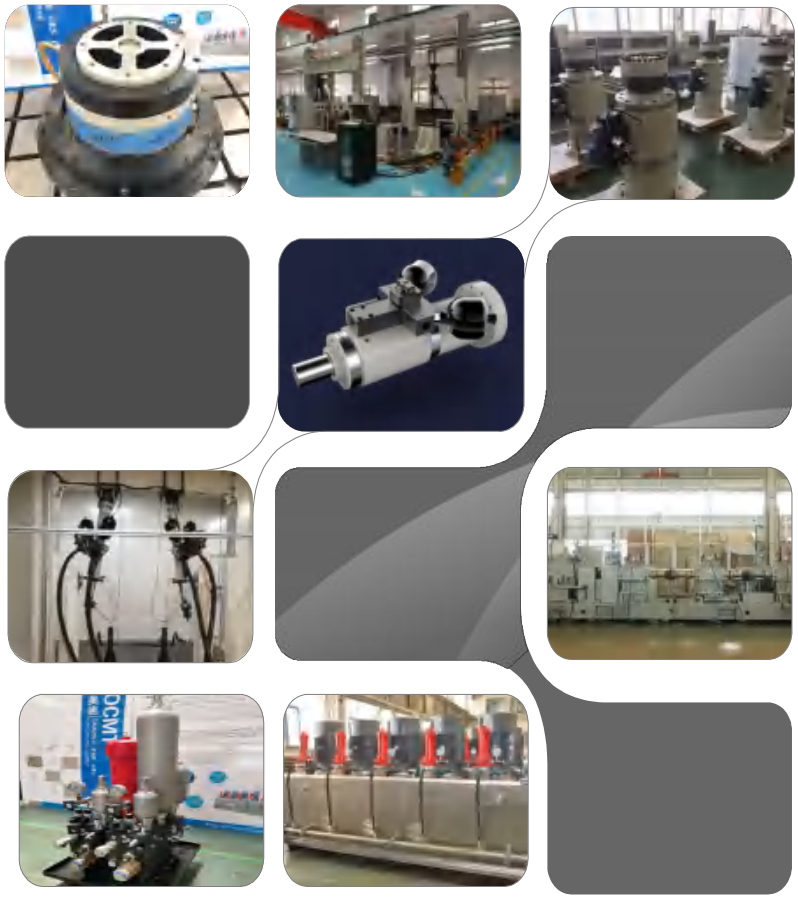
国机集团
SINOMACH

SINOCMT

中机思美迪

静压支撑伺服作动器、伺服液压系统、工况再现仿真系统
高品质伺服液压部件及系统集成商



德国专家介绍：

克劳斯.比尔教授（Klaus Biehl），中机思美迪(长春)科技有限公司副董事长兼技术总监，材料科学博士，现担任德国莱茵曼应用技术大学教授。他是材料科学及结构强度方面的享誉专家。

比尔教授毕业于德国达姆斯塔特技术大学，1989年获得材料科学博士学位。曾先后任职于世界著名的试验机制造商德国申克公司(Carl Schenck)和IST公司(Instron–Schenck Testing Systems)，担任材料、结构试验、结构及模拟试验系统的技术经理。在结构试验系统的设计，生产和开发等诸多方面积聚了三十多年的丰富经验，具备独特的技术。同时，他在中高频试验领域和静压轴承伺服作动器的设计制造方面有着深厚的造诣。

Introduction of German Expert

Serving as Vice Chairman & Technical Director of Sino–CMT (Changchun) Technology Co. Ltd, Klaus Biehl is currently a professor of materials science and service strength science at department of Engineering Sciences, Rhein–Main University of Applied Sciences. Prof. Biehl has extensive knowledge and experience in material science & structural strength.

Prof. Biehl graduated from Technical University Darmstadt in Germany and received a doctorate degree in material science in 1989. He had continually worked at Carl Schenck and IST (Instron-Schenck Testing Systems) and served as sales & application manager for material & structural testing, elastomer testing, structural testing & simulation systems with worldwide activities in Germany, Middle and Southern Europe and Asia.

With thirty years or so in the testing field, Prof. Biehl becomes a well recognized expert in design, production & development covering from hydrostatic bearing actuator, middle & high frequency tests to structural test systems.

COMPANY PROFILE/ 关于中机思美迪

德国MCT公司介绍：

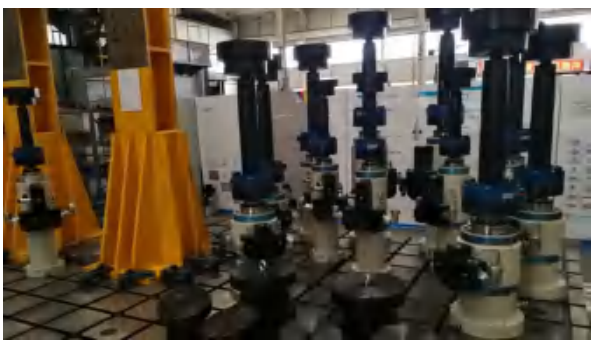
德国MCT MatCompTest GmbH于2005年组建，其创始人比尔教授曾就职于德国著名试验机公司申克公司(Carl Schenck)及IST，在结构试验系统的设计、生产和开发等诸多方面积聚了三十多年丰富的经验，其研发的产品覆盖机车、航空、汽车、橡胶、材料研发等领域，已经在欧美地区获得了广泛应用。

MCT (MatCompTest GmbH) was established in Germany in January, 2005. The principle founder, Prof. Biehl had worked long time at worldwide well-known testing company Carl Schenck, later on IST (Instron-Schenck Testing Systems). More than three decades in the testing field, Prof. Biehl possesses comprehensive experience & solid knowledge in design, production and development of structural test systems. The products are widely applied in automotive, locomotive, aerospace, rubber industries and material R&D institutions in Europe.

中机思美迪:

中机思美迪（长春）科技有限公司（Sino–CMT）是德方与国内工程试验领域规模大、研发能力强的中机试验装备股份有限公司共同成立的合资公司，专注于静压支撑伺服作动器的生产与研发及静压支撑技术的开发与应用。致力于为国内工程测试领提供专业的伺服液压系统和高端成套工况再现仿真系统，中机思美迪是您搭建高端伺服测试系统最值得信赖的合作伙伴。

Sino-CMT (Changchun) Technology Co., Ltd. (Sino-CMT) is a joint venture company jointly established by German partner and Sinotest Equipment Co., Ltd., who holds strongest capabilities of R&D and is a conglomerate of engineering testing industry in China. With the help of its state-of- art technology in constant evolution, Sino-CMT is dedicated to providing market at home and abroad with from highest standard specialized servo hydraulic components and complex packages to tailor- made sophisticated multi-axial testing solutions. Sino-CMT is your most trustful partner for building high-end servo test systems.



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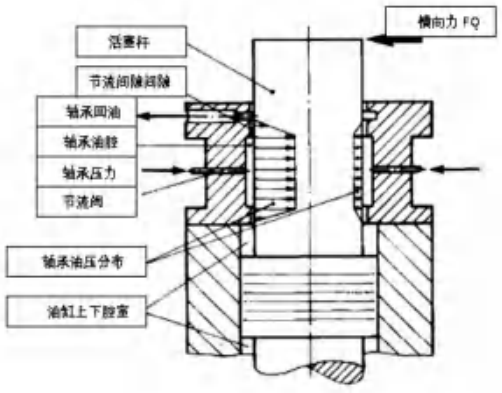
静压支撑伺服作动器
Hydrostatic Bearing Linear Actuator

01 概述
Summary

静压支撑伺服作动器不使用任何密封圈，借助静压支撑系统来实现活塞杆与缸体的自动对中、密封与导向以及一定的抗侧向能力。

在工作时，无论作动器活塞杆是处于静止状态，还是处于运动状态，都存在一层润滑油膜将存在相对运动的工作表面分隔开，因而适用于控制和测量精度要求较高的试验任务。

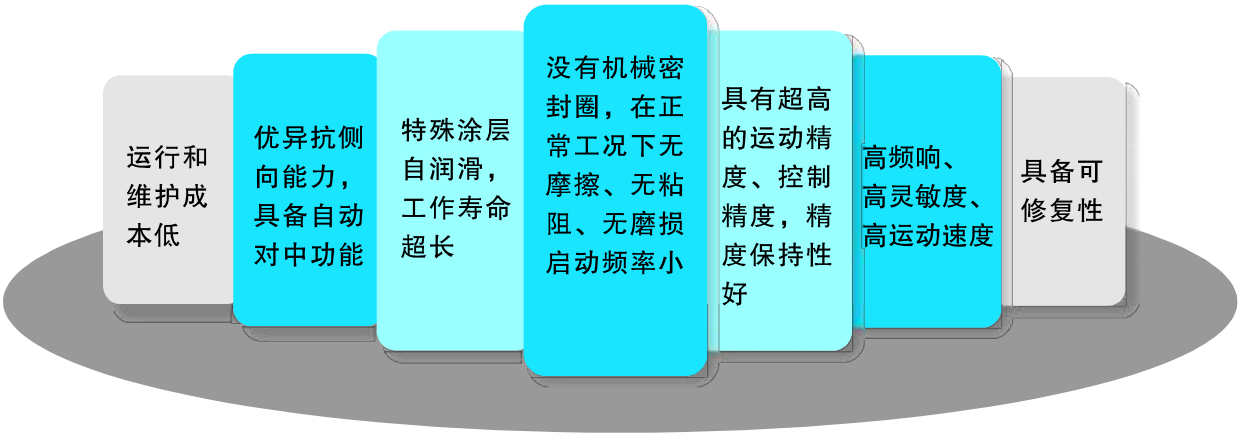


Hydrostatic bearing actuator has no sealing gaskets. With the help of special designed hydrostatic bearing unit, the piston rod automatically regulates itself that ensures constantly alignment between piston rod and cylinder housing and central guiding.

While bearings center the piston, all sliding surfaces in actuator are separated by oil film under pressure; this oil film in hydrostatic bearings exists before piston moves and is maintained even under lateral force so to exclude friction & wear. Hydrostatic bearing actuator offers much high performance and fits in well with testing tasks where high accuracy of control and measurement is essentially desired.

02 优势和特点
Advantages and Characteristics

- No sealing gaskets, free from sliding friction and wear, no stick–slip effect in normal applications; great frequency response.
- Extraordinary high accuracies and stability of control and movement
- High test frequency and speed with excellent sensitivity.
- Sustain high lateral load, automatically constant alignment.
- Bearings and piston coated with special plastics, giving exceptional reliability and endurance in service.
- Repairability for extended service life
- Low overall operational and maintenance costs

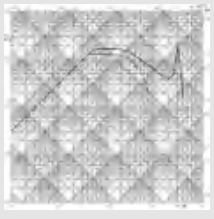


MI系列静压支撑直线伺服作动器
ML series Linear Hydrostatic Bearing Actuator

- 直线型静压支撑伺服作动器是双向油缸，二端油腔等面积
- 工作频响：0.01~400Hz；
- 工作压力：21MPa/28MPa；
- 标准规格作动器最高速度为6m/s；
- 可根据用户需求定制更高速度（高速度为20m/s）。

- Linear actuator is double–acting cylinder with equal areas in the two chambers
- Test frequency: 0.01~400Hz;
- Nominal pressure: 21MPa or 28MPa;
- Maximum speed: 6m/s for standard versions;
- Special design up to 20m/s.

01 ML系列静压支撑伺服作动器主要技术参数
ML series Linear Hydrostatic Bearing Actuator specifications



额定载荷（kN） Nominal load		10–50	100	200	300	500	1000	2000
结构尺寸 Model		ML10 ML25 ML50	ML100	ML200	ML300	ML500	ML1000	ML2000
对应额定行程Sn的活塞位置Ao值 Dimension Ao to nominal stroke Sn(mm)	40	519	– –	– –	– –	– –	– –	– –
	100	639	624	589	589	760	815	960
	150	739	724	689	689	860	915	– –
	250	939	924	889	889	1360	1415	1560
	400	– –	1224	1189	1189	1360	1415	1560
底板直径/ Base diameter		205	275	370	370	470	550	880
前法兰连接 Front connection diameter		ϕ 100	ϕ 160	ϕ 224	ϕ 224	ϕ 280	ϕ 375	ϕ 560
		10 × M12	12 × M12	12 × M16	12 × M16	12 × M20	12 × M24	12 × M36
底板连接 Base connection diameter		ϕ 180	ϕ 250	ϕ 335	ϕ 335	ϕ 425	ϕ 500	ϕ 800
		10 × ϕ 11	12 × ϕ 14	12 × ϕ 18	12 × ϕ 18	12 × ϕ 22	12 × ϕ 26	12 × ϕ 38
底板厚度/ Base height		50	60	70	70	80	90	125
活塞杆直径/ Piston rod diameter		（43）45	80	125	125	160	200	315
活塞杆连接止口 Piston rod mounting edge		35	20	40	40	40	40	160
活塞杆连接尺寸 Piston rod mounting diameter		M24 × 2	ϕ 45	ϕ 71	ϕ 71	ϕ 112	ϕ 112	ϕ 250
			8 × M10	8 × M16	8 × M16	8 × M24	8 × M24	8 × M30
活塞杆连接螺纹深度 Mounting screw thread		50	25	30	30	45	45	50
重量 Weight （KG）	ML– 40	40	– –	– –	– –	– –	– –	– –
	ML– 100	50	140	260	260	530	880	2350
	ML– 150	60	160	300	290	590	970	– –
	ML– 250	80	200	370	360	710	1160	3100
	ML– 400	– –	250	480	460	890	1440	3900

02 ML系列静压支撑伺服直线作动器型号说明
ML Series Hydrostatic Bearing Linear Actuators

标准型ML系列静压支撑伺服直线作动器选型 Standard ML series Linear Hydrostatic Bearing Actuator		
产品代码/Product code	静态额定载荷/Static load rating	有效行程/Effective itinerary
ML.010.100	10KN	±50mm
ML.010.150	10KN	±75mm
ML.010.250	10KN	±125mm
ML.025.100	25KN	±50mm
ML.025.150	25KN	±75mm
ML.025.250	25KN	±125mm
ML.050.100	50KN	±50mm
ML.050.150	50KN	±75mm
ML.050.250	50KN	±125mm
ML.100.100	100KN	±50mm
ML.100.150	100KN	±75mm
ML.100.250	100KN	±125mm
ML.100.400	100KN	±200mm
ML.200.100	200KN	±50mm
ML.200.150	200KN	±75mm
ML.200.250	200KN	±125mm
ML.200.400	200KN	±200mm
ML.300.100	300KN	±50mm
ML.300.150	300KN	±75mm
ML.300.250	300KN	±125mm
ML.300.400	300KN	±200mm
ML.500.100	500KN	±50mm
ML.500.150	500KN	±75mm
ML.500.250	500KN	±125mm
ML.500.400	500KN	±200mm
ML.1000.100	1000KN	±50mm
ML.1000.150	1000KN	±75mm
ML.1000.250	1000KN	±125mm
ML.1000.400	1000KN	±200mm
ML.2000.100	2000KN	±50mm
ML.2000.150	2000KN	±75mm
ML.2000.250	2000KN	±125mm
ML.2000.400	2000KN	±200mm

MR系列静压支撑摆动伺服作动器

Selection of Standard ML Series Static Pressure Support Servo Linear Actuator

工作频响：0.01~200Hz；
工作压力：21MPa/28MPa;
标准规格作动器摆动角度为±50°；
可根据用户需求定制扭矩规格、角度的非标产品。

Test frequency: 0.01 - 200Hz;
Nominal pressure: 21MPa or 28MPa;
Nominal angle: ±50°;
Special design available upon request.

静压支撑摆动伺服作动器采用双叶片结构，同时存在径向和轴向的静压轴承，活塞动叶片和缸体静叶片均带有特殊塑料涂层。没有机械密封圈，在正常工况工作下无摩擦、无粘阻、无磨损，与直线缸具有同样的优势、特点，适合动态高频试验。

The rotary hydrostatic actuator adopts a double-blade structure. There are radial and axial static bearings; both the piston moving blade and the cylinder static blade are plastic-coated. There is no mechanical seal ring, no friction, no stick resistance, no wear under normal working conditions. It has the same advantages and characteristics as the linear cylinder, suitable for dynamic high-frequency tests.

MR系列静压支撑摆动伺服作动器
MR series Hydrostatic Bearing Rotary Actuators

产品代码/Product code	静态额定扭矩/Static rated torque	有效行程/Effective itinerary
MR.500.100	500N.m	±50°
MR.1000.100	1000N.m	±50°
MR.2000.100	2000N.m	±50°
MR.3000.100	3000N.m	±50°
MR.5000.100	5000N.m	±50°
MR.10000.100	10000N.m	±50°
MR.20000.100	20000N.m	±50°
MR.30000.100	30000N.m	±50°
MR.40000.100	40000N.m	±50°
MR.50000.100	50000N.m	±50°

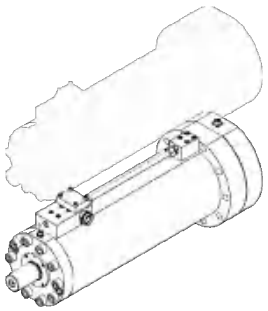
专用静压支撑伺服作动器及静压支撑产品

Special Model Servo Hydrostatic Bearing Actuator & Hydrostatic Bearing products

01 MLD系列单出杆静压支撑伺服作动器

MLD Series Single-acting Hydrostatic Bearing Actuator

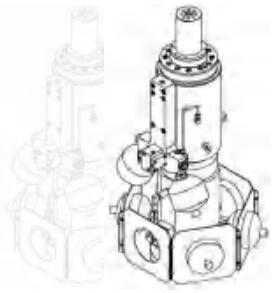
单出杆大吨位大行程静压支撑伺服作动器适用于大型土木工程的结构及构件进行静力学、稳定性、安全和耐久寿命等分析和试验。随着经济持续健康快速发展，各种重大的土木工程建设进入新的发展阶段。此单出杆静压支撑伺服作动器的研发成功，将在高端大吨位大行程液压油缸领域占据一定的强势地位。



The single-acting hydrostatic bearing actuator, offering big load capacity and extended stroke, is suitable for static test applications for analysis of static mechanics, stability, safety, endurance and lifespan of large civil engineering components and structures. With sustainable and rapid economic growth, it is entering a new era for various major civil engineering construction projects. The newly developed single-acting hydrostatic bearing actuator is to take a strong position in the field of high-end market where big capability and extralong stroke is a necessity.

02 MLY系列预载静压支撑伺服作动器

MLY Series Preload Hydrostatic Bearing Actuator

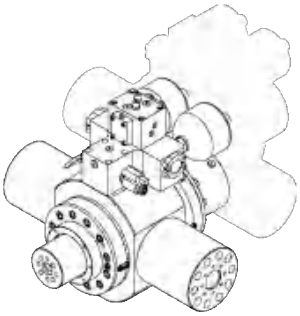


预载静压支撑伺服作动器是一款新型动态伺服作动器，传统伺服作动器一般采用双出杆结构，通过A/B两个油腔实现活塞杆的直线往复运动，而预载静压支撑伺服作动器是一款“三油腔”伺服作动器，第三油腔通过伺服控制实现活塞杆对于被测量部件重量的平衡，从而提高整套系统的动态响应。

The preloaded hydrostatic bearing actuator is a new type of dynamic servo actuator. The traditional servo actuator generally adopts a double-rod structure. The linear reciprocating motion of the piston rod is realized through two oil chambers A/B. The preloaded hydrostatic bearing actuator is a ‘three-oil chamber’ servo actuator. The third oil chamber realizes the balance of the weight of specimen and the piston rod by servo control, so as to save the demand of the whole system for dynamic load.

03 MLJ系列铰耳静压支撑伺服作动器

MLJ Series Hinged Ear Hydrostatic Bearing Actuator



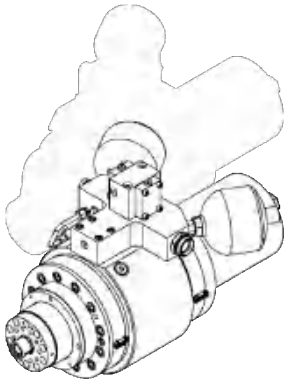
铰耳静压支撑伺服作动器可实现加载方向的任意调节，标准型静压支撑伺服作动器实现加载方向调节均采用尾部铰接实现，而带有中间铰耳的静压支撑伺服作动器可在施加很小的变角扭矩下自由翻转，从而实现变方向加载。

The reamed-ear hydrostatic bearing actuator can adjust the loading direction arbitrarily. The standard hydrostatic bearing actuator can adjust the loading direction by tail articulation. The hydrostatic bearing with middle reamed ear can flip freely under the application of very small angular torque, thus realizing the variable-direction loading.

04 MLQ系列嵌套静压支撑伺服作动器
MLQ Series Nested Hydrostatic Bearing Actuators

嵌套静压支撑伺服作动器是一种双重负载伺服作动器，外作动器的活塞杆兼顾内作动器的缸体，内外作动器均采用静压支撑伺服间隙密封技术，相比于标准静压支撑伺服作动器，此嵌套静压支撑伺服作动器含有“四油腔”，内外作动器均可实现高频响往复直线运动。

Nested Hydrostatic bearing actuator is a double-load servo actuator. The piston rod of external actuator takes into account the cylinder block of internal actuator. Both internal and external actuators adopt the technology of hydrostatic bearing clearance seal. Compared with standard hydrostatic bearing actuator, this nested hydrostatic bearing actuator contains four oil chambers, and both internal and external actuators can achieve high-frequency reciprocating linear motion.



PL系列直线伺服作动器
PL Series Linear Servo Actuator for Friction Pairs

该伺服作动器采用德国工艺标准制作，活塞杆也同样采用特殊涂层技术，使用德国进口优质密封件，具有低摩擦、低阻尼、高频响的特点，使用范围广，承载能力高，在低速下无爬行现象。位移传感器同轴安装，精确测量活塞位移。

电液伺服直线作动器参照静压支撑伺服作动器制造工艺，其外形尺寸及相关连接尺寸与标准静压支撑伺服作动器完全一致，其动态特性及寿命全面优于传统摩擦副伺服作动器。

The servo actuator is manufactured and tested according to German technological standards and uses German high quality seals. It has low friction, low damping, high frequency response and good lateral force resistance. It has wide usage range, high bearing capacity and no creeping phenomenon at low speed. Coaxial displacement sensor is equipped to measure piston displacement accurately.

The servo near actuator is made by the same manufacturing process of the hydrostatic bearing actuator. Its external dimensions and related connection dimensions are exactly the same as those of the standard hydrostatic bearing actuator.

PL系列直线伺服作动器
PL Series Linear Servo Actuator for Friction Pairs

型号/Model	静态额定载荷/Static load rating	有效行程/Effective itinerary
PL25.100	25KN	±50mm
PL50.100	50KN	±50mm
PL100.100	100KN	±50mm
PL200.100	200KN	±50mm
PL300.100	300KN	±75mm
PL500.100	500KN	±75mm
PL1000.100	1000KN	±75mm

控制系统
Control System

控制器MCT
controller mct

MCT控制系统是我公司融合国内为先进技术和人才力量开发的全新一代控制系统。采用CPCI国际标准中的6U横插卡结构，机箱设计为4U机箱高度，整体宽度按照19英寸标准机箱设计，可以安装19英寸标准计算柜内。优点在于整体设计有标准作为依据，所有的尺寸、通风以及连接插槽都有严格的设计规范。机箱为全铝材质，表面喷砂氧化。

The MCT control system is a new generation control system developed by our company for the integration of domestic advanced technology and talents. Adopting the 6U horizontal card structure in the CPCI international standard, the chassis design is 4U chassis height, and the overall width is designed according to the 19–inch standard chassis, which can be installed in a 19–inch standard computing cabinet. The advantage is that the overall design is based on standards, and all sizes, ventilation, and connection slots have strict design specifications. The chassis is made of all–aluminum material, and the surface is sandblasted and oxidized.

01 MCT-04

控制器集成了实时处理器、FPGA和I/O。处理器由一个667 MHz双核ARM Cortex-A9嵌入式处理器和Xilinx Artix-7 FPGA组成的双处理器（CPU）系统，运算频率最高可达到40MHZ（25nS的运算速度），并提供了用于嵌入式操作的512 MB DRAM（内存）和用于程序存储与数据记录的512 MB非易失性存储器。采用全闭环PID控制算法，单个控制通道的控制频率为5kHz。配置采样率为200 kS/s AD模数转换芯片；336kS/s转换速率的DA数模转换芯片，并通过以太网与计算机间的数据高速数据通讯。

The controller integrates a real-time processor, FPGA and I/O. The processor consists of a 667MHZ dual-core ARM Cortex-A9 embedded processor and Xilinx Artix-7 FPGA dual processor (CPU system, the operating frequency can reach up to 40MHZ (25nS operation speed), and provides for embedded operation 512MB DRAM (memory) and 512MB non-volatile memory for program storage and data recording. Adopt full closed-loop PID control algorithm, the control frequency of a single control channel is 5kHz. The configuration sampling rate is 200kS/sAD analog-to-digital conversion chip; 336kS /s conversion rate of DA digital-to-analog conversion chip, and high-speed data communication between the computer and Ethernet

控制器配置如下：

CPU：ARM Cortex-A9、FPGA：Xilinx Artix-7、DRAM：512 MB、ROM：512 MB；

控制通道：1-4通道；

反馈通道：

每一个通道各包含：1路位移传感器、1路负荷传感器、1路伺服输出；

HSM通道：8路DO继电器输出可分别控制4路液压子站，每路均有高低压控制;

24V电压输出：可作为传感器设备供电。

The controller configuration is as follows:

CPU: ARM Cortex-A9, FPGA: Xilinx Artix-7, DRAM: 512MB, ROM: 512MB

Control channel: 1-4 channels

Feedback channel:

Each channel contains: 1 displacement sensor, 1 load sensor, 1 servo output

HSM channel: 8-channel DO relay output can control 4 hydraulic sub-stations respectively; each channel has high and low pressure control

24V voltage output: power supply for sensor equipment.

02 MCT-08

控制器

控制器集成了实时处理器、FPGA和I/O。处理器由一个1.91 GHz四核CPU处理器和Xilinx公司Kintex-7 325T生产的FPGA芯片组成的双处理器（CPU）系统，运算频率最高可达到40MHZ（25nS的运算速度），并提供了用于嵌入式操作的2 GB DRAM（内存）和用于程序存储与数据记录的16 GB MB非易失性存储器。采用全闭环FPID控制算法，单个控制通道的控制频率为5kHz。配置采样率为250 kS/s AD模数转换芯片；100kS/s转换速率的DA数模转换芯片，并通过以太网与计算机间的数据高速数据通讯。单台控制器最大可扩展至8通道控制系统，当控制需求大于8通道是采用多台控制器组合，利用独有的同步技术完成相互之间的精确控制。

Controller

The controller integrates a real-time processor, FPGA and I/O. The processor is a dual-processor (CPU) system consisting of a 1.91GHz quad-core CPU processor and FPGA chip produced by Xilinx Kintex-7325T. The operating frequency can reach up to 40MHZ (25nS operation speed), and provides for embedding 2 GB DRAN (memory) and 16GB MB non-volatile memory for program storage and data recording. It adopts a fully closed-loop FP1D control algorithm, and the control frequency of a single control channel is 5 kHz. The configuration sampling rate is 250 kS/sAD Digital conversion chip; DA digital-to-analog conversion chip with 100kS/s conversion rate, high-speed data communication between the well and the computer via Ethernet. A single controller can be expanded to an 8-channel control system, and is used when the control demand is greater than 8 channels Combination of multiple controllers, using unique synchronization technology to complete precise control between each other.

控制器配置如下：CPU:四核1.91 GHz、FPGA：Xilinx Kintex-7 325T、DRAM:2GB、ROM:16GB;
HSM通道：自由建站;
24V电压输出：可为传感器设备供电；
控制通道：1-8通道、＞8采用多台组合；
每个控制通道包含：1路位移传感器、1路负荷传感器、1路伺服输出。

The controller configuration is as follows: CPU: quad-core 1.91GHz, FPGA: XilinxKintex-7 325T, DRAM: 2GB, ROM: 16GB
HSM channel: freely build a station
24V voltage output: power supply for sensor equipment
Control channel: 1-8 channels, >8 adopt multiple combinations
Each control channel includes: 1 displacement sensor, 1 load sensor, 1 servo output

03 计算机操作系统
Computer operating system

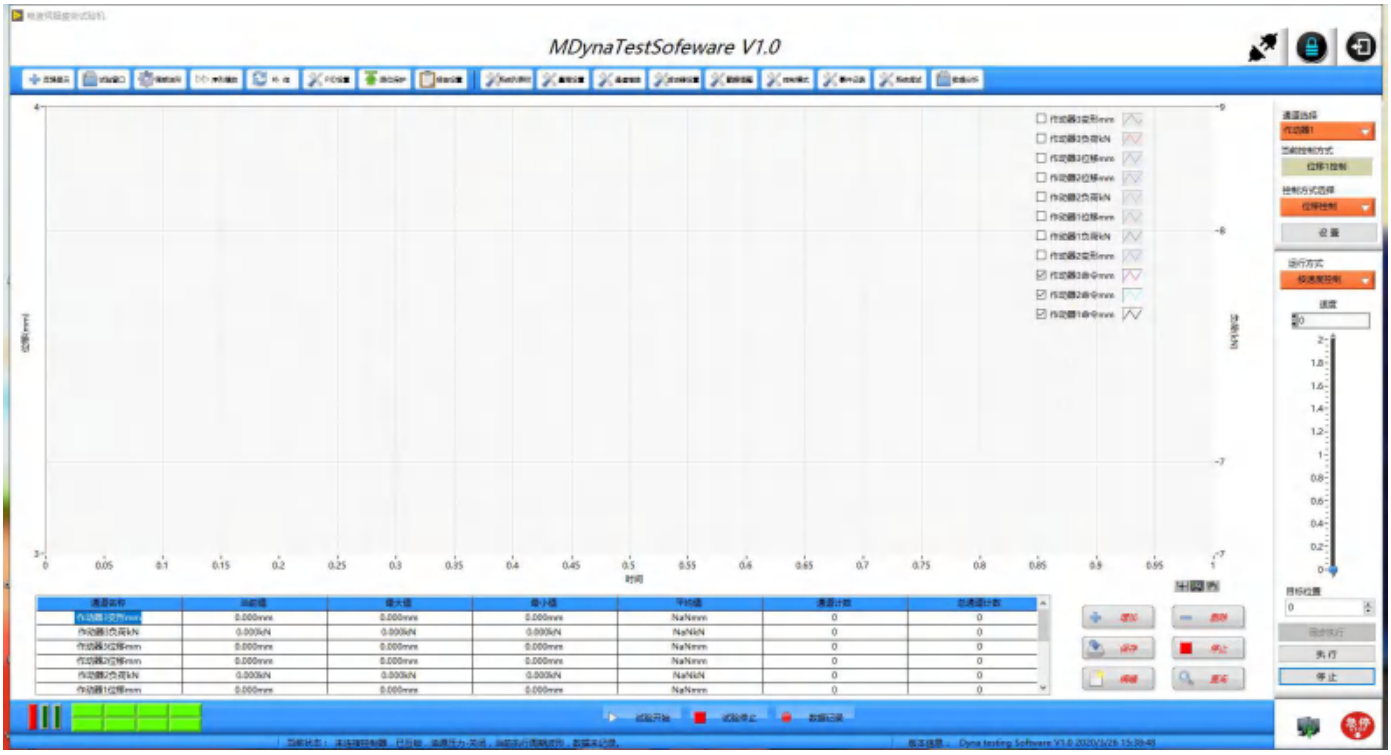
上位机软件实现系统的参数设定、数据采集和综合管理功能，并且上位机软件运行在WINDOWS平台上，所有操作均在中文虚拟面板上进行，操作直观便捷，轻松完成试验参数、试验条件设置；试验数据可导入excel等软件下，进行统计、编辑等；负荷、位移具有多种显示模态，如瞬时值、最大值、最小值平均值和幅值等。

工作过程中无人看守，上位机具有完备的极限保护功能，包含负荷、位移极限位置保护功能。

Computer operating system

The host computer software implements system parameter setting, data collection and comprehensive management functions, and the host computer software runs on the WINDOWS platform. All operations are performed on the Chinese virtual panel. The operation is convenient, and the test parameters and condition settings are easily completed; Test data can be imported into software such as excle for statistics and editing; with load and displacement multiple display modes, such as instantaneous value, maximum value, minimum value, average value and amplitude, etc.

Unattended during work, the upper computer has complete limit protection functions, including load and displacement limit position protection functions.



伺服泵站
Hydraulic Power Pack

01 概述
Summary

中机思美迪凭借多年技术积累，专门为电液伺服系统提供动力的装置，是根据伺服系统的特点制作而成的恒压恒流量的动力总成。

With the knowledge gained by decades of experience, the hydraulic power pack is specially designed to power servohydraulic test machine/system and offers great reliability and high performance. It's a constant pressure and flowrate power source.

02 优势和特点
Advantages and Characteristics

1.采用全封闭纯铝金属材质结构，耐腐蚀，易维护。

Totally enclosed structure made of pure aluminum; Corrosion resistant and easy to maintain

2.采用西门子电机、福伊特啮合齿轮泵、柔性联轴节连接，压力稳定脉冲小，效率高，使用寿命长。

Siemens motor, voith gear pump, flexible coupling connection; Stable pressure, low-pulsation flow, high efficiency and long service life.

3.油泵在油箱内部，低噪声，电机倒置在油箱上方占地面积小。

The oil pump is inside the tank; Low noise; the motor upside down on the tank, covering a small area.

4.采用荷兰丹弗斯生产的钎焊板式换热器。

Brazing plate heat exchanger manufactured by Danfoss, Netherland is used.

5.采用欧姆龙、施耐德等著名电器件组成的控制系统。

Using Omron, Schneider and other famous brand electrical components for the control system.

6.设计液位、温度监测及保护功能。

Monitoring and protection functions of fluid level, pressure & temperature

7.友好的人机交互界面，简洁易上手。

Friendly human-computer interaction interface, simple and easy to use.

8.国际标准配套接头：接头符合DIN2353标准，采用意大利玛努利品牌液压胶管，钢管采用精密无缝不锈钢钢管。

International standard hydraulic fitting: The hydraulic fitting conforms to DIN2353 standard; Italian Manuli brand hydraulic hose, and the steel pipe is precision seamless stainless steel pipe.

9.采用三级过滤装置，保障液压系统清洁度。

Three-stage filter device ensures the cleanliness of the hydraulic system.

10.稳定的阀控液压系统，压力流量稳定可靠。

Stable valve control hydraulic system, stable and reliable pressure flow.

03 伺服泵站主要技术参数
Specifications of Power Pack

型号 Model	SY-40/21	SY-60/21	SY-100/21	SY-200/21	SY-300/21	SY-400/21	SY-500/21
额定压力（Mpa） Nominal pressure	21						
额定流量（L/min） Rated flow rate	40	60	100	200	300	400	500
电机功率（KW） Motor power	15	22	37	74	111	148	185
液压油型号 Hydraulic oil	46 号汽轮机油						
油箱容积（L） Tank capacity	150	300	400	800	1200	1600	2000
输入电压（V） Voltage	380						
输入电源 Power supply	三相五线制						
冷却水接头（mm） Cooling tower power	外径 φ34 的软管接头（DN25）			2 寸的内管螺纹接头			
长（mm） Length	1020	1100	1100	2000	2550	3100	3650
宽（mm） Width	650	760	760	1450	1450	1450	1450
高（mm） Heigth	1510	1680	1680	1900	1900	1900	1900
质量（kg）（含油） Weight	350	520	700	1400	2000	2600	3200
制冷设备 Refrigerating plant	一般情况下 200L 及以上液压站选用冷却塔制冷， 200L 以下选用水冷机制冷，可根据具体使用情况选用。 （详细请来电咨询）						

SY系列液压动力源还可根据用户需求进行非标定制，详细请与我们技术人员联系。

SY series hydraulic power source can also be customized according to user's needs.




静音油源
mute oil source

01 概述
Summary

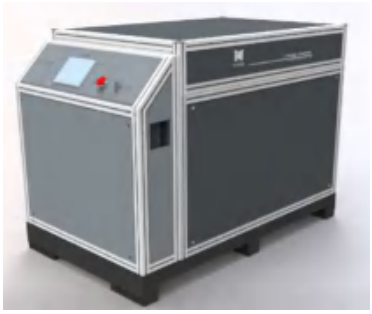
该系列油源是一种专为电液伺服结构测试系统而设计的经过静音处理的试验室专用高质量油源，静音油源能有效的控制噪音的发生，对于高校或者一些不能建立隔音间措施的企业都是较好的选择。

This series of oil sources are specially designed for electro-hydraulic servo structure testing system and are of high quality and specially designed for laboratory after mute treatment. The mute oil source can effectively control the occurrence of noise and is a better choice for universities or some enterprises that cannot establish sound insulation measures.

02 主要产品特点
Main Product Features

1、采用油浸泵组的形式，有效的减弱声源处的噪音；
2、采用可拆卸隔音外壳，既能有效减弱传播过程中的噪音，又便于维护和清洗；且外壳还具有隔热的效果，设备长时间运行时外壳不会过热，无需对设备安装通风系统，停机期间液压油不会变凉，重启设备时可缩短或省去预热过程；
3、泵组通过减震设计总成在油箱内，通过软管连接外部，减少对外部结构的振动干扰；
4、继承了普通伺服液压站的大部分优点。

1、 in the form of oil-immersed pump group, effectively reduce the noise at the sound source;
2、The detachable sound insulation shell is adopted, which not only can effectively reduce the noise in the transmission process, but also is convenient for maintenance and cleaning; And the hydraulic oil does not cool during shutdown, thus shortening or eliminating the preheating process when restarting the equipment;
3、The pump unit is installed in the oil tank through the shock absorption design assembly and connected to the outside through the hose to reduce the vibration interference to the external structure.
4、inherited most of the advantages of common servo hydraulic station.



分油器
Sub Station

01 概述
Summary

FYQ系列的分油器是为电液伺服系统提供动力的辅助机械装置，安装在管路和主机之间，作为连接泵站与伺服作动器的中继站，用于过滤液压油，储存能量，稳定压力。FYQ系列分油器采用一个主体，多个分体的结构，最多可以做到一对四，每一路可独立控制，具有结构简单，占空间小，工作压力稳定的特点，广泛应用于各种类型的电液伺服系统。

The FYQ series oil distributor is an auxiliary mechanical device that provides power for the electro-hydraulic servo system. It is installed between the pipeline and mainframe, as a relay station connecting HPU and actuators, used to filter hydraulic oil, store energy, and stabilize pressure. The FYQ series oil distributor adopts one main body and multiple split bodies. It can achieve up to one with four. Each channel can be independently controlled. It has the characteristics of simple structure, small space and stable working pressure. It is widely used in various types of Electro-hydraulic servo system.

02 优势和特点
Advantages and Characteristics


★可进行远程启动和停止
★可进行高压模式、低压模式，具备高、低压切换功能，低压可调。
★可进行低压到高压软启动，压力可平稳切换，低压到高压切换时间为4-8秒。
★蓄能器起到补充能量和吸振的作用。
★过滤器则起到二次过滤保护作动器的作用。过滤器滤芯10微米。
★每个子站上的每个通道均可实现独立控制。

★ Remote start and stop
★ High-pressure mode and low-pressure mode are available, with high and low pressure switching function, low pressure adjustable.
★ Low-pressure to high-pressure soft start can be performed, the pressure can be switched smoothly, and the low-pressure to high-pressure switching time is 4-8 seconds.
★ The accumulator plays the role of supplementing energy and absorbing vibration.
★ The filter acts as a secondary filter to protect the actuator. The filter element is 10 microns.
★ Each channel on each sub-station can be independently controlled.

各型号子站参数表

型号	FYQ-100	FYQ-200	FYQ-400	FYQ-600
子模块数量	1	1-4	1-4	1-4
额定压力（MPa）	21/28			
额定流量（L/min）	100	200	400	600
高压过滤	10μm			
远程启动\停止	有			
低压控制	有			
高压控制	有			
低压-高压软启动	有			
电源电压	24V			
额定电流	1.2A			
尺寸（长×宽×高）（mm）	525×425×960	500×500×1090	800×600×1130	870×600×1330
（近似）重量（KG）	100	260/300/340/400	300/350/400/450	340/390/440/500

液压管路
Pipelines

01 概述
Summary

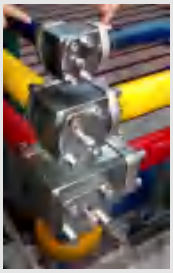
液压硬管路系统是为需要液压动力设备提供液压能传输的必须装置，可以大幅度的提高大型集中油源的利用效率，为厂房的整体规划与布局提供了便利的条件。管路采用精密无缝钢管，材质、制造过程、检验及保护包装等均按EN10305标准执行，液压管路系统主要包括主管路和支管路，主管路通油量满足油源系统最大流量需求，支管路分别连接到各个设备或者转接阀块的通道，为各个子系统提供液压动力的输出位置。

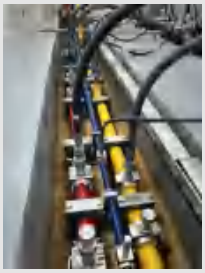
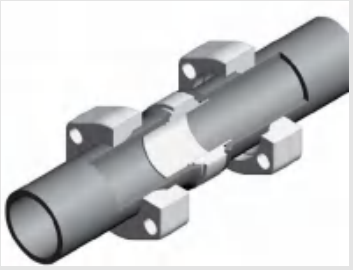
The hydraulic rigid piping unit is a necessary hydraulic energy transmission device for hydraulic power equipment, which can greatly improve the utilization efficiency of large centralized oil sources and optimize the overall planning layout of the plant. The pipeline is made of precision seamless steel pipe. The material, manufacturing process, inspection and protective packaging are all carried out in accordance with the EN10305 standard. The hydraulic pipeline system mainly consists of the main pipeline and the branch pipelines. The main pipeline meet the need of max flow of HPU, and the branch pipelines are connected to the channel of each equipment or valve block, and provides hydraulic power for each subsystem.

02 优势和特点
Advantages and Characteristics

硬管路采用当今液压领域流行的37° 扩口及warform成型技术，具有以下特点：
- 采用精密无缝钢管；
- 材质、制造过程、检验及保护包装等均按EN10305标准执行；
- 钢管精度高，光洁度高，表面质量好；
- 钢管内壁清洁度高，输送阻尼小；
- 耐高压，变形量小，强度高，安全性能好；
- 使用寿命长。

The rigid pipeline adopts the 37 ° flare and WARFORM forming technology popular used in the hydraulic field today, and has the following features:
- The use of precision seamless steel pipes;
- Material, manufacturing process, inspection and protective packaging are all carried out in accordance with EN10305 standard;
- High precision, high smoothness and good surface quality of steel pipe;
- High cleanliness of the inner wall of the steel pipe and small transmission damping;
- High pressure resistance, small deformation, high strength and good safety performance;
- Long service life.



工况再现仿真系统
Operating condition reproduction simulation system

多通道台架试验系统
Multiaxial Testing System

可以根据客户试验要求，搭建各种多通道台架试验系统，满足个性化试验需求。

We offer tailor–made solutions for multiaxial structural testing systems meeting the needs of individual testing requirements.

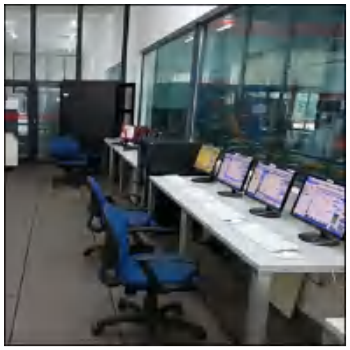
减震器多通道试验系统
Shock absorber testing machine

弹簧多通道试验系统
Multiaxial spring testing system

弹性体多通道试验系统
Multiaxial Elastomer testing system

稳定杆多通道试验系统
Multiaxial testing system for stabilizer rod

轴承多通道试验系统
Multiaxial Bearingr testing system



多通道试验系统
Multiaxial testing system

自主多通道控制器及软件
Multiaxial control electronics with application software

城轨车辆激震系统
City rail vehicle shock system