0.15	0.36	0.36
最大效率	%	73.00	65.00	59.00	53.00	47.00
空载平均空回	°	1.50	1.50	1.50	1.50	1.50
最大轴向动态载荷	N	2.00	2.00	2.00	2.00	2.00
最大径向载荷（离法兰4mm处）	N	4.00	4.00	4.00	4.00	4.00
齿轮箱长度L1	mm	13.10	15.70	17.30	18.90	20.50
重量	G	16.00	16.50	17.00	17.50	18.00

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

推荐型号											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定 容许力矩 (NM)	齿轮箱瞬间 容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(mA Max)	转矩(Kg.cm)					
MC016-13	5	534	120	390	320	0.10	31.7	0.010	0.030	13	13.1
MC016-20	5	360	120	300	320	0.10				20	
MC016-30	5	236	120	157	320	0.25	34.3	0.025	0.075	30	15.7
MC016-41	5	177	120	132	320	0.25				41	
MC016-55	5	130	120	110	320	0.25	35.9	0.050	0.150	55	17.3
MC016-84	5	83	120	60	320	0.50				84	
MC016-113	5	70	120	50	320	0.50	37.5	0.120	0.360	113	18.9
MC016-154	5	46	120	40	320	0.50				154	
MC016-210	5	34	120	22	320	1.20	39.1	0.120	0.360	210	20.5
MC016-255	5	28	120	20	320	1.20				255	
MC016-283	5	25	120	19	290	1.20	39.1	0.120	0.360	283	20.5
MC016-384	5	19	120	15	270	1.20				384	
MC016-525	5	14	120	12	220	1.20	39.1	0.120	0.360	525	20.5
MC016-707	5	10	120	7	180	1.20				707	
MC016-1064	5	7	120	5	150	1.20	39.1	0.120	0.360	1064	20.5

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

MC020

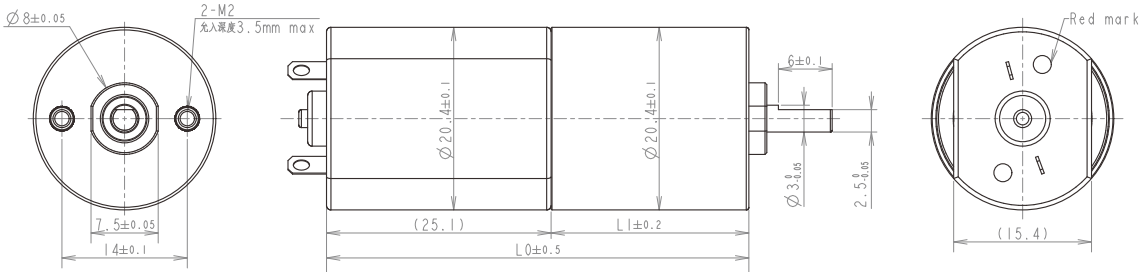
Φ20mm 正传动减速箱

主要参数

- 0.45~1.5W
- 0.04~0.3Nm
- 20.00N



技术插图



减速箱技术数据						
级数		3	4	5	6	7
减速比		10、13	21、28、36	52、67、88	125、162、212、270	393、512、652、736
最大连续传输功率	W	1.50	1.30	1.20	1.00	0.45
最大瞬时传输功率	W	4.50	3.90	3.60	3.00	1.35
最大连续转矩	Nm	0.04	0.07	0.15	0.30	0.30
最大瞬时转矩	Nm	0.12	0.21	0.45	0.90	0.90
最大效率	%	73.00	65.00	59.00	53.00	47.00
空载平均空回	°	1.50	1.50	1.50	1.50	1.50
最大轴向动态载荷	N	20.00	20.00	20.00	20.00	20.00
最大径向载荷（离法兰4mm处）	N	4.00	4.00	4.00	4.00	4.00
齿轮箱长度L1	mm	14.50	16.40	18.30	20.20	22.10
重量	G	40.30	41.30	42.30	43.30	44.30

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

推荐型号

型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定 容许力矩 (NM)	齿轮箱瞬间 容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(mA Max)	转矩(Kg.cm)					
MC020-10	12	678	100	358	400	0.4	39.6	0.04	0.12	10	14.5
MC020-13	12	519	100	332	400	0.4				13	
MC020-21	12	321	100	182	450	0.7	41.5	0.07	0.21	21	16.4
MC020-28	12	241	100	162	450	0.7				28	
MC020-36	12	188	100	140	450	0.7				36	
MC020-52	12	130	100	76	450	1.5	43.4	0.15	0.45	52	18.3
MC020-67	12	101	100	68	380	1.5				67	
MC020-88	12	77	100	58	350	1.5				88	
MC020-125	12	54	100	33	420	3.0	45.3	0.30	0.90	125	20.2
MC020-162	12	42	100	29	350	3.0				162	
MC020-212	12	32	100	25	300	3.0				212	
MC020-270	12	25	100	21	250	3.0				270	
MC020-393	12	17	100	15	210	3.0	47.2	0.30	0.90	393	22.1
MC020-512	12	13	100	12	190	3.0				512	
MC020-652	11	11	100	10	170	3.0				652	
MC020-736	10	10	100	9	150	3.0				736	

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

MC024

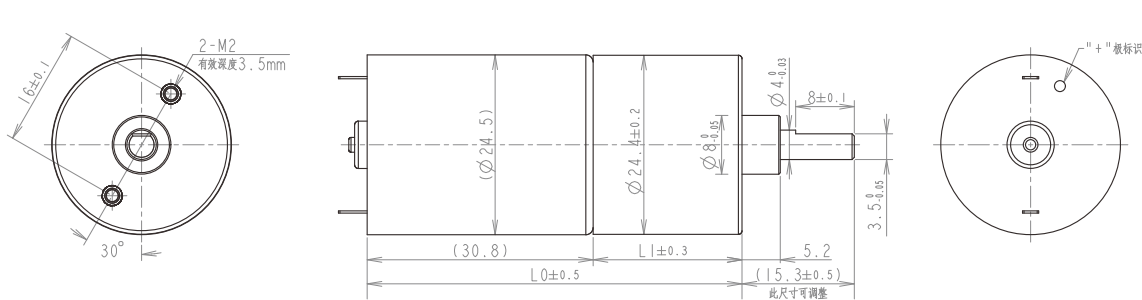
Φ24mm 正传动减速箱

主要参数

- 0.3~2.0W
- 0.08~0.4Nm
- 20.00N



技术插图



减速箱技术数据						
级数		3	4	5	6	7
减速比		13、20	30、46、62	94、128、174	235、319、434、591	783、1064
最大连续传输功率	W	2.00	1.80	1.40	0.80	0.30
最大瞬时传输功率	W	6.00	5.40	4.20	2.40	0.90
最大连续转矩	Nm	0.08	0.15	0.25	0.40	0.40
最大瞬时转矩	Nm	0.24	0.45	0.75	1.20	1.20
最大效率	%	73.00	65.00	59.00	53.00	47.00
空载平均空回	°	2.00	2.00	2.00	2.00	2.00
最大轴向动态载荷	N	20.00	20.00	20.00	20.00	20.00
最大径向载荷（离法兰4mm处）	N	5.00	5.00	5.00	5.00	5.00
齿轮箱长度L1	mm	12.90	15.50	17.10	18.70	20.30
重量	G	64.00	65.00	66.00	67.00	68.00

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

推荐型号

型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定 容许力矩 (NM)	齿轮箱瞬间 容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(mA Max)	转矩(Kg.cm)					
MC024-13-01	12	551	75	181	1000	0.8	43.7	0.08	0.24	13	12.9
MC024-20-01	12	367	75	203	850	0.8				20	
MC024-30-01	12	243	75	143	650	1.5	46.3	0.15	0.45	30	15.5
MC024-46-01	12	162	75	118	450	1.5				46	
MC024-62-01	12	119	75	95	450	1.5				62	
MC024-94-01	12	79	75	55	450	2.5	47.9	0.25	0.75	94	17.1
MC024-128-01	12	58	75	45	350	2.5				128	
MC024-174-01	12	43	75	36	350	2.5				174	
MC024-235-01	12	32	75	26	350	4.0	49.5	0.40	1.20	235	18.7
MC024-319-01	12	23	75	20	250	4.0				319	
MC024-434-01	12	17	75	15	250	4.0				434	
MC024-591-01	12	13	75	12	150	4.0				591	
MC024-783-01	12	9	75	9	150	4.0	51.1	0.40	1.20	783	20.3
MC024-1064-01	12	7	75	7	150	4.0				1064	

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

MC028

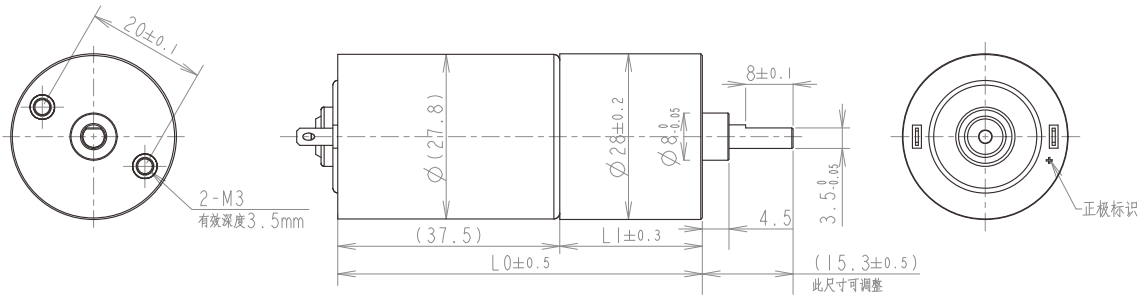
Φ28mm 正传动减速箱

主要参数

- 3.4~5.2W
- 0.1~0.7Nm
- 4.00N



技术插图



减速箱技术数据						
级数		3	4	5	6	7
减速比		13、19	29、42	62、81、110	156、227、290	363、599、764
最大连续传输功率	W	5.20	4.60	4.20	3.80	3.40
最大瞬时传输功率	W	15.60	13.80	12.60	11.40	10.20
最大连续转矩	Nm	0.10	0.20	0.40	0.50	0.70
最大瞬时转矩	Nm	0.30	0.60	1.20	1.50	2.10
最大效率	%	73.00	65.00	59.00	53.00	48.00
空载平均空回	°	2.00	2.00	2.00	2.00	2.00
最大轴向动态载荷	N	4.00	4.00	4.00	4.00	4.00
最大径向载荷（离法兰4mm处）	N	5.00	5.00	5.00	5.00	5.00
齿轮箱长度L1	mm	14.50	16.95	19.40	21.85	24.30
重量	G	96.00	98.00	100.00	102.00	104.00

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

推荐型号

型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定 容许力矩 (NM)	齿轮箱瞬间 容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(mA Max)	转矩(Kg.cm)					
MC028-13	12	590	200	494	1100	1.0	52	0.10	0.30	13	14.5
MC028-19	12	400	200	364	800	1.0				19	
MC028-29	12	270	200	220	1100	2.0	54.45	0.20	0.60	29	16.95
MC028-42	12	190	200	165	900	2.0				42	
MC028-62	12	125	200	102	1100	4.0	56.9	0.40	1.20	62	19.4
MC028-81	12	95	200	77	900	4.0				81	
MC028-110	12	70	200	64	800	4.0				110	
MC028-156	12	50	200	45	700	5.0	59.35	0.50	1.50	156	21.85
MC028-227	12	34	200	32	600	5.0				227	
MC028-290	12	27	200	25	500	5.0				290	
MC028-363	12	22	200	20	500	7.0	61.8	0.70	2.10	363	24.3
MC028-599	12	13	200	13	400	7.0				599	
MC028-764	12	10	200	10	400	7.0				764	

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

MC037C

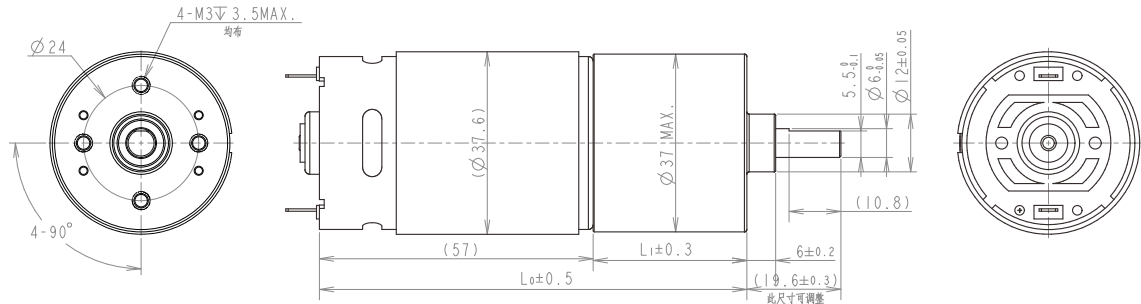
Φ37mm 正传动减速箱

主要参数

- 5.5W
- 0.2~0.9Nm
- 300N



技术插图



减速箱技术数据						
级数		3	4	5	6	7
减速比		14、20	29、42	63、91、131	172、248、314、452	595、856、1084
最大连续传输功率	W	5.50	5.50	5.50	5.50	5.50
最大瞬时传输功率	W	16.50	16.50	16.50	16.50	16.50
最大连续转矩	Nm	0.20	0.40	0.70	0.90	0.90
最大瞬时转矩	Nm	0.60	1.20	2.10	2.70	2.70
最大效率	%	73.00	65.00	59.00	53.00	47.00
空载平均空回	°	2.00	2.00	2.00	2.00	2.00
最大轴向动态载荷	N	300.00	300.00	300.00	300.00	300.00
最大径向载荷（离法兰4mm处）	N	10.00	10.00	10.00	10.00	10.00
齿轮箱长度L1	mm	21.60	24.20	26.80	29.40	32.00
重量	G	58.50	62.50	67.50	75.00	79.50

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

推荐型号

型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定 容许力矩 (NM)	齿轮箱瞬间 容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(mA Max)	转矩(Kg.cm)					
MC037C-14	12	411	200	183	1600	2.0	78.6	0.20	0.60	14	21.6
MC037C-20	12	288	200	166	1100	2.0				20	
MC037C-29	12	198	200	103	1300	4.0	81.2	0.40	1.20	29	24.2
MC037C-42	12	137	200	68	950	4.0				42	
MC037C-63	12	91	200	64	950	7.0	58.45	0.70	2.10	63	26.8
MC037C-91	12	63	200	52	800	7.0				91	
MC037C-131	12	44	200	38	600	7.0				131	
MC037C-172	12	33	200	28	600	9.0	61.05	0.90	2.70	172	29.4
MC037C-248	12	23	200	21	450	9.0				248	
MC037C-314	12	18	200	17	400	9.0				314	
MC037C-452	12	13	200	12	300	9.0	63.65	0.90	2.70	452	32
MC037C-595	12	10	200	9	300	9.0				595	
MC037C-856	12	7	200	7	250	9.0				856	
MC037C-1084	12	5	200	5	200	9.0				1084	

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

MC037E

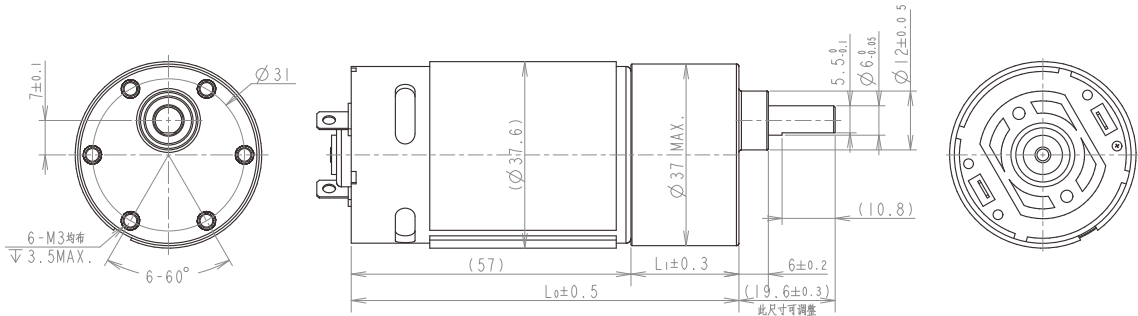
Φ37mm 正传动减速箱

主要参数

- 5.5W
- 0.3~0.9Nm
- 300N



技术插图



减速箱技术数据						
级数		3	4	5	6	7
减速比		23、33	49、79	106、152、214	288、414、584	785、1130
最大连续传输功率	W	5.50	5.50	5.50	5.50	5.50
最大瞬时传输功率	W	16.50	16.50	16.50	16.50	16.50
最大连续转矩	Nm	0.30	0.50	0.70	0.90	0.90
最大瞬时转矩	Nm	0.90	1.50	2.10	2.70	2.70
最大效率	%	73.00	65.00	59.00	53.00	47.00
空载平均空回	°	2.00	2.00	2.00	2.00	2.00
最大轴向动态载荷	N	300.00	300.00	300.00	300.00	300.00
最大径向载荷（离法兰4mm处）	N	10.00	10.00	10.00	10.00	10.00
齿轮箱长度L1	mm	21.60	24.20	26.80	29.40	32.00
重量	G	58.50	62.50	67.50	75.00	79.50

*注：以上数据不包含电机，减速箱和电机整体出售，具体参数可根据客户要求定制

推荐型号											
型号	额定电压 (V)	空载数据		负载数据			总长 (mm)	齿轮箱额定 容许力矩 (NM)	齿轮箱瞬间 容许力矩 (NM)	减速比	减速箱长 L1(mm)
		空载转速(rpm)	空载电流(mA max)	负载转速(rpm)	负载电流(mA Max)	转矩(Kg.cm)					
MC037E-23	12	250	150	182	700	3.0	53.25	0.30	0.90	23	21.6
MC037E-33	12	174	150	138	550	3.0				33	
MC037E-49	12	117	150	88	600	5.0	55.85	0.50	1.50	49	24.2
MC037E-79	12	73	150	65	400	5.0				79	
MC037E-106	12	54	150	48	650	7.0	58.45	0.70	2.10	106	26.8
MC037E-152	12	38	150	35	500	7.0				152	
MC037E-214	12	27	150	25	400	7.0				214	
MC037E-288	12	20	150	19	300	9.0	61.05	0.90	2.70	288	29.4
MC037E-414	12	14	150	13	200	9.0				414	
MC037E-584	12	10	150	10	150	9.0				584	
MC037E-785	12	7	150	7	150	9.0	63.65	0.90	2.70	785	32
MC037E-1130	12	5	150	5	150	9.0				1130	

*以上规格数据仅供参考，如有修改恕不另行通知，下单前请找客户询问。

电机

Micro Motor

兆威专注于微小驱动领域，采用高品质材料研发制造更强性能的微型电机，从原材料到组件都经过严苛选择和测试，以实现大功率密度、高精度和长使用寿命。其中包括无刷直流空心杯电机、有刷直流电机和步进电机、无刷直流电机。产品尺寸覆盖6mm至24mm直径范围，这些产品应用广泛，为满足高要求性，还可以根据客户要求 进行优化和采用高品质材料，例如采用NdFeB的高转矩直流电机。

ZHAOWEI specializes in micro drive solutions, leveraging high-quality materials to develop and manufacture micro motors with superior performance. From raw materials to components, every element undergoes rigorous selection and testing to achieve high power density, precision, and longevity. The product lineup includes brushless DC coreless motors, brushed DC motors, stepper motors, brushless DC motors. These motors range in size from 6mm to 24mm in diameter and are widely applicable across various industries. To meet demanding requirements, products can be optimized and built with premium materials, such as high-torque DC motors utilizing NdFeB (Neodymium Iron Boron) magnets for enhanced performance.



MC系列无刷直流空心杯电机
MC brushless DC coreless motor



MP有刷直流电机
MP brushed DC motor



MC步进电机
MC stepper motor

MC系列无刷直流空心杯电机

MC Brushless DC Coreless Motors

兆威MC系列无刷直流空心杯电机结合了无刷直流电机技术和空心杯结构，拥有高转速，长寿命，过载能力强，尤其是基于设计的不同，实现长寿命，高效率，出色的控制性能，无齿槽转矩。

ZHAOWEI's MC Series Brushless DC Coreless Motors combine brushless DC motor technology with a coreless structure. Key features include high rotational speeds, long operational lifespan, strong overload capacity. The design ensures high efficiency, extended service life, and superior control performance, while eliminating cogging torque for smooth operation.



MC0623-01

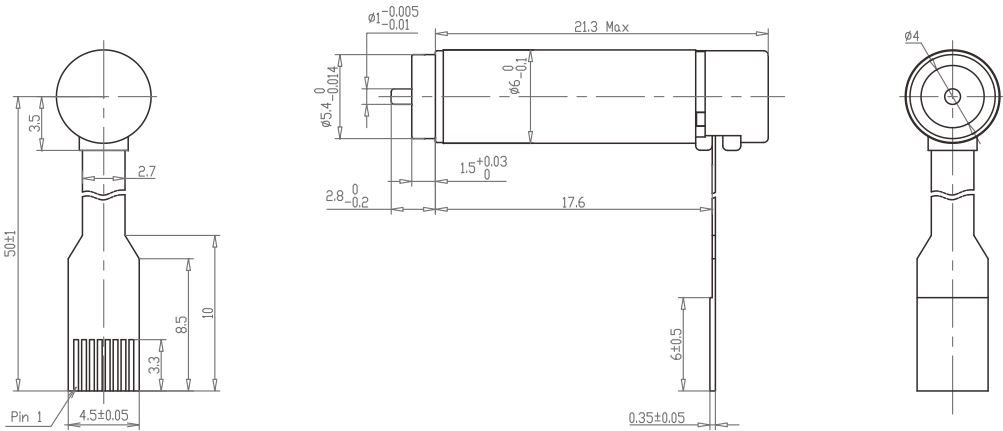
Φ6mm 无刷, 空心杯电机

主要参数

- 两磁极
- 2W
- 46800rpm
- 0.4mNm



技术插图



电机数据（额定值）		
额定电压	V	12
空载转速	rpm	63400±10%
空载电流	A	37±50%
额定转速	rpm	46800±10%
额定转矩	mNm	0.4
额定电流	A	0.256±50%
堵转转矩	mNm	1.5±7%
堵转电流	A	0.85±20%
最大效率	%	63±7%

电机常数（额定值）		
相间电阻	Ω	14.4±10%
相间电感	mH	0.1±10%
转矩常数	mNm/A	1.73±20%
速度常数	rpm/V	5523±20%
转速/转矩斜度	rpm/mNm	45972±20%
机械时间常数	ms	2.84±20%
转子惯量	gcm ²	0.007±20%

热参数		
机壳-环境热阻	K/W	67.9
绕组-机壳热阻	K/W	15.2
绕组热时间常数	s	1.54
电机热时间常数	s	71.5
环境温度	°C	-20~+100
最大绕组温度	°C	125

机械参数（滚珠轴承）	
最大允许转速（rpm）	100 000
最大轴向间隙（mm）	< 0.15 N 0 > 0.15 N 0.06（max）
径向间隙	preloaded
最大轴向动态载荷(N)	0.1
最大允许静态装力（N）	10
最大径向载荷，距离法兰处2mm处(N)	2

备注：可根据客户要求定制

端子型号	
Molex 52745-0897 52207-0460	
FCI SFV8R-2STBE1HLF SFW4R-2STGE1LF	

备注：可根据客户要求定制

端子定义	
	pin1 电机绕组1
	pin2 电机绕组2
	pin3 电机绕组3
	pin4 VHall (3.3~24 VDC)
	pin5 接地
	pin6 霍尔传感器1
	pin7 霍尔传感器2
	pin8 霍尔传感器3

MC0824-01

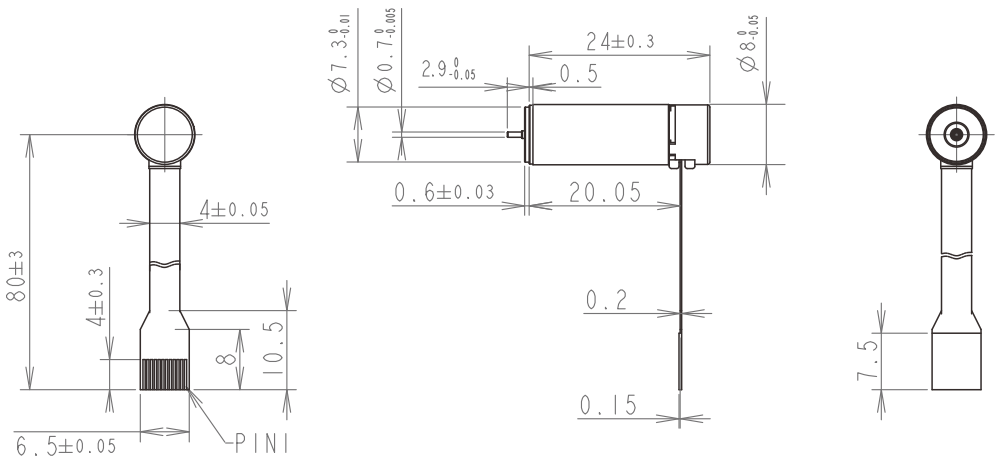
Φ8mm 无刷, 空心杯电机

主要参数

- 两磁极
- 5.8W
- 25500rpm
- 0.85mNm



技术插图



电机数据（额定值）		
额定电压	V	12
空载转速	rpm	38500±10%
空载电流	A	70±50%
额定转速	rpm	25500±10%
额定转矩	mNm	0.85
额定电流	A	0.5±50%
堵转转矩	mNm	3.5±7%
堵转电流	A	1.65±20%
最大效率	%	67±7%

电机常数（额定值）		
相间电阻	Ω	8.4±10%
相间电感	mH	0.05±10%
转矩常数	mNm/A	2.22±20%
速度常数	rpm/V	3155±20%
转速/转矩斜度	rpm/mNm	11000±20%
机械时间常数	ms	2.87±20%
转子惯量	gcm²	0.024±20%

热参数		
机壳-环境热阻	K/W	56.6
绕组-机壳热阻	K/W	11.5
绕组热时间常数	s	3.7
电机热时间常数	s	120
环境温度	℃	-20~+100
最大绕组温度	℃	125

机械参数（滚珠轴承）		
最大允许转速（rpm）	40 000	
最大轴向间隙（mm）	< 0.15 N 0	
	> 0.15 N 0.06（max）	
径向间隙	preloaded	
最大轴向动态载荷(N)	2	
最大允许安静态装力（N）	10	
最大径向载荷，距离法兰处2mm处(N)	5	

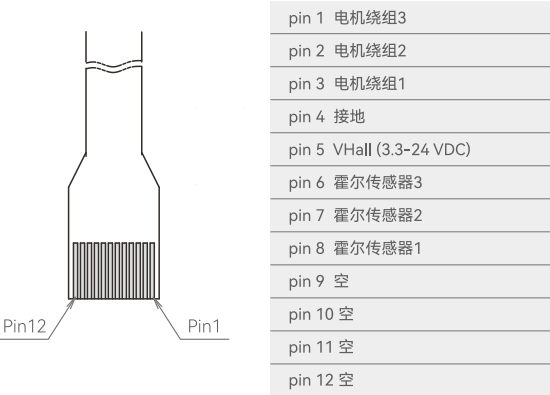
备注：可根据客户要求定制

端子型号

Molex 52745-1297

备注：可根据客户要求定制

端子定义



MC1028-01

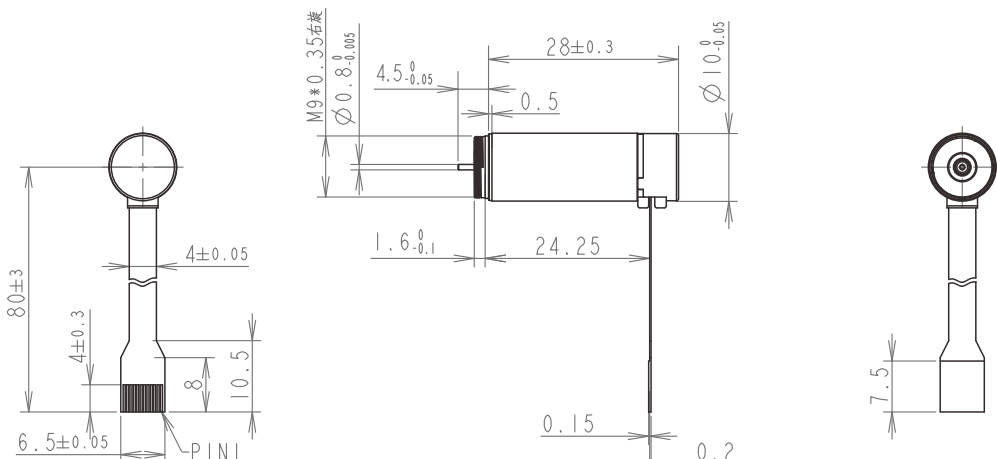
Φ10mm 无刷, 空心杯电机

主要参数

- 两磁极
- 8.7W
- 26500rpm
- 1.5mNm



技术插图



电机数据（额定值）		
额定电压	V	12
空载转速	rpm	33000±10%
空载电流	A	80±50%
额定转速	rpm	26500±10%
额定转矩	mNm	1.5
额定电流	A	0.7±50%
堵转转矩	mNm	9±7%
堵转电流	A	2.75±20%
最大效率	%	71±7%

电机常数（额定值）		
相间电阻	Ω	4.75±10%
相间电感	mH	0.026±10%
转矩常数	mNm/A	3.37±20%
速度常数	rpm/V	3747±20%
转速/转矩斜度	rpm/mNm	3667±20%
机械时间常数	ms	3.56±20%
转子惯量	gcm²	0.092±20%

热参数		
机壳-环境热阻	K/W	42.6
绕组-机壳热阻	K/W	7.2
绕组热时间常数	s	4.2
电机热时间常数	s	156
环境温度	℃	-20~+100
最大绕组温度	℃	125

机械参数（滚珠轴承）		
最大允许转速（rpm）	40 000	
最大轴向间隙（mm）	< 0.15 N 0	
	> 0.15 N 0.06（max）	
径向间隙	preloaded	
最大轴向动态载荷(N)	2	
最大允许安静态装力（N）	10	
最大径向载荷，距离法兰处2mm处(N)	5	

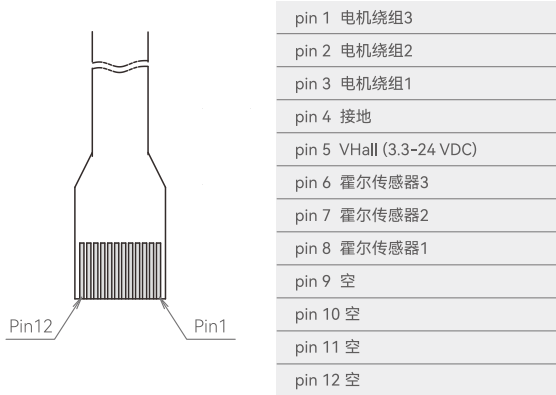
备注：可根据客户要求定制

端子型号

Molex 52745-1297

备注：可根据客户要求定制

端子定义



MC1226-01

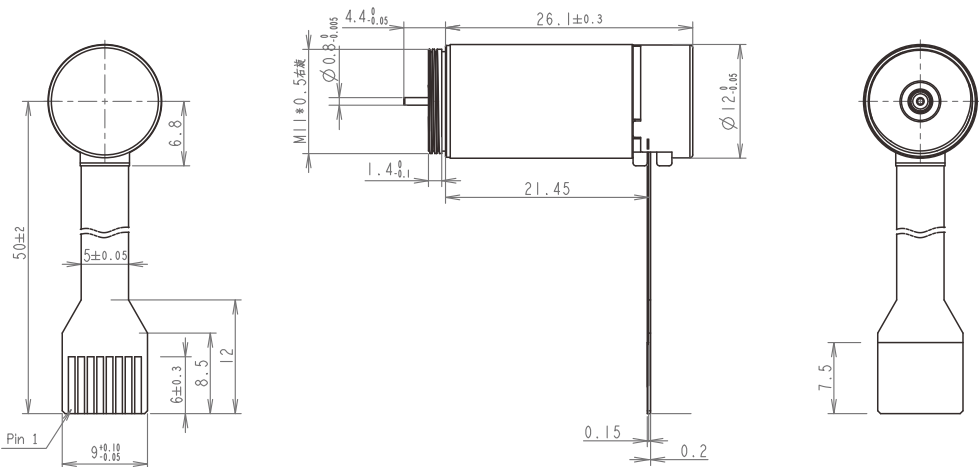
Φ12mm 无刷, 空心杯电机

主要参数

- 两磁极
- 9.9W
- 20970rpm
- 2.38mNm



技术插图



电机数据（额定值）		
额定电压	V	12
空载转速	rpm	28600±10%
空载电流	A	78±50%
额定转速	rpm	20970±10%
额定转矩	mNm	2.38
额定电流	A	0.69±50%
堵转转矩	mNm	8.9±7%
堵转电流	A	2.38±20%
最大效率	%	67±7%

电机常数（额定值）		
相间电阻	Ω	5.3±10%
相间电感	mH	0.042±10%
转矩常数	mNm/A	3.87±20%
速度常数	rpm/V	2383±20%
转速/转矩斜度	rpm/mNm	3213±20%
机械时间常数	ms	4.5±20%
转子惯量	gcm²	0.138±20%

热参数		
机壳-环境热阻	K/W	38.6
绕组-机壳热阻	K/W	7.5
绕组热时间常数	s	3.2
电机热时间常数	s	210
环境温度	°C	-20~+100
最大绕组温度	°C	125

机械参数（滚珠轴承）	
最大允许转速（rpm）	40 000
最大轴向间隙（mm）	< 0.15 N 0 > 0.15 N 0.06（max）
径向间隙	preloaded
最大轴向动态载荷(N)	2
最大允许静态装力（N）	10
最大径向载荷，距离法兰处2mm处(N)	5

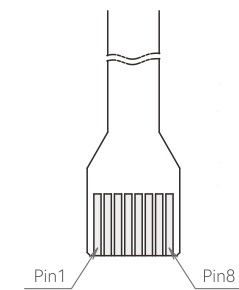
备注：可根据客户要求定制

端子型号

Molex 52745-0897 52207-0460
FCI SFV8R-2STBE1HLF SFW4R-2STGE1LF

备注：可根据客户要求定制

端子定义



pin 1 电机绕组1
pin 2 电机绕组2
pin 3 电机绕组3
pin 4 VHall (3.3-24 VDC)
pin 5 接地
pin 6 霍尔传感器1
pin 7 霍尔传感器2
pin 8 霍尔传感器3

MP有刷直流电机

MP brushed DC motor

与传统电机不同，兆威MC高转矩直流电机采用NdFeB，具有非常高的磁能积和矫顽力，可以在小空间下，爆发出更强动力，是汽车电子、工业自动化等众多行业的良选。

Unlike traditional motors, the MC High-Torque brushed DC Motor incorporates NdFeB magnets, known for their exceptional magnetic energy product and coercivity. This design delivers powerful performance in compact spaces, making it an ideal choice for industries such as automotive electronics and industrial automation.



MP1935-01

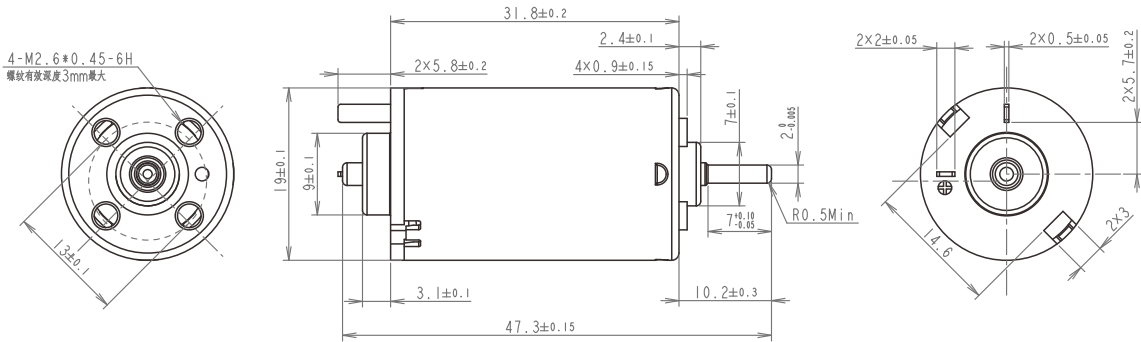
Φ19mm 石墨电刷, DC电机

主要参数

- 四磁极
- 4.5W
- 6700rpm
- 33mNm



技术插图



电机数据（额定值）		
额定电压	V	12
空载转速	rpm	8200 ± 10%
空载电流	A	0.3 (Max)
额定转速	rpm	6700 ± 10%
额定转矩	mNm	5.86
额定电流	A	0.55 ± 10%
堵转转矩	mNm	33 ± 7%
堵转电流	A	2.6 ± 10%
最大效率	%	65

电机常数（额定值）		
相间电阻	Ω	4.5 ± 10%
相间电感	mH	NA ± 10%
转矩常数	mNm/A	13.1 ± 20%
速度常数	rpm/V	684 ± 20%
转速/转矩斜度	rpm/mNm	243.5 ± 20%
机械时间常数	ms	NA ± 20%
转子惯量	gcm²	4 ± 20%

备注：可根据客户要求定制

MP2238-01

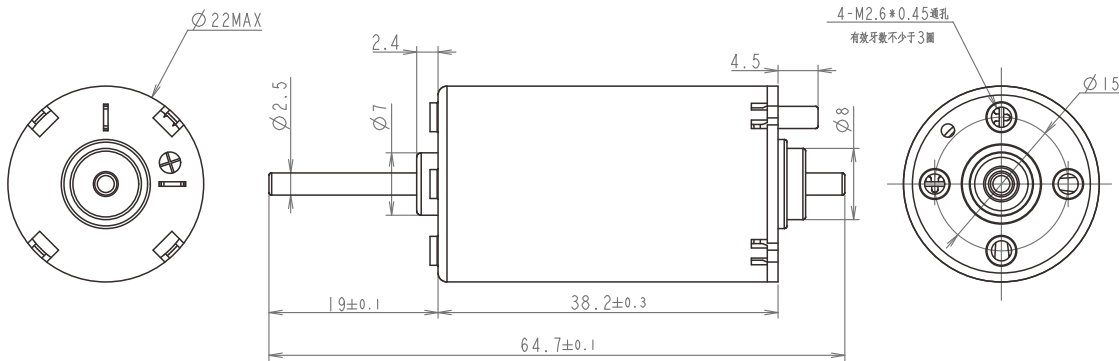
Φ22mm 石墨电刷, DC电机

主要参数

- 四磁极
- 11W
- 5300rpm
- 16.6mNm



技术插图



电机数据（额定值）		
额定电压	V	12
空载转速	rpm	6300 ± 10%
空载电流	A	0.3 (Max)
额定转速	rpm	5300 ± 10%
额定转矩	mNm	16.6
额定电流	A	1.20 ± 10%
堵转转矩	mNm	99.5 ± 7%
堵转电流	A	6.0 ± 10%
最大效率	%	65

电机常数（额定值）		
相间电阻	Ω	2.0 ± 10%
相间电感	mH	NA ± 10%
转矩常数	mNm/A	18 ± 20%
速度常数	rpm/V	525 ± 20%
转速/转矩斜度	rpm/mNm	63 ± 20%
机械时间常数	ms	NA ± 20%
转子惯量	gcm²	10 ± 20%

备注：可根据客户要求定制

MP2430-03

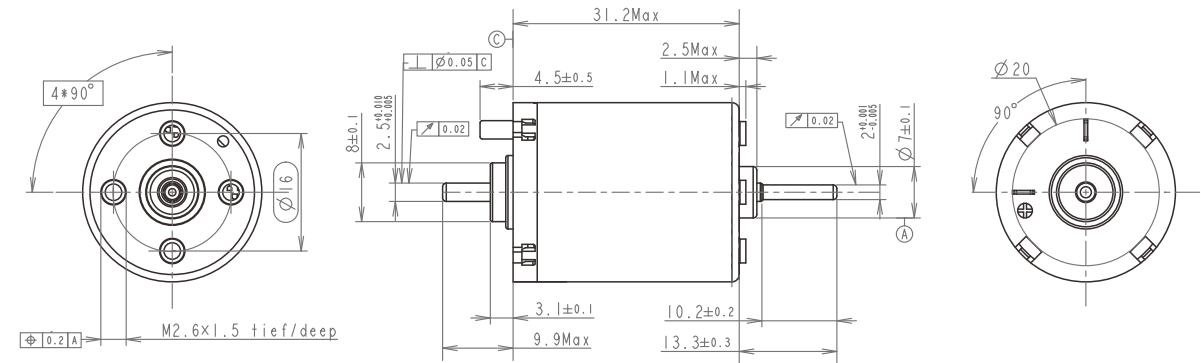
Φ24mm 石墨电刷, DC电机

主要参数

- 四磁极
- 11W
- 5100rpm
- 15.8mNm



技术插图



电机数据（额定值）

额定电压	V	12
空载转速	rpm	6200 ± 10%
空载电流	A	0.4 (Max)
额定转速	rpm	5100 ± 10%
额定转矩	mNm	15.8
额定电流	A	1.2 ± 10%
堵转转矩	mNm	95 ± 7%
堵转电流	A	5.8 ± 10%
最大效率	%	65

电机常数（额定值）

相间电阻	Ω	2 ± 10%
相间电感	mH	NA ± 10%
转矩常数	mNm/A	18 ± 20%
速度常数	rpm/V	515 ± 20%
转速/转矩斜度	rpm/mNm	65 ± 20%
机械时间常数	ms	NA ± 20%
转子惯量	gcm ²	10 ± 20%

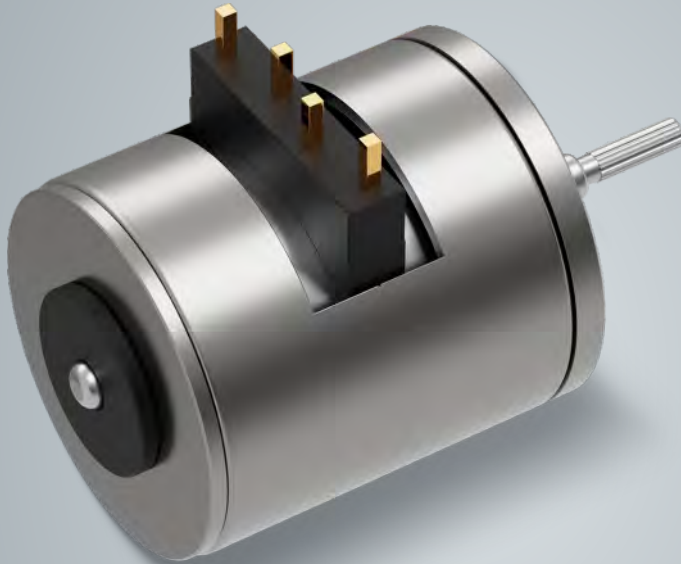
备注：可根据客户要求定制

MC步进电机

MC stepper motor

兆威MC步进电机具有高精度，加速迅捷的特点，能够快速的达到最大输出功率，无需编码器即可实现精确控制。

ZHAOWEI's MC Stepper Motors are characterized by high precision and rapid acceleration. They can quickly achieve maximum output power and provide precise control without requiring an encoder, making them highly efficient and reliable.



ZPM0809-20-002

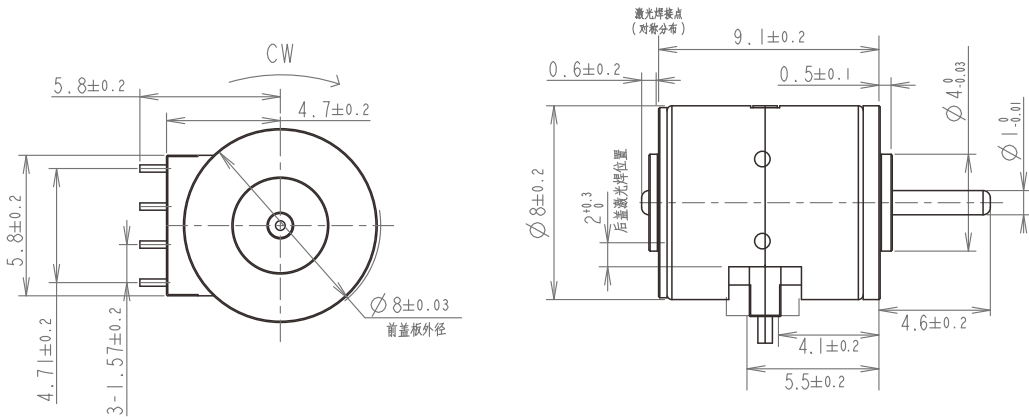
Φ8mm 步进电机（MC版）

主要参数

- 步进角 18°±1°
- 相数 2相
- 励磁 2-2相



技术插图



电机数据（额定值）		
额定电压	V	5
最大牵入频率	pps	≥1800
最大牵出频率	pps	≥2400
牵入力矩	gf.cm	≥13 (200pps)
牵出力矩	gf.cm	≥15(200pps)

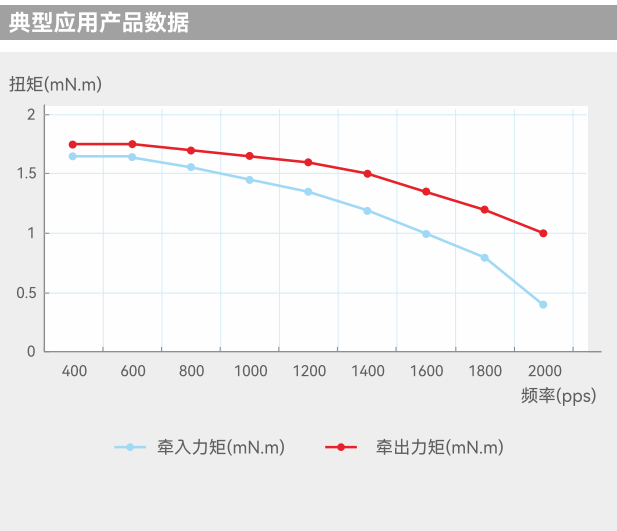
电机常数（额定值）		
相间电阻	Ω	7.5±10%
相间电感	mH	1.6±30%

备注：可根据客户要求定制

端子型号

Molex 52745-1297

备注：可根据客户要求定制

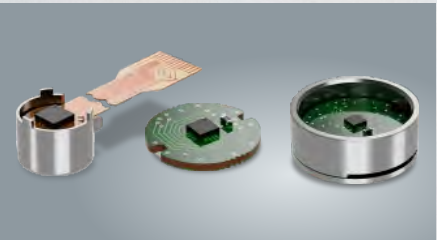


电控系统

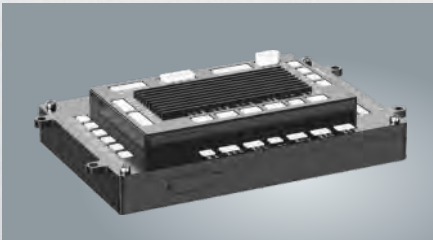
Electronic Control Systems

兆威拥有专业的电控研发和生产团队，开发编码器和电控板，其中编码器至少2~3通道，能够实现1~1024脉冲。而电控板则专为直流电机和无刷电机运转速度控制设计，工作模式和参数均可调整，产品通用性强，场景适用性广。

ZHAOWEI boasts a specialized team for electronic control system R&D and production. The portfolio includes encoders and control boards, ensuring optimal motor performance and versatility. The encoder has 2 to 3 Channels, delivering 1 to 1024 Pulses. Designed specifically for DC and brushless motors, the control boards allow adjustable operation modes and parameters. Their broad compatibility and versatility make them suitable for diverse applications.



CB-ST编码器
CB-ST encoder



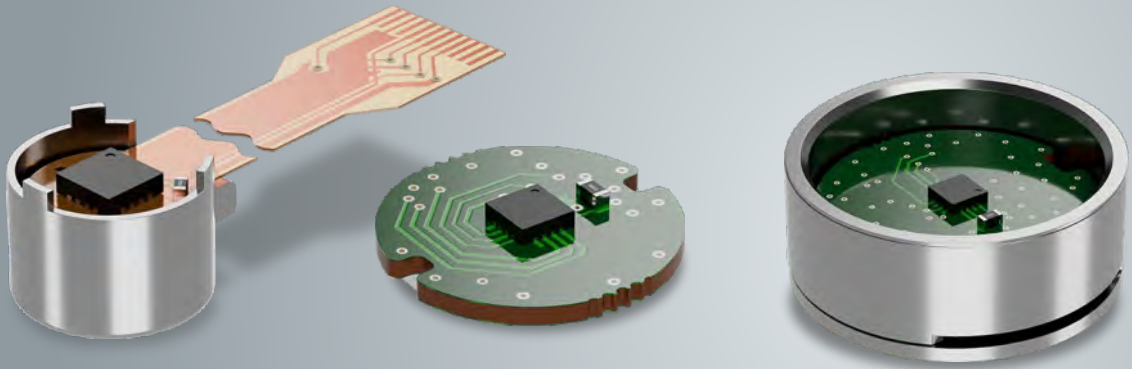
电控板
Electronic control board

CB-ST编码器

CB-ST encoder

兆威采用磁编码器原理，通过传感磁体与电机轴保持同步，经霍尔传感器检测磁场变化，实现定位任务和精确的转速控制，对灰尘、湿气、振动、冷热温差具有很强抗干扰性。

The CB-ST Encoder uses magnetic encoding principles. By synchronizing the magnetic sensor with the motor shaft, the hall sensor detects magnetic field changes to accomplish precise positioning and speed control tasks. The encoder can remain accurate performance in demanding environments with high resistance to dust, moisture, vibration, and temperature fluctuations.

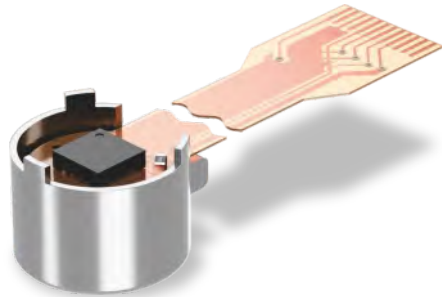


SM008008

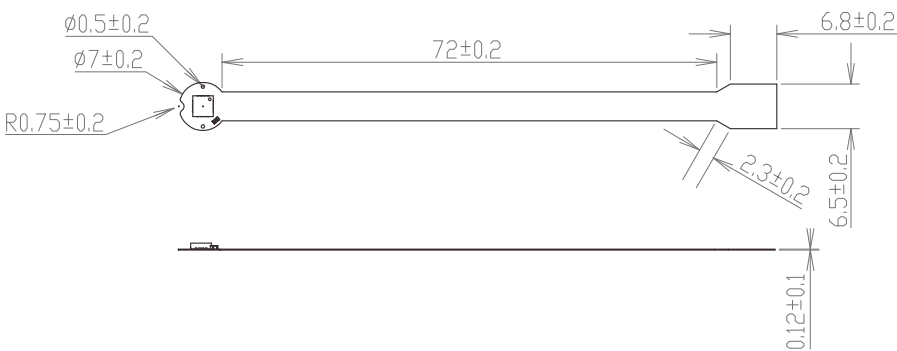
Φ8mm 磁编

主要参数

- 10mA
- 3.3—5V
- 55000rpm



技术插图



技术参数

每旋转一周的脉冲数	N	1 ~ 1024
输出信号	方波	单端ABZ
电源电压	UDD	3.3~5 V
工作电流，典型值	IDD	10mA
索引脉冲宽度	P0	180 ± 45°
A、B通道相位差	Φ	90 ± 45°
工作温度范围		-40~125°C
精度		±1
滞后角		0.088 °m

引脚定义

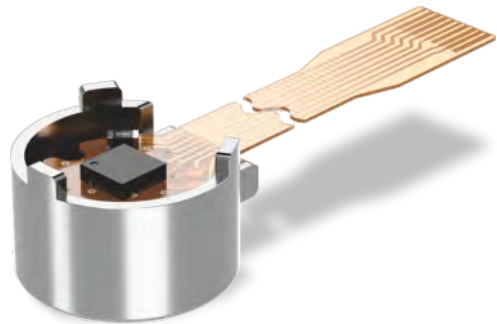
PIN1: U	PIN7: VCC
PIN2: U	PIN8: GND
PIN3: V	PIN9: A
PIN4: V	PIN10: B
PIN5: W	PIN11: Z
PIN6: W	PIN12: 无

SM012012

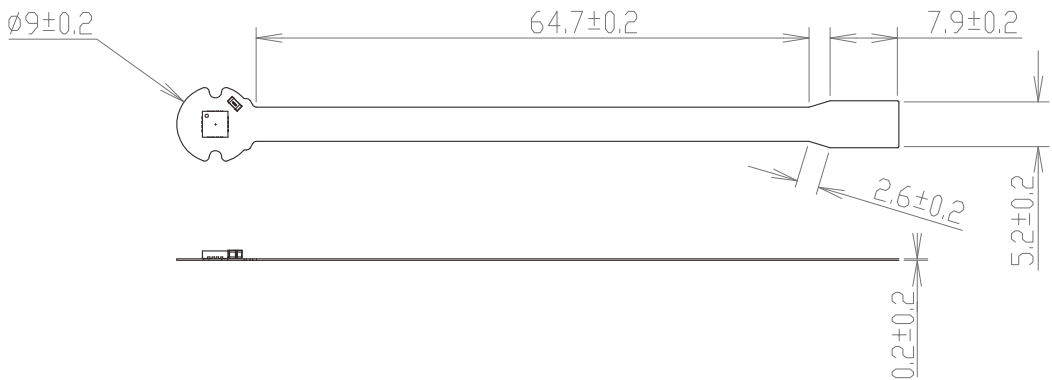
Φ12mm 磁编

主要参数

- 10mA
- 3.3—5V
- 55000rpm

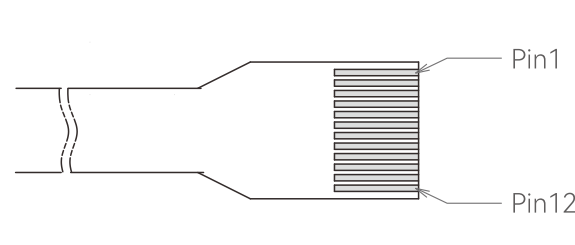


技术插图



技术参数		
每旋转一周的脉冲数	N	1 ~ 1024
输出信号	方波	差分ABZ/UVW
		单端ABZ
电源电压	UDD	3.3~5 V
工作电流, 典型值	IDD	10mA
索引脉冲宽度	P0	180 ± 45°
A、B通道相位差	Φ	90 ± 45°
工作温度范围		-40~125℃
精度		±1
滞后角		0.088 °m

引脚定义

	PIN1: U	PIN7: VCC
	PIN2: U	PIN8: GND
	PIN3: V	PIN9: A
	PIN4: V	PIN10: B
	PIN5: W	PIN11: Z
	PIN6: W	PIN12: 无

SM022022

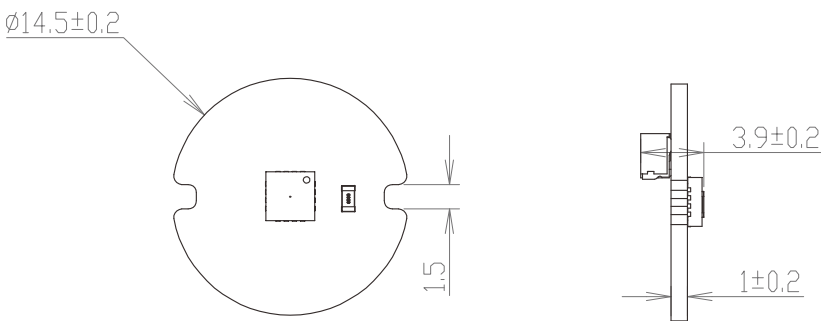
Φ22mm 磁编

主要参数

- 10mA
- 3.3—5V
- 55000rpm

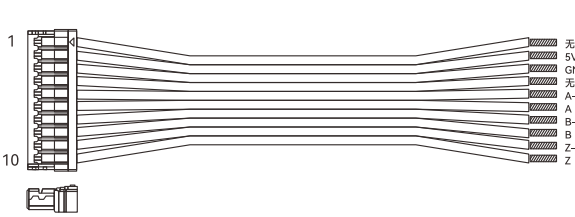


技术插图



技术参数		
每旋转一周的脉冲数	N	1 ~ 1024
输出信号	方波	差分ABZ/UVW
		单端ABZ
电源电压	UDD	3.3~5 V
工作电流, 典型值	IDD	10mA
索引脉冲宽度	P0	180 ± 45°
A、B通道相位差	Φ	90 ± 45°
工作温度范围		-40~125℃
精度		±1
滞后角		0.088 °m

引脚定义

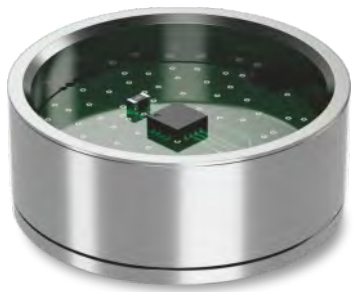
	PIN1: 无	PIN6: A
	PIN2: VCC	PIN7: B-
	PIN3: GND	PIN8: B
	PIN4: 无	PIN9: Z-
	PIN5: A-	PIN10: Z

SM038038

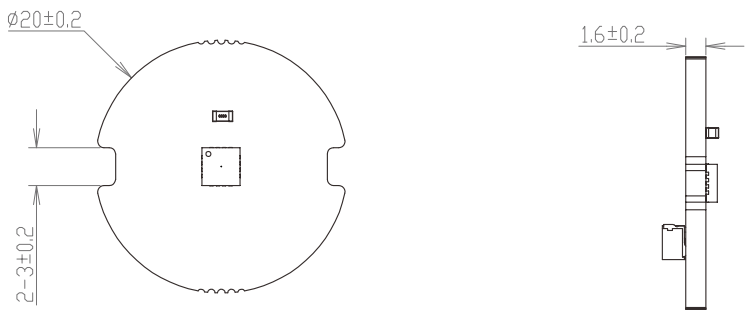
Φ38mm 磁编

主要参数

- 10mA
- 3.3—5V
- 55000rpm



技术插图



技术参数		
每旋转一周的脉冲数	N	1 ~ 1024
输出信号	方波	差分ABZ/UVW
		单端ABZ
电源电压	UDD	3.3~5 V
工作电流, 典型值	IDD	10mA
索引脉冲宽度	P0	180 ± 45°
A、B通道相位差	Φ	90 ± 45°
工作温度范围		-40~125℃
精度		±1
滞后角		0.088 °m

引脚定义

	PIN1: 无	PIN6: A
	PIN2: VCC	PIN7: B-
	PIN3: GND	PIN8: B
	PIN4: 无	PIN9: Z-
	PIN5: A-	PIN10: Z

电控板

Electronic Control Boards

电控板能够对微型电机实现高效控制,兆威专注于微型驱动领域,开发直流电机、无刷空心杯电机、步进电机等微型电机电控板,能够根据客户需求,精确地调节驱动功率,转速等,具有电机匹配度广、控制精确的特点。

ZHAOWEI develops high-performance control boards tailored for micro motors, including DC motors, brushless coreless motors, and stepper motors. These boards offer precise power and speed regulation based on client needs, broad motor compatibility, exceptional control accuracy.



团队文化 Company Culture

让员工与企业一起成长
Growing together with our employees

ZHAOWEI 兆威

微型驱动系统制造商
Micro Drive System Manufacturer

股票简称：兆威机电 股票代码：003021
Stock Abbreviation: ZHAOWEI Machinery & Electronics Stock Code: 003021