DYNAMIC SERVO
SAGInoMIYA

DYNAMIC SERVO

Mother technologies bring your future
with reliability, appreciation and
new values being created by tests

株式会社 鷺宮製作所

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理念

产品目录

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理念1 信念

基础技术开创未来，
试验创造信赖和评价，带来新的价值。

Mother technologies bring your future with reliability,
appreciation and new values being created by tests.

现今，社会和产业界对产品可靠性的要求，不仅仅在于使用方便、性能高效，而且还在于舒适性以及对地球环境的影响等，同时这种要求正在向更加高度复杂的质量特性扩展。对所有的制品，包括所使用的工业原材料，都需要检验其是否满足高标准的质量要求与功能要求、能否创造出新的价值。换言之，验证研究开发者所要求的质量特性，试验这个过程是不可或缺的。
鹭宫制作所生产的各种动态伺服试验机装置和机器，在广泛的领域中，肩负着对各种质量的验证任务。从产品的研发、改良、制造过程中的质量管理，到对环境影响的调查、流通运输影响的调查或破损处原因的发现与研究，鹭宫制作所在确保对产品的灵活运用、可靠性与产品测评等诸多方面都发挥着重大作用，从而确保对研制品功能的正确考量，不断孕育出新的价值。鹭宫制作所将一如既往地开发并支持新时代的基础技术，为满足各种试验的要求做出努力。

The reliability of products now being demanded by the society and industrial fields is extending toward the conformity, influences to the terrestrial environments and other higher and complicated quality characteristics in addition to the convenience and efficiency. Various verification and tests are indispensable for the quality characteristics being intended by developers and researchers to check if all products and their industrial materials satisfy their demanded quality and functions, and also, if they can display new values.
SAGINOMIYA's dynamic servo test systems and units are indispensable to verify various quality being executed in wide and versatile genres. Test purposes and their fields extend over a wide range such as the survey of the influences to environments, influences of physical distribution, locating and searching broken positions and their causes, utilization of products, or relation with users for the purpose of developing and improving products and executing quality control in manufacturing processes. SAGINOMIYA will powerfully support the mother technology, which leads the next generation according to individual test needs and creates new values by securing the reliability and evaluation of products from various aims and points of view.

CEPT-1

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理念2 领域

鹭宫制作所的试验系统能满足从原材料到成品的多种测试需求。在广阔的产业和生活领域中，得到了各方的信赖与好评。

SAGINOMIYA deals test systems covering from materials to finished commodities and enjoys favorably reputed results with high reliability in versatile industrial and living fields.

鹭宫制作所从 1964 年开始研究、开发、制造和销售试验机，从汽车、土木建筑、食品、机械、铁道、电子、信息、原子能、航空航天等多种产业中的企业，到国家机关机构、学校、研究机构等，在国内外有众多的应用实例。鹭宫制作所作为现在世界中为数不多的综合试验机生产厂家，得到了广泛的信任与好评。鹭宫动态试验装置的实验对象广泛适应于产品的原材料及成品。大致分为以下六个范围：

- 材料试验装置
- 振动试验装置
- 疲劳试验装置
- 汽车用试验装置
- 土木建筑用试验装置
- 航空铁道用试验装置

Since SAGINOMIYA started developing, manufacturing, and selling various test systems in 1964, SAGINOMIYA has accumulated versatile and extensive delivery results in automobiles, civil engineering, construction, food, machinery, railroads, electricity, information, nuclear power, rockets, aircraft, other various industrial fields, government and municipal offices, schools, etc. in overseas countries as well as in Japan.
Now, SAGINOMIYA is favorably reputed with high reliability in many fields as a comprehensive test system maker out of a small minority in the world.
SAGINOMIYA's dynamic servo test systems cover extensive test objects ranging from materials of products to finished products. These systems can be divided roughly into six genres shown below.

- Material Fatigue Test Systems
- Vibration Test Systems
- Fatigue Test Systems
- Test Systems for Automobiles
- Test Systems for Civil Engineering and Construction
- Test Systems for Aircraft and Railroads

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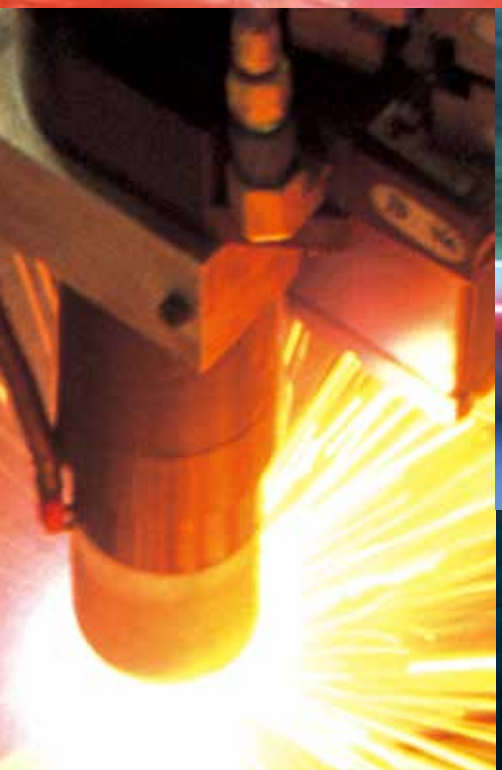
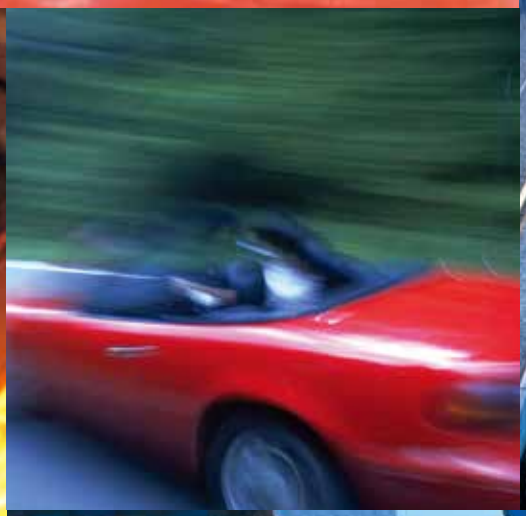




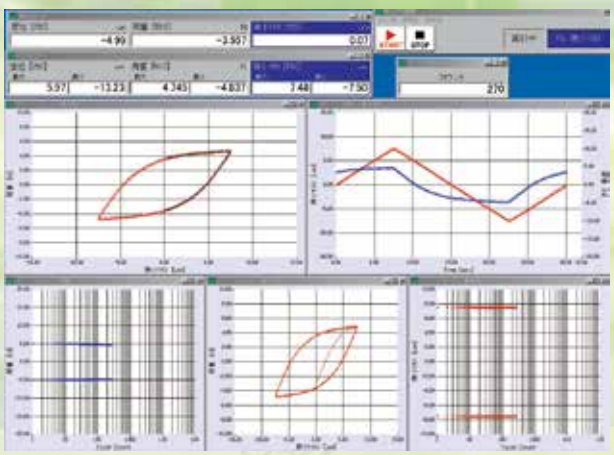
理念3 满足顾客需求

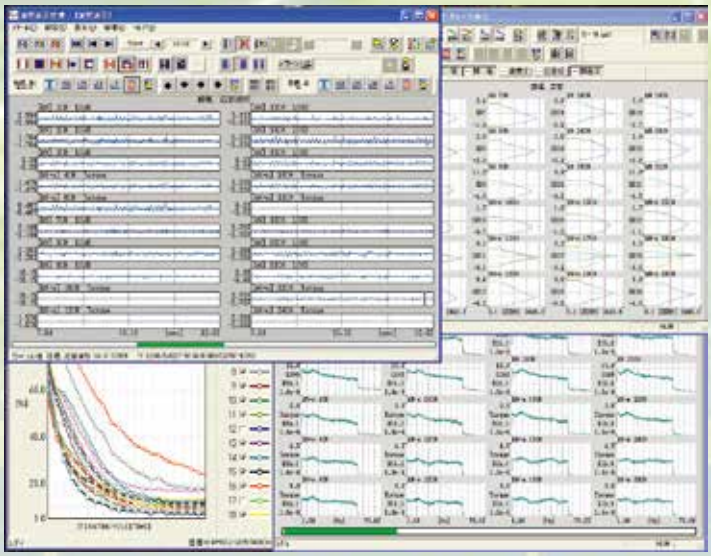
能够满足各种目的的试验，融合软件和硬件，构成理想的系统。

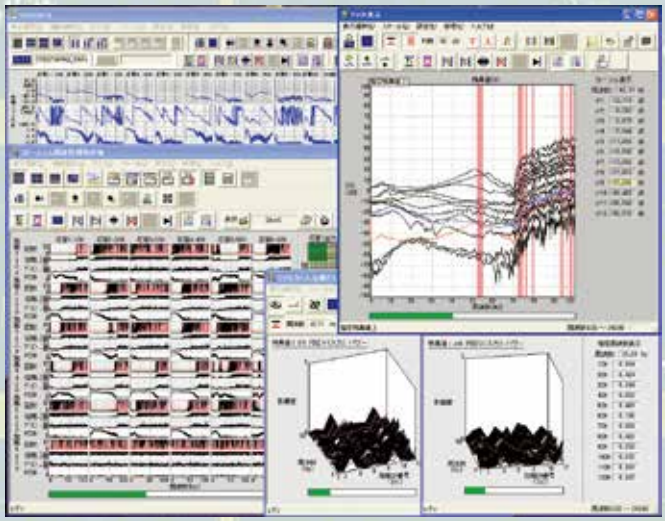
Suitable systems conforming to software and hardware can be constructed according to test purposes.

鹭宫动态伺服试验机的最大特征是与试验设备的用户一起开发和构建最适宜的试验系统。也就是说，根据各项试验内容，以硬件设备为基础，设计出能满足用户规格要求的最适宜的软件，构建出一个完整的测试系统。针对不同的用户或各种不同的试验目的，我们能够分别地提供最适宜的试验系统。
从这个意义上讲，在以下的几页中介绍的各种试验机械、装置，仅仅是几个为满足特定的试验目的而开发研制出来的部分产品而已。今后我们将更好地为满足用户各项试验内容而提供相应的动态伺服产品。

SAGINOMIYA offers dynamic servo systems fully satisfying the test purposes of customers as users of test systems.
SAGINOMIYA manufactures the hardware and software to be best suited for individual test contents according to the customized specifications to match the users' needs optimally.
SAGINOMIYA offers test systems conforming to individual specifications that are different every user according to the test purposes.
Various systems and units introduced on the following pages show examples of these products, which have been developed and manufactured to satisfy test needs of specific purposes.
SAGINOMIYA will continue offering dynamic servo products to fully meet the test contents necessary for users.





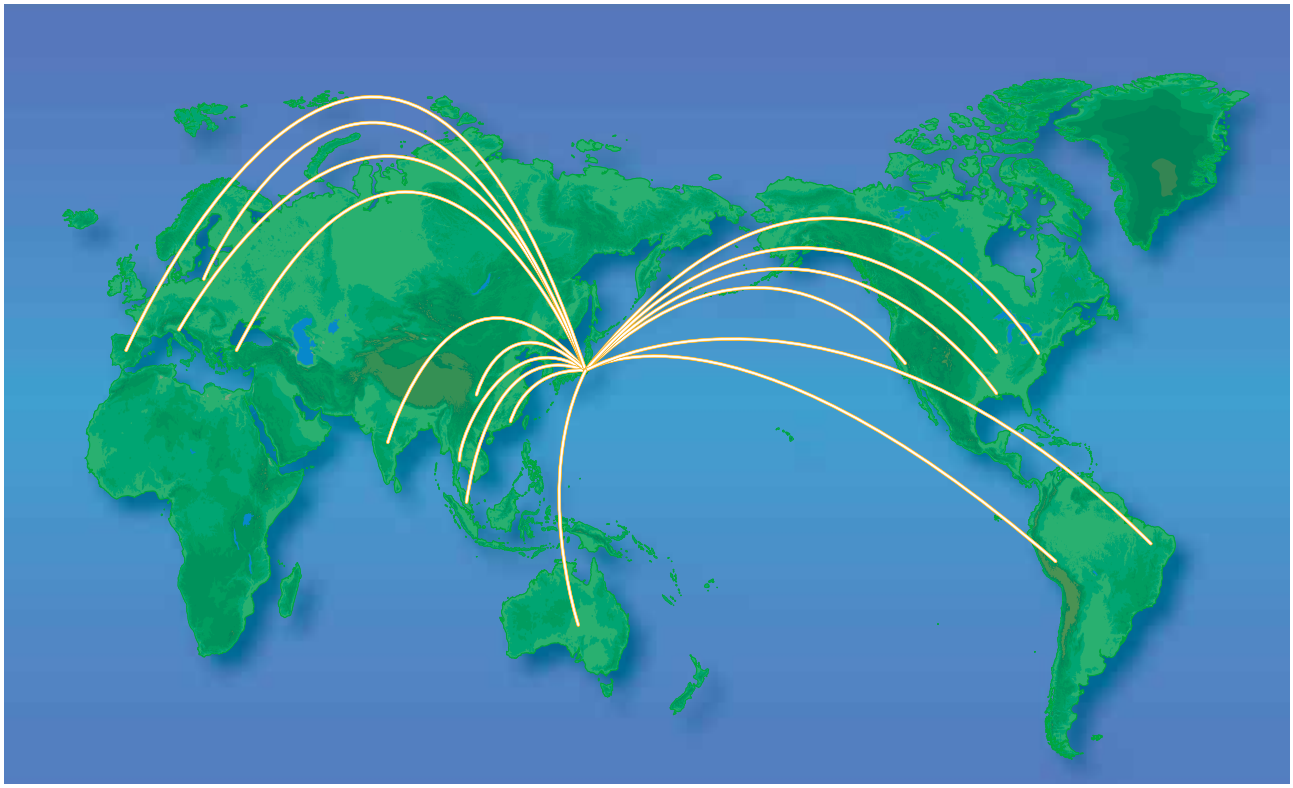


日本国内服务网

SAGINOMIYA Domestic Service Network

遍布全球

Worldwide Delivery



材料试验装置

Material Fatigue Test Systems

动态伺服材料试验设备可以对各种金属、塑料、复合材料、钢筋水泥的建筑结构材料或木材、岩石等多种的材料进行试验。除适应多种试验材料外，还可进行温度，湿度的调节，以便能够在各种各样的特殊条件下进行试验。鹭宫制作所能够为适应各种试验目的和产品研发提供高性能，高信赖性，低成本的试验系统，还可根据用户的要求提供相应的软硬件。

试验范围（试验目的）

- 拉伸，压缩重复试验
- 拉伸试验
- 压缩试验
- 弯曲试验
- 高温强度试验
- 极低温疲劳试验
- 腐蚀疲劳试验
- 破坏韧性试验

Dynamic Servo Material Test Systems apply a broad spectrum of materials, components and finished good to conduct new-material researches, optimizing manufacturing processes and quality checks. Materials are ranging from various metals, plastics, composites, structures, concrete, wood and rock etc.
Various kinds of chamber also can equip to the systems in order to reproduce environmental conditions, such as temperature, humidity and others.
SAGINOMIYA provides highly reliable Material Test Systems, whose software is sophisticated and easy to use, and gives technical supports to complete your mission.

Test Fields (Test purposes)

- Tension-compression fatigue test
- Tension test
- Compression test
- Bending test
- High-temperature fatigue test
- Ultra low temperature fatigue test
- Corrosion fatigue test
- Fracture toughness test

SMH 材料试验机

SMH Material Fatigue Test System

▼FT 系列

此系列使用标准机架，具有极强的通用性。适用于各种材料及试验片。标准样式具有 200kN 的能力。

※ 作动器也可安装在机架上部的十字头上。

▼FT Series

FT Series provides a broad range of fatigue testing on materials, components and finished goods to conduct advanced research, quality control checks and optimize process. The simple and reliable frame suits for pursuing accuracy and finding solutions in various industries. The standard type covers the capacity up to 200kN.

* There is a type of upper actuator on the cross head.

▼ST 系列

油压伺服作动器安装在机架上部的十字头上，根据试验片的规格进行相应的实验。适用于大型的构造物的试验和研究。标准样式具有 300kN 的能力。

▼ST Series

ST Series suit a wide range of fatigue testing on structure, material and components, which need to be fixed on a base plate. A servo hydraulic actuator equipped with cross head covers the capacity up to 300kN.

50kN 材料试验机　50kN Material test system

200kN 材料试验机　200kN Material test system

100kN 材料试验机　100kN Material test system

BMH 大型材料试验机

BMH Large-sized Material Fatigue Test System

▼LST 系列

LST 样式的机架，用于大负载的材料试验机。根据实验样品，也适用于大型结构材料。
标准样式具有 2MN 的能力。

▼LST Series

Large-scale specimen such as frame structure, large materials can be evaluated for the fatigue performance by this LST Series.
The four-column frame can equip a servo hydraulic actuator whose capacity is up to 2MN.

2MN 材料试验机　2MN Material test system

500kN 材料试验机　500kN Material test system

▶大型弯曲试验机

可进行钢铁骨架构造物，钢筋水泥梁的三点弯曲，四点弯曲试验。

▶Bending Test System for Large Structure

This system has a four-column frame with an actuator and long base plate so that a large-scale structure can be fixed on it. It conducts a three-points bending test and four-points bending test with rigs.

◀高速负载试验机

可进行过去任何试验机所无法做到的对构造物材料的冲击试验，并对材料进行解析和验证。

◀High speed Loading Test System

The purpose of this unique test system is to analyze and verify a rupture mode of structural component under an impulsive dynamic force, which used to be difficult in performance by conventional systems.

EMH 环境试验机

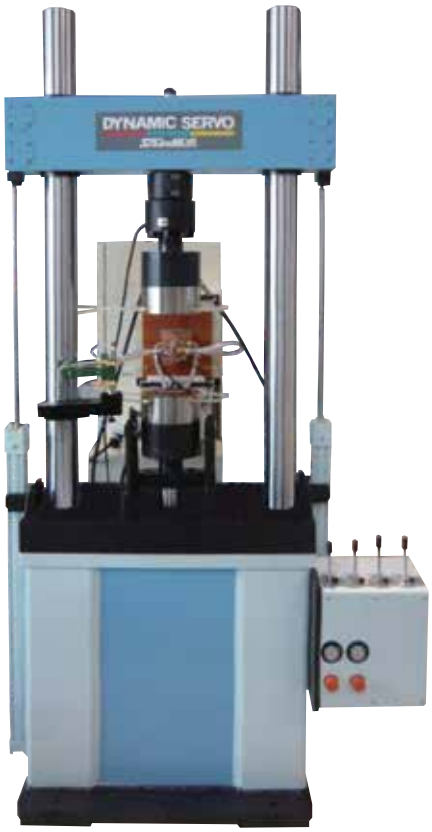
EMH Environment Test System

▶高温疲劳试验机

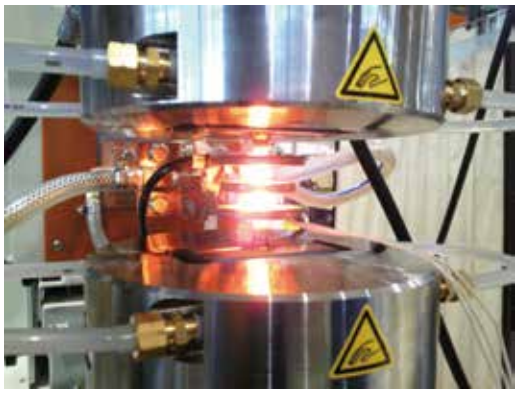
试验片保持一定高温，对试验片进行重复的加载疲劳试验。

▶High Temperature Fatigue Test System

High-temperature fatigue strength test can be conducted by this system, which controls cyclic loads under a high temperature condition with inert gas.



轴芯调节机构
Axis Adjust System



高温液压夹具
High Temperature Hydraulic chuck

DMH 热疲劳试验机

DMH Thermal Fatigue Test System

◀热疲劳试验机

此试验机通过油压伺服方式控制重复应力，同时用高频加热方式控制温度，实现对热循环的定常率的控制。

◀Thermal Fatigue Test System

By synchronizing heat cycles with stresses cycles, this system can evaluate the effects of boundary restriction caused by thermal change. The stress cycle is given by hydraulic servo system and the heat cycle is given by high-frequency inductive heating system.

CMH 复合材料试验机

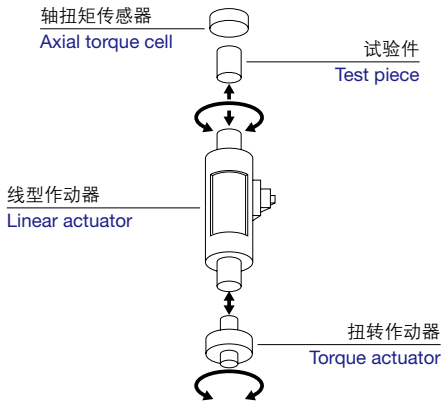
CMH Biaxial Material Test System

▶复合应力材料强度试验机

此试验机可以加载同相位或任意相位差的轴向和扭转的复合载荷。

▶Biaxial Material Test System

Combination test with axial stress and torsional stress can be performed by adding biaxial forces to a test piece simultaneously. Phase between the forces can be controlled freely. It consists of linear servo actuator and rotary servo actuator.



FMH 超高频试验机

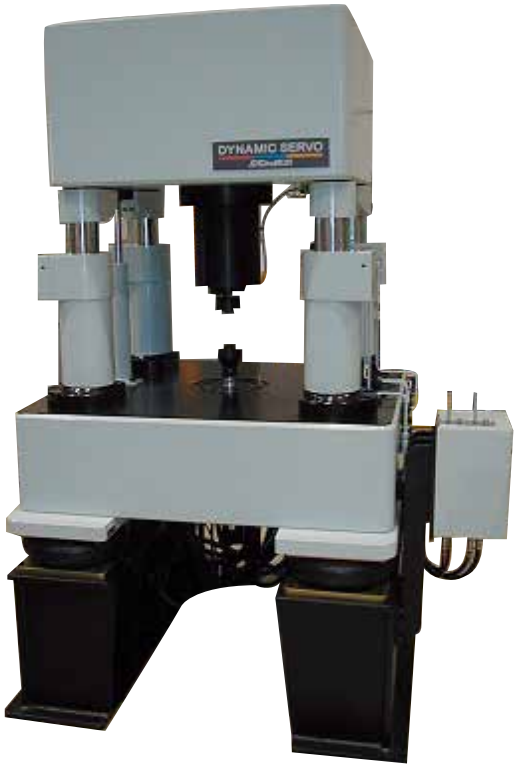
FMH Ultra High Cycle Test System

▶超高频疲劳试验机

在短时间中可进行 10^8～ 10^9回次的疲劳试验机。

▶Ultra High Cycle Fatigue Test System

A remarkable feature of this system is available to shorten the evaluation periods. Generally, it takes time to acquire the S-N curve data to complete from testing. This system could complete 10^8 to 10^9 cycles test within several days.



GMH 高速材料试验机

GMH High-speed Material Test System

▼高速拉伸材料试验机

此试验机可检测材料在被高速拉伸的情况下的强度。

▼High-speed Tensile Material Test System

The strength of materials changes depend on the deforming speed and the temperature. This system can examine the materials characteristics on condition of the speed and the temperature.

HMH 检力头式高速材料试验机

HMH Load Sensing Block Type Material Test System

▶检力头式高速材料试验机

可在从准静态变形区域到高速变形区域的广泛的变形速度域中，求出变形与应力的关系特性，是新式的小巧型材料试验机。
在负载量的测量中使用特殊的变形感知装置 - 检力头，能够得到高精确的波形图。而且可通过更换卡具，使拉伸试验更容易进行。

▶Load Sensing Block Type High-speed Material Test System

It becomes essential for studies of collision safety to acquire stress-distortion data, which depends on the deforming speed, in order to improve accuracy of CAE analysis.
This new type compact test system can obtain stress-distortion characteristics in a wide range of deforming speed from quasi-static to high-speed.
A special load-sensing block which uses a unique principle can obtain a wide frequency range of clear waveforms precisely. Both tension and compression test can be available by replacing the jig.

IMH 热间压延模拟试验机

IMH Hot Process Simulator

▼热间压延模拟试验机

通过模拟钢铁材料在受热压延过程中的情况，检测金属材料的组织变化，形态变化，变形抵抗等。

▼Hot Process Simulator

This system simulates the hot rolling process of iron and steel materials to examine the changing of organization, deformation mode and deformation resistance of metals.

JMH 极低温疲劳试验机

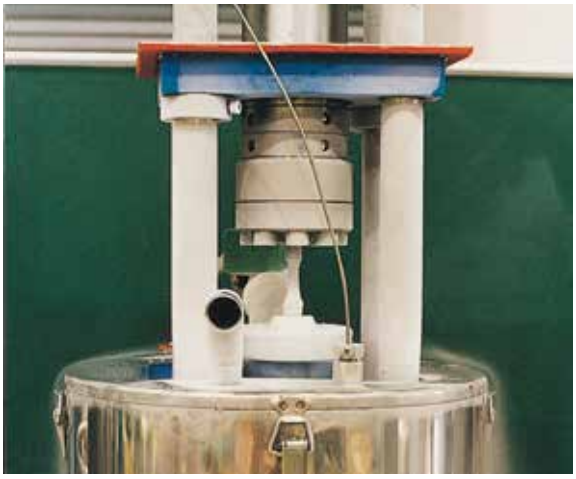
JMH Ultra Low Temperature Fatigue Test System

▼极低温疲劳试验机

使用液氮，液氦等媒体的低温恒温装置，在低温状态（－196℃～－269℃）进行疲劳试验。

▼Ultra Low Temperature Fatigue Test System

This test system can perform a fatigue test at an ultra low temperature (－196 ℃ to －269 ℃) with liquid nitrogen or liquid helium employed as a refrigerant by using a cryostat.



KMH 腐蚀疲劳试验机

KMH Corrosion Fatigue Test System

▼腐蚀疲劳试验机

使用高恒温装置在高压高温（20Mpa, 350° C）的水中进行疲劳试验。

▼Corrosion Fatigue Test System

This system performs a fatigue test with an autoclave. The autoclave produces conditions of high temperature (up to 350° C) and high water pressure (up to 20MPa).

▼氢气疲劳试验机

在氢气环境中进行疲劳试验，验证各种材料在氢气环境中的材料脆性。

▼Hydrogen Fatigue Test System

This test system can perform a fatigue test with a hydrogen atmosphere and verify the hydrogen embrittlement of various materials, components, and subsystems.

LMH 微小加载试验机

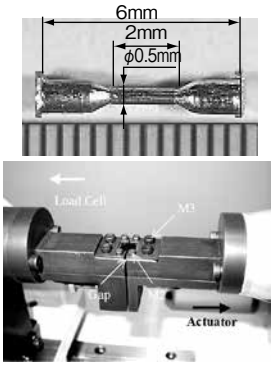
LMH Micro Load Test System

▼微小加载疲劳试验机

采用电磁式作动器和空气轴承，实现低磨擦，高刚性。由数字伺服系统的组合进行微小载荷微小位移试验。

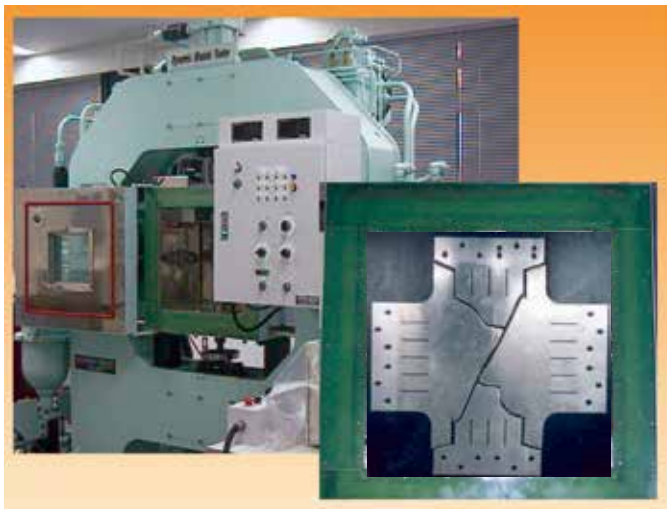
▼Micro Load Fatigue Test System

Electromagnetic Linear Actuator System with Air Bearing, which is characterized low friction and high stiffness, has exceptionally good features for Micro Fatigue Test. This serves precise micro force and micro displacement, which is achieved by Advanced Digital Servo Controller.



MMH 多轴材料试验机

MMH Multi-axis Material Test System



◀多轴材料试验机

无论是为确保信赖度还是防止事故发生，都有必要对多轴应力下的材料破坏做分析。此试验机就是用于模拟多轴应力状态，把握变形和破坏过程，对贵公司的产品开发做强力支持。

◀Multi-axis Material Test System

It is important to investigate the fracture phenomenon of materials being imposed with multi-axial loads, in order to secure a safety and avoid possible accidents.
Analyzing the process of distortion and fracture by reproducing actual multi-axial loads condition can be performed by this system.

NMH 磨耗试验机

NMH Wear Test System

▶磨耗试验机

模拟各种表面的磨擦，进行耐久试验。

▶Wear Test System

This system enables to reproduce actual wearing condition and to evaluate durability of the test pieces and components.

振动试验装置

Vibration Test Systems

主要的振动试验是检验设计制造的产品是否能够经受在运输中或使用中的外来振动，或自发的振动而不至于损坏，并且还能充分发挥其性能，达到预期的寿命。
鹭宫的动态伺服振动试验装置的试验对象包含了与振动密切相关的如各种汽车车辆，船舶，建筑物，核发电，宇宙航空机械设备，以及一般民用设备所包括的各种工业制品，食品加工机械，农用机械等。
而且，能够模拟测定其他的乘坐工具振动，或公害振动，地震的人体感觉等，提供着十分丰富多彩的振动试验设备。

试验装置分类：

- 上下振动
- 水平振动
- 上下水平振动
- 多元振动
- 振动试验应用机

Vibration testing is widely accepted as a method to improve product quality by exposing products being damaged during its life in the fieldvibration.
SAGINOMIYA Dynamic Vibration Test Systems provide the best dynamic solutions by performing effective vibration tests with advanced control technologies.
Not only single axis vibration tests, but also SAGINOMIYA delivers many kinds of multi-axis vibration testing systems, which simulate actual field multi-vibrations.
Test Systems adapt to a broad spectrum of products ranging from automobile industries, ships, buildings, nuclear power plants, space and aviation apparatus, transportation of products and so on.
Sophisticated simulation software named RFC is easy to use to reproduce actual multi field-vibration precisely and has a variety of functions to help you finding solutions.
SAGINOMIYA provides highly reliable Vibration Test Systems for contributing to the completion of your mission.

Vibration Test System Fields

- Vertical vibrations
- Horizontal vibrations
- Vertical-horizontal vibrations
- Multi-dimensional vibrations
- Applied vibration test systems

AVH 上下振动试验机

AVH Vertical Vibration Test System

◀上下振动试验机

专门用于上下方向的振动试验机。

◀Vertical Vibration Test System

One of the essential and established systems is a single axis vibration testing system. This type has a big reaction mass so that you can set it up on the floor without foundation.

BVH 高频振动试验机

BVH High frequency Vibration Test System

▶高频振动试验机

使用 VSH 型超高速伺服阀的高频振动试验机。

▶High frequency Vibration Test System

This system equipped high-speed servo valve named type-VSH which can perform the vibration test up to high frequency.

DVH 切换式上下水平振动试验机

DVH Vertical-Horizontal Vibration Test System

▶切换式上下水平振动试验机

切换式上下水平振动试验机。

▶Vertical-Horizontal Vibration Test System

This system can switch either in a vertical or in a horizontal direction by turning on the actuator's position. Each position has the shake table individually.

HVH 水平振动试验机

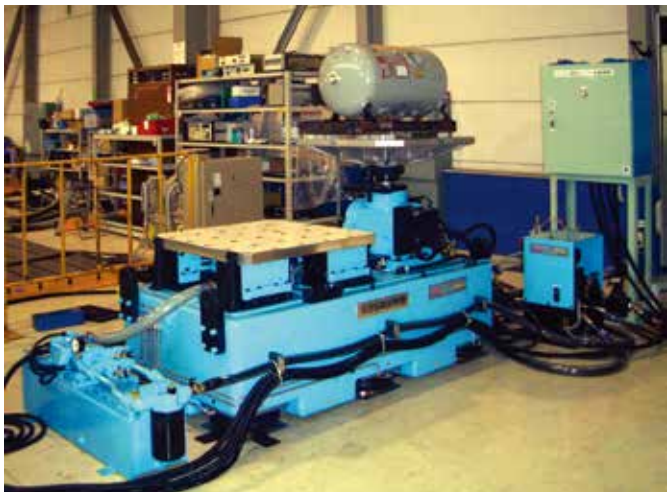
HVH Horizontal Vibration Test System

◀水平振动试验机

专门用于水平方向的振动试验机。

◀Horizontal Vibration Test System

This system is useful to find solutions for freight transportation, seismic influences and many other applications especially damaged by horizontal acceleration.



FVH 多轴振动试验机

FVH Multi-axis Vibration Test System

▶小型三次元振动试验机

对汽车零件的振动评价或模拟运输物的运输进行评价。

▶Small-sized Shake Table

Multi-axis test system applies a wide range of vibration test for the studies of transportation and the vibration resistance of applications.

◀大型三次元振动试验机

对与实际建筑物同等大的试验体进行三次元同时加振试验。能够模拟阪神大震灾。

◀Large-sized Shake Table

Seismic Test for scale-model of building and component to examine earthquake resistance can be performed by this large-sized shake table. Earthquake waveforms, whichever recorded or pseudo, can be reproduced on this table.

◀二次元振动试验机

X-Y 方向或 Y-Z 方向的可同时加振的试验机。

◀Bi-axial Shake Table

This bi-axial shake table applies for vibration tests to units for transportation and quake proof. The patented unique mechanism, which reduces number of the actuators, produces a good cost performance for bi-axial shake tests.

CVH 6 自由度振动试验机 Electric Servo

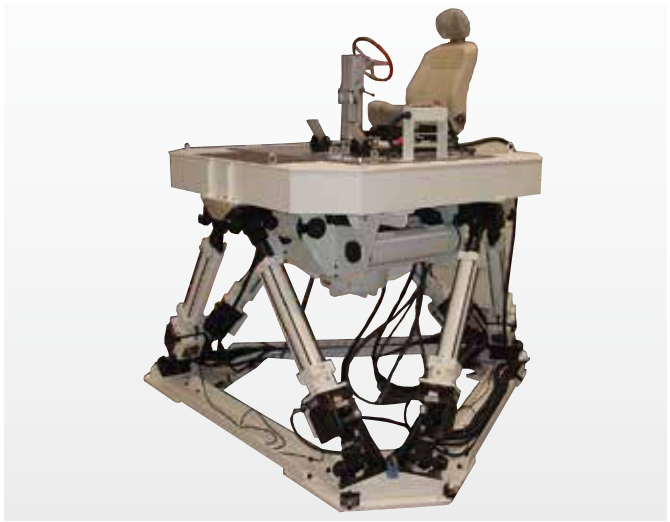
CVH 6DOF Vibration Test System

▶6自由度振动试验机（舒适性再现装置）

使用 6 台电动作动器和 3 台液压作动器，再利用它们能在所有方向自由运动的这一机械构造，通过同时加载混合控制的方式，再现出各种实际工况。

▶6DOF Motion Table

The motion table can be dedicated to study the working of human senses under various virtual conditions, which are produced by the 6-degree of freedom table. The motion can link a virtual-real simulation.



GVH 复合环境振动试验机

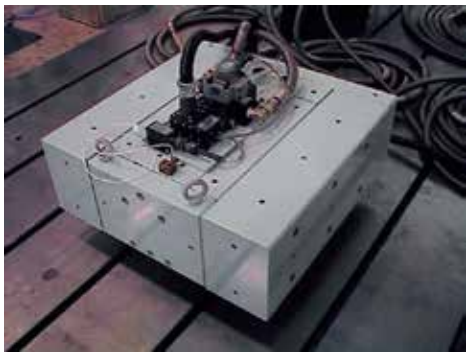
GVH Vibration Test System with Mixed-environmental Conditions

▶复合环境振动试验机

在各种温度湿度环境中，研究运输过程的振动对所运物品的影响。比如调查在特定环境中的蔬菜，水果等在流通过程中所受的振动影响。

▶Vibration Test System with Mixed-environmental conditions

It is important for distributors of vegetables, fruits, etc to survey the influence of vibrations under specific temperature and humidity environment. This system produces a various mixed-environmental conditions.



IVH 起振机

IVH Exciter

◀起振机

在一定的频率下对惯性质量块加振，并用其反作用力产生的惯性力对试验体施加振动。

◀Exciter

Exciter is generally used to perform a modal test of large-scale test objects such as buildings and complexes. The actuator which is fixed on the objects gives vibration-force caused by shaking its inertia mass.

KVH 冲击试验机

KVH Impact Tester

◀冲击试验机

此试验机是使重锤在加速情况下，通过产生的运动势能，对试验体冲击，来测量试验件强度的试验机。

◀Impact Tester

Impact absorption of a body and components is an essential factor for the research of a collision safety performance. This tester gives some quantity of kinetic energy to the test piece by crashing an accelerated mass.

JVH 地震体验机

JVH Experimenting Earthquake Simulator

▼地震体验机

地震体验用的实验装置，亲身体验实际地震时的情景。

▼Experimenting Earthquake Simulator

This simulator is designed to experiment various earthquakes so that people can provide previous and sufficient preparation for the disaster.

LVH 超小型试验机

LVH Midget Type Test System

▼超小型试验机

由于使用可搬式超小型油压伺服振动器，最适合于机械的阻抗测定，共振固有频率的测定。也适用于测定车体、工作机械、构造物等的传递函数，测定车辆和原子力容器等的固有振动频率。

▼Midget Type Test System

This very small portable hydraulic servo system is the most suitable exciter to measure a mechanical impedance and resonance modes. It can install and fix into a small space in order to measure a frequency response of objects such as vehicle body, machine tools, structure and nuclear containers, etc.

疲劳试验装置

Fatigue Test Systems

在环境问题和提高传送机械，电子机械等的信赖度和安全性的问题被普遍重视的情况下，对寻找和确定高品质且值得信赖的产品原材料的研究开发也显得非常重要。
动态伺服疲劳试验机可以以正弦波，三角波，台形波，矩形波等各种各样的波形对各种材料和制品反复加载，进行耐久和性能试验。

Urging solutions of environmental issues and improvement of reliability and safety for transportation and electric devices etc, many studies on a broad range of materials and components are being conducted.
Dynamic Servo Fatigue Testing Systems are effective and easy-touse tools to evaluate performances and durability of these materials and components by loading various shapes of waveform such as sinusoidal, triangular, trapezoid and rectangular so on.

LFH 疲劳试验机

LFH Fatigue Test System

▶疲劳试验机

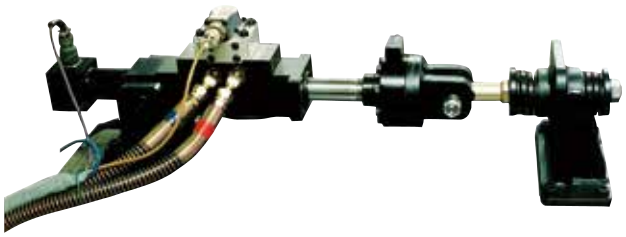
可以以正弦波，三角波，台形波，矩形波等各种各样的波形对各种材料和制品反复加载，进行耐久和性能试验。

▶Fatigue Test System

Durability and performance tests on a broad range of materials and components can be conducted by LFH Fatigue Testing System applying various shapes of loads like sinusoidal, triangular, trapezoid and rectangular.

BFH 便携式作动器

BFH Portable Actuator



◀SERVO PAQ II

可根据试验件的形状来安装，此装置是属于小型的便携式作动装置。

◀SERVO PAQ II

This compact and small actuator can realize any kinds of test by adjusting the position against the test objects.

RFH 扭转疲劳试验机

RFH Torsion Fatigue Test System

▶扭转疲劳试验机

可对试验件施加扭转的动态载荷，进行疲劳试验。

▶Torsion Fatigue Test System

This system is designed for performing torsional fatigue test for various kinds of axle shaft by applying dynamic force in torsional direction.

DFH 静态扭转试验机

DFH Static Torsion Test System

◀静态扭转试验机

可对试验件施加扭转的静态载荷，进行扭矩 / 角度评价的试验机。

◀Quasi-static Torsional Test System

Static characteristics like torque vs. torsion angle and rupture stress can be examined by applying torsional quasi-static force to the test piece.

FFH 扭转弯曲试验机

FFH Spinning Bending Test System

▶旋转弯曲试验机

可对试验件施加旋转和径向载荷来进行疲劳试验。

▶Spinning Bending Test System

This system is designed to perform fatigue test imposing a radial force on a rotating specimen.

电动伺服试验装置

Electric Servo Test Systems

这是能对强度材料、橡胶制品等的耐久性进行评价的试验设备。它是拥有 40 年以上试验机生产业绩的鹭宫制作所提供的具有高度可靠性的新一代试验系统。
“节省能源，干净清洁，节省空间”。

电动伺服试验装置领域

- 劳试验机
- 扭转疲劳试验机
- 耐久试验机

SAGINOMIYA that has been providing hydraulic servo test machines for more 40 years suggests the reliable fatigue test machine with new technology. This test machine can evaluate the durability, reliability of a large variety of materials, components and subsystems.

Application Fields of Electric Servo Test Systems

- Fatigue Test System
- Torsional Test System
- Durability Test System

LFH 电动伺服疲劳试验机

LFH Electric Servo Fatigue Test System

▶ 电动伺服疲劳试验机

电动疲劳试验机由试验机、控制器、马达驱动器构成，结构简单，占用空间小，移动和设置都很方便。
同时，本设备可以与各种试验软件配套，完成定常波、静态弹性、动态弹性、多轴等各种试验，可以应付从单一试验件到组合试验件的各种试验件。

▶ Electric Servo Fatigue Test System

SAGINOMIYA electric servo fatigue test machine is a simple system composed of an actuator, a controller and motor drivers so that you can easily move and install it to realize suitable testing environment.
Selecting additional software; standing wave, static stiffness measurement, random wave, and multi-axial wave, you can cope with various testing conditions.

RFH 电动伺服扭转疲劳试验机

RFH Electric Servo Torsional Test System

◀ 电动伺服扭转疲劳试验机

电动扭转疲劳试验机采用电动式扭转作动器，可完成扭转方向的往返疲劳试验，结构紧凑，节省空间。

◀ Electric Servo Torsional Test System

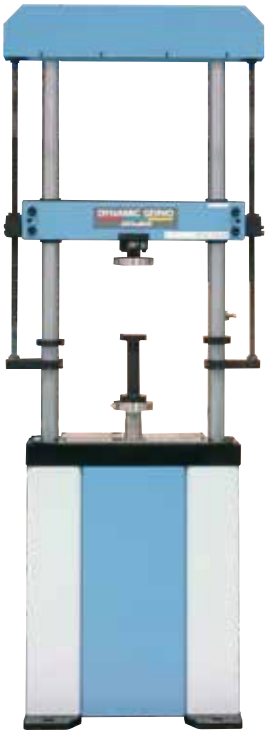
The electric servo torsional test machine equipped with an electric-rotary actuator can perform torsional fatigue tests in compact space.

BCH 电动伺服耐久试验机

BCH Electric Servo Durability Test System

▶ 电动伺服耐久试验机

电动伺服耐久试验机可以高度可靠地完成对防振橡胶、防振部件的耐久试验。即使对具有高度非线性的试验件，也能够精准地控制试验波形，完成高精度的评价试验。丰富的软件，多种选择配件，可供用户选择，应付各种需求。



▶ Electric Servo Durability Test System

SAGINOMIYA electric servo test machine offers the suitable condition for effective and reliable tests of various vibration proofing materials. You can perform your test accurately with low distortion of exciting wave.
Our various options offer the certain solutions you need to succeed.

汽车用试验装置

Test Systems for Automobiles

被认为集先进技术于一体的汽车，集中反映了激烈的市场竞争和开发竞争，在这个领域中，需要不断地研发新车型新机构并采用新材料。
鹭宫制作所的 DYNAMIC SERVO“汽车用试验装置”，不仅仅从汽车的跑行，停止，转弯，汽车的基本机能，到因行驶环境的不同而产生的乘坐舒适性等各种各样的层面，视点出发，涵盖了从零件的独立开发改良阶段到整车的加工制造等多种多样的试验命题和目的。

汽车用试验装置范围

- 道路模拟试验系列
- 测定装置系列
- 悬架系统系列
- 转向，刹车系统系列
- 驱动系统系列
- 发动机系统系列
- 防振橡胶系列
- 内压系列
- 其他

The needs for testing machines have been always changing to adapt a rapid progress of automobile technologies.
To keep sustainable business in severe global competitions, it is inevitable for automakers and suppliers not only to develop advanced technologies and materials, but also to position it as a key strategy to shorten developing period by optimizing the developing processes.
SAGINOMIYA Dynamic Servo plays a key role to help make these changes for a great progress of automobile technologies. It covers a broad spectrum of automobile testing, not only physical testing of full vehicle, units, parts and so on, but virtual testing to improve the accuracy of CAE analysis by generating smart models.

Application Fields of Test Systems for Automobiles

- Road Simulator
- Measuring System
- Suspension System
- Steering and Braking System
- Drive System
- Engine System
- Rubber System
- Inner Pressur System
- Other

ABH 单轴模拟试验机

ABH Single-axis Simulator

◀4 通道道路模拟试验机

可模拟在各种条件下汽车行驶的 4 通道试验装置。
除最重要的耐久性试验之外，还能够灵活应用在舒适性试验，以及对噪音，振动等等的调查和研究上。

◀4 POSTER

4 Poster is known as a typical Road Simulator to perform the durability test, NV analysis and to evaluate of ride comfort. There're several types depending on the purpose. It simulates various road-load conditions with a sophisticated-software RFC and digital servo controllers.

▶附带环境槽的4通道道路模拟试验机

在各种温度和湿度的环境下，模拟汽车行驶的试验装置。

▶4 POSTER with Environmental Chamber

This system is used for tests to survey the effects from thermal and humid environmental conditions. Hot and cold condition can be produced with road-load simulation.

◀道路噪音模拟试验机

可用于车辆的数模解析，混杂音等的研究，也可模拟高频率的振动。

◀Road Noise Simulator

Unpleasant muffled sounds caused by road noise spoil the silence and comfort of the vehicle. This system simulates road noise up to high frequency so that the road noise effect can be studied and a modal analysis can be conducted.

BBH 多轴模拟试验机

BBH Multi-axis Simulator

◀多轴道路模拟试验机

能够更接近地再现实车行驶的台上加振系统。引用先进控制系统——R.F.C，来再现汽车各车轴通道上的前后力，左右力，制动力。

◀Tire coupled Multi-axial Road Simulator

In order to reproduce the exact condition of running motion on the bench, it is required to have multi-axial tables, which simulate cornering forces and longitudinal forces at tire contact points as well as vertical forces. The road conditions are created by RFC software and model based controls.

▼6DOF 道路模拟试验机

由结构紧凑的 6 轴加载机构和 RFC 系统，在工作台上高精度地再现实际行驶过程中载荷。

▼MDOF series 6DOF Road Simulator

This system is an essential tool to evaluate the durability and to solve inconsistencies between CAE analysis and actual road conditions in a vehicle. With compact size fixtures and advanced RFC software, this system can replicate actual Road-Load forces precisely with 6 component force transducers.

ATH 车辆基本特性测定装置

ATH Suspension Parameter Measuring System

▼车辆基本特性试验测定装置

本装置可在短时间内完成对汽车悬挂系统刚性特性的测试。汽车悬挂系统刚性是与汽车在高速道路和颠簸道路上行驶的稳定性、舒适性等有重要关系的特性。

▼Suspension Parameter Measuring System

The purpose of this system is to measure the quasi-static suspension characteristics that affect on vehicle ride and handling. It applies a variety of forces and displacement to the vehicle suspension slowly and measures the wide range of parameters, such as kinematical characteristics of the suspension, steering system geometry and compliance and so on.

▼车辆基本特性试验装置(动态型)

▼Suspension Parameter Measuring System (Dynamic Type)

This type can measure dynamic characteristics as well as quasistatic suspension characteristics, which are essential to improve the accuracy of CAE analysis. It achieves high accurate control, because it is designed to minimize the crosstalk between axes.

BTH 转动惯量测定装置

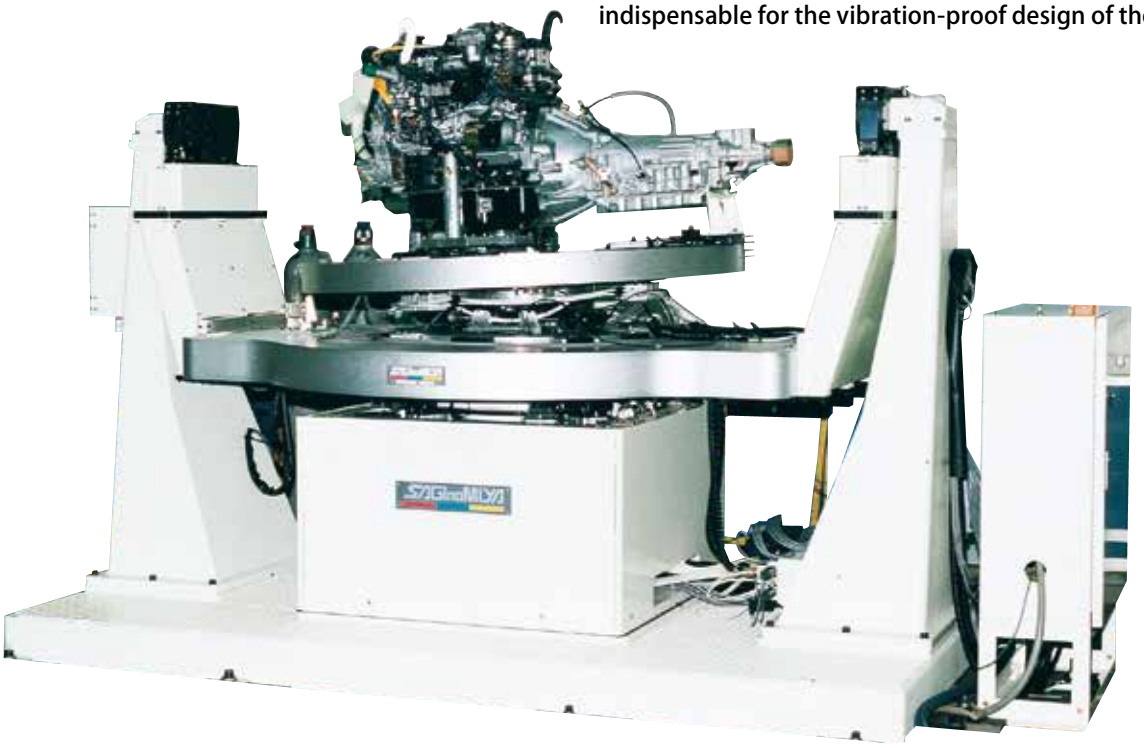
BTH Measuring System for Principal Moments

▼发动机转动惯量测定装置

本试验装置可在短时间内测定带变速箱的发动机的惯性力值、惯性主轴方向、质量和重心位置等的刚性特性。使用精确度很高的这种实际测量值来进行发动机振动的解析，能够决定发动机固定件的理想位置和特性，是发动机防振设计中不可缺少的测定装置。

▼Measuring System for Principal Moments of Inertial of Engine

This measuring system can precisely measure the values of principal moments of inertia of the transmission engine and the rigid characteristics such as the direction, weight, position of the center of gravity, and other parameters of the principal axes of inertia in a short time. This system can decide the ideal arrangement and characteristics of the engine mount by using these high-precision measured values for analyzing the engine vibrations as a system indispensable for the vibration-proof design of the engine.



◀车辆转动惯量测定装置

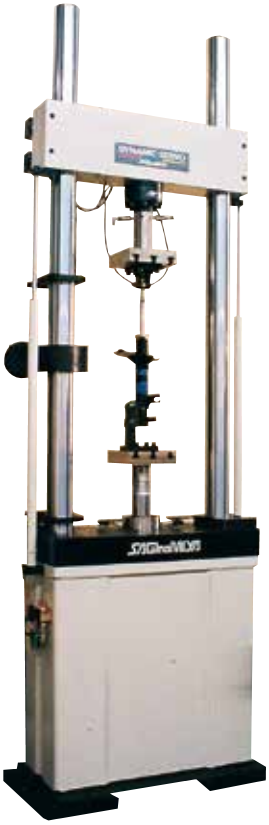
车辆转动惯量测定装置能够自动测定出整车的重心高度，倾斜，滚动，摇摆转动惯量，从前需要 2 ～ 3 天来完成的测定用此装置只需要不到 4 小时就可完成。

◀Inertia Moments Measuring System for Automobiles

This test system can automatically measure the height of center of gravity, pitching, rolling, and yawing inertia moments of finished vehicles.

ASH 减振器试验机

ASH Shock Absorber Test System



◀减震器性能 • 耐久试验机

能够完成对减震器的减衰力等各种性能试验和耐久试验。

◀Shock Absorber Endurance Test System

SAGINOMIYA has produced a wide range of Shock Absorber Test Systems, which keep evolving and meeting customers' requirements. They range in usage from subtle performance tests up to rugged durability tests.
SAGINOMIYA offers a best system to meet customers' requirements.

BSH 球节试验机

BSH Ball Joint Test System

▶球节耐久试验机

此装置对于球节施加轴向力、径向力和摇动、转动的载荷，来进行耐久试验。

▶Ball Joint Endurance Test System

This system performs the endurance test of Ball Joints, which are subjected to multiple harsh forces in the fields. It applies multi-forces and multi-oscillate rotation, an axial force with the perpendicular one and axial rotate motion with the perpendicular one.

CSH 弹簧试验机

CSH Spring Test System

▲弹簧耐久试验机

对承受车辆振动，同时承受车辆载荷的悬架系统弹簧进行试验的耐久试验机。

▲Spring Endurance Test System

The durability test of suspension leaf spring can be performed with actual road-load force.
There are several types depending on the purpose.

DSH 空气伺服试验机

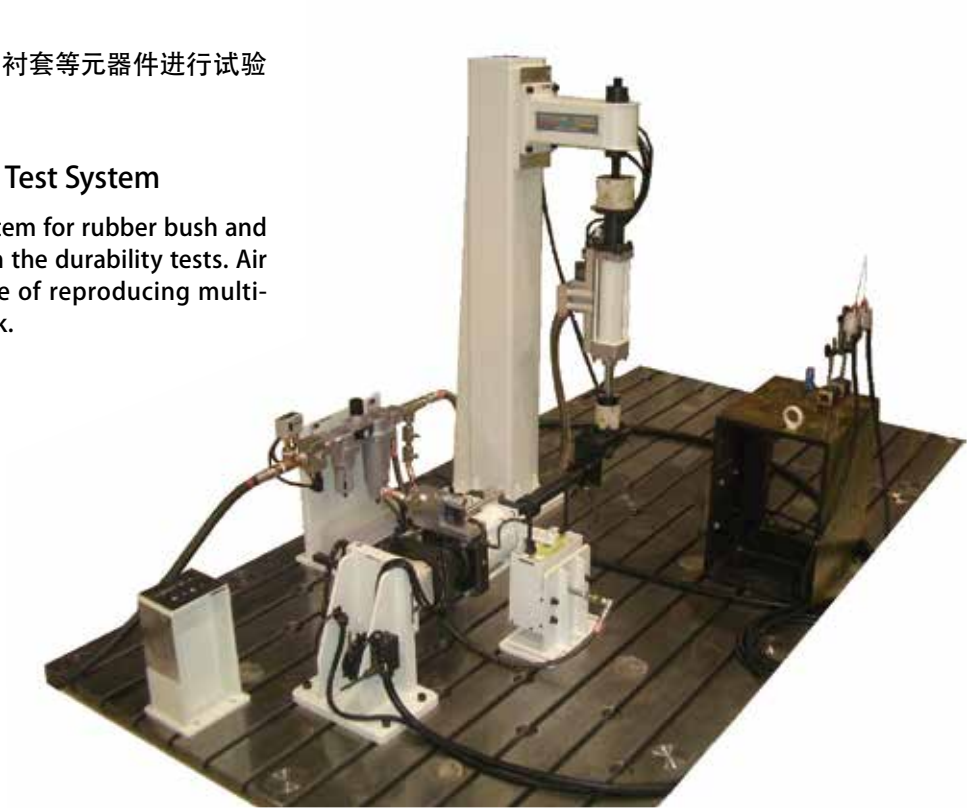
DSH Air Servo Test System

▶悬架系统耐久试验机

使用空气伺服作动器对悬架系统的衬套等元器件进行试验的耐久试验机。

▶Suspension Assy Endurance Test System

This is a typical endurance Test System for rubber bush and suspension components to perform the durability tests. Air servo actuators have an advantage of reproducing multi-axial forces with minimized crosstalk.



ESH 轴承试验机

ESH Bearing Test System

◀轴承2轴耐久试验机

在轴承上施加径向和轴向力载荷来进行耐久试验。

◀2 Axial Bearing Test System

The rugged and versatile test system performs a durability test of axle bearing by applying bi-axial forces in radial and thrust directions.

FSH 衬套试验机

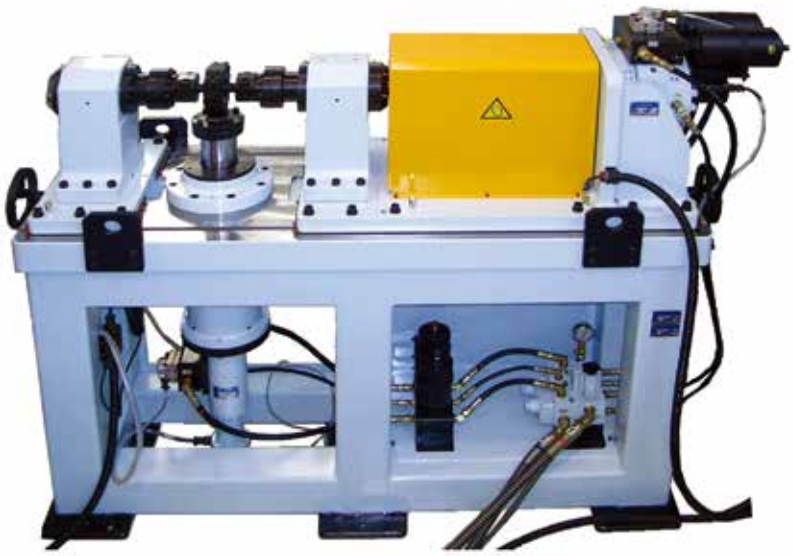
FSH Bush Test System

▶衬套2轴耐久试验机

对悬架系统用的橡胶衬套施加扭矩和径向负载进行耐久试验。

▶2 Axial Bush Test System

This system performs an endurance test of Rubber bush. Since rubber bushes are subjected to severe multiple hash forces, it is required for the evaluation to undergo multi-forces, which are combined with a torsional torque and a radial force.



GSH 悬架系统零部件试验机

GSH Suspension Components Test System

◀悬架系统零部件用试验机

能够对悬架系统零部件进行 3 轴加载试验。

◀Suspension Components Test System

The versatile test rigs are easy to set up and apply multiple forces simultaneously to test components from different directions.
This system can be adapted to various component tests with different directions.

HSH 车轮振动解析试验机

HSH Flutter Test System

◀车轮振动解析试验机

此加振机可以在车辆停止状态的情况下再现轮胎回转振动，实现车轮振动现象的解析。

◀Flutter Phenomenon Test System

Applying rotational unbalance vibration to a wheel axis by using this actuator enables to analyze Flutter phenomenon of vehicle at stationary condition.

BRH 轮胎试验机

BRH Tire Test System

▲轮胎接地观测装置

可任意设定滑动角、外倾角的状态，并对轮胎施加上准静态载荷，能够透过玻璃观测到里面转动轮胎的接触地面的情况。

▲Observation System of Tire Ground Plane

This test system can observe the ground plane of rolling tire through a glass plate. It applies quasi-static loads to the wheel with a specific slip angle and camber angle.

CRH 转向系统试验机

CRH Steering Test System

▲转向系统性能 • 耐久试验机

对装在助力转向系统里的油压阀、助力泵进行耐久性和各种性能的检测。另外，还能够对转向横拉杆的轴方向以及方向盘的输入部分施加实车相当的载荷。

▲Steering Simulator

On the early stage of PS development, it is required to evaluate the dynamic performances and durability under actual road running conditions without vehicles, such as speed, ups-downs and steering motions. These testing systems have various features to simulate the actual road-load forces, which are unique and reliable.

CRH 转向系统试验机

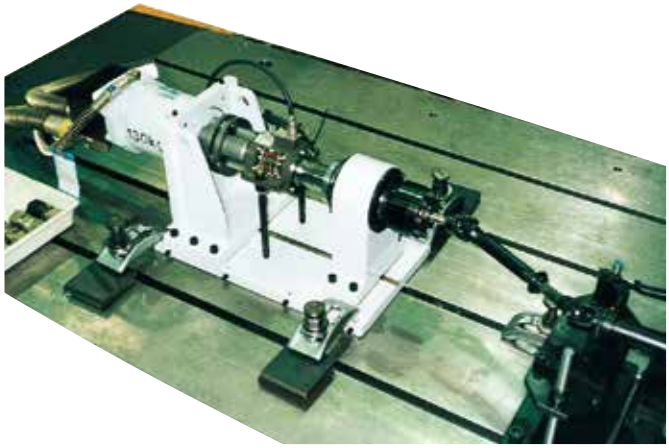
CRH Steering Test System

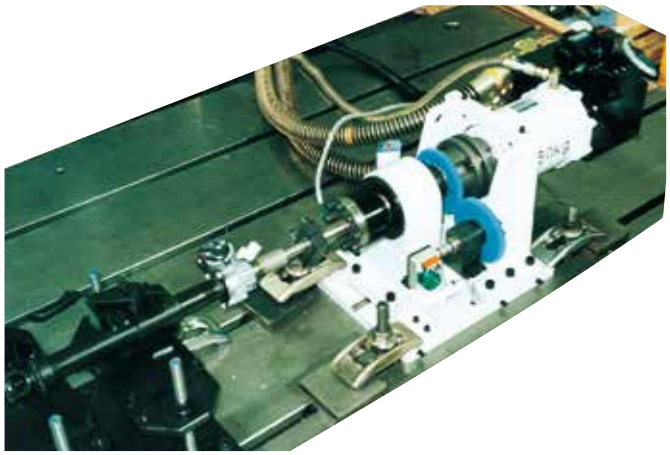
▼操舵杆的转动扭力耐久试验机

此装置是使用油压马达对操舵杆进行耐久性试验。

▼Steering Column Test System

The durability of steering column can be performed by reproducing an actual load condition, which consists of rotation and torque and the position of input and output.





ERH 刹车装置试验机

ERH Brake Test System

▶刹车模拟装置

在刹车的制动主油缸外加油压，模拟实车驾驶员的刹车操作。

▶Brake Simulator

This system simulates the actual brake operation by applying pressure to the brake master cylinder.

FRH 助力转向泵试验机

FRH Power Steering Pump Test System

◀助力转向泵试验机

由 AC 马达经传动带输入转动，能够做 P/S 泵的耐久试验。

◀Power Steering Pump Test System

Durability test of Power Steering Pump can be conducted by applying belt-drive and actual vibration.

APH 离合器试验机

APH Clutch Test System

▶多板离合器特性耐久性能试验机

可对装有多板离合器的差速器里的离合器以及齿轮进行耐久性试验，并可对扭矩特性、效率、摩擦变动等进行测定同时能够实行基本性能的确认试验。

▶Limited Slip Differential Test System

The performance and durability test of Limited Slip Differential can be conducted by applying the limit wheel slip, which makes clutch plates lock the difference when turning on dry pavement they just slip.

BPH 旋转＋扭转试验机

BPH Spin Torsional Test System

▶旋转＋扭转试验机

再现发动机的扭振变动载荷，对离合器、扭转减振器进行性能和耐久的评价。

▶Spin Torsional Test System

Rotational vibration caused by the explosion of engine cycles affects the NV performance and the durability of clutch and transmission. This system can simulate the rotational vibration, which is produced by spinning rotary actuator.

AFT润滑机构(具备油温调整功能)

对轴芯提供 AFT 润滑，模拟实车状态。

Lubrication Mechanism (oil thermometer adjuster method)

This machine providing the ATF from the center of the shaft can reproduce the complicated full-scale car condition.

CPH 传动轴试验机

CPH Drive Shaft Test System

▶传动轴模拟试验机

使用此装置可在台上再现实车状态时的负载条件来进行传动轴的综合耐久试验。根据软件控制来组合设定转动扭矩，转动速度，车轮的上下振动，方向盘转角 (转向测试角度) 等诸条件 , 来进行耐久性测试评价。另外，还可将在实车上采下的数据存储在控制器中，组合编辑后进行实车波形试验。

▶Drive Shaft Simulator

CV Joints, which are essential parts for FF vehicle, are subjected to the harsh severe conditions. This simulator can reproduce complicated road-load condition to evaluate the durability. It simulates the actual road-load condition by combining transmission torque, speed, vertical-motion of the wheel axis, steering angle and cooling condition, all of which are controlled by CPU. Efficient torque-looped mechanism can reduce the power consumption.

DPH 保护套试验机

DPH Boots Test System

▶保护套复合耐久试验机

能够模拟实车 CVJ 轴的旋转、转向角度、车体悬架系统的行程变化以及环境温度等对于 CVJ 护套的影响，实行护套的综合耐久试验。

▶Boots Simulator

Comprehensive endurance test of CV Joint boots can be conducted by this system. Boots should be evaluated under harsh conditions, which affect the durability, such as shaft rotation, steering angle, suspension stroke and ambient temperature.

EPH 轮毂试验机

EPH Hub Test System

▼轮毂旋转弯曲试验机

在轮毂旋转状态时，引入径向载荷、轴向载荷和扭矩来进行耐久试验。

▼Axle Hub Test System

Multi-axial forces in vertical, lateral and camber directions can be applied to Axle Hub with rotating condition to perform evaluations of Durability.

GPH 差动装置试验机

GPH Differential Test System

▼差动装置试验机

此装置能够对 LSD 的性能特性以及差动装置全体进行测试。

▼Differential Test System

Performance and durability test of LSD can be conducted by this system, which has three AC motors.

FPH 变速箱试验机

FPH Transmission Test System

▼变速箱试验机

对变速箱给予旋转振动，测试与评价其异音。

▼Transmission Test System

NV study of TM such as gear noise caused by the explosion of engine cycles can be performed by this test system.

AEH 链条试验机

AEH Chain Test System

▶链条耐久试验机

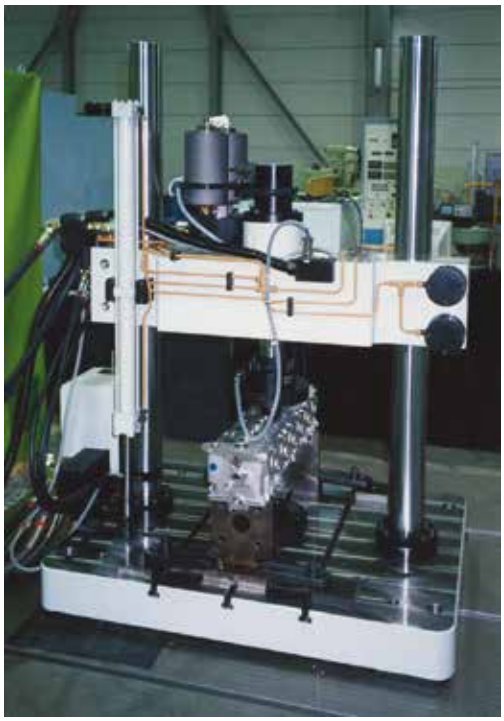
可以对任何工业及民用特别是汽车用的链条进行耐久试验。

▶Chain Test System

Fatigue test of chains, which use in automobile and other industries can be performed.

BEH 发动机试验机

BEH Engine Test System



◀发动机零部件试验机

能够对发动机缸体、活塞连杆等发动机零部件进行耐久试验。

◀Engine Parts Test System

Fatigue test of engine parts such as cylinder block, connecting rod and other parts can be performed.

CEH 活塞试验机

CEH Piston Test System

▶活塞耐久试验机

在高温槽内对活塞反复施加压力来进行耐久试验。

▶Internal Pressure Endurance Test System

Durability test of piston parts under high impulse pressure cycles and high temperature can be conducted by using high response impulse actuator system.

EEH 密封垫试验机

EEH Gasket Test System

▶密封垫试验机

用恒温槽营造发动机的环境，对燃烧室反复施加压力来测试和评价发动机缸体密封垫。

▶Impulse Test System

Impulse test of engine parts such as engine block, gasket and others can be performed by this system. It applies high frequency impulse pressure and high temperature same as engine condition.

FEH 轴承试验机

FEH Bearing Test System

◀轴承耐久试验机

在轴承上同时施加径向载荷、轴向载荷以及旋转载荷来进行耐久试验。

◀Bearing Test System

Durability test of bearing imposed with high radial and rotation force repeatedly can be performed.

GEH 消音器试验机

GEH Muffler Test System

▶消音器试验机

在工作台上再现实车的振动，对消音器进行振动、热度、腐蚀等的耐久性测试。

▶Muffler Test System

Muffler of automobile, which is subjected to the vibration, high temperature and erosion, can be tested. One side of muffler is fixed to the vibration table and the other one is fixed to the actual engine.

KCH 防振橡胶动态特性试验机

KCH Elastomer Test System

KCH-701-30 (1kHz)　KCH-701-40 (2kHz)

◀防振橡胶动态特性试验机

可高精度地测出发动机悬置等各种防振橡胶从低频至高频领域的动态特性。

◀Elastomer Test System

This system can measure dynamic stiffness and damping factor, such as high measurement techniques needed, varying to the high frequency in high precision. There are several types of systems depending on the wide frequency ranges.

KCH-701-20 (300Hz)

KCH-701-15 (100Hz)

2轴动态特性

恒温槽（选择项）

▶生产线用动态特性试验机

能够在生产线上检测防振橡胶和防振零件的动态特性。

▶Elastomer Inspection Test System

This system is designed as an inspection machine in the manufacturing line. It measures dynamic characteristics of the product and results of passes and fails.

KCH 防振橡胶动态特性试验机

KCH Elastomer Test System

◀3 轴动特性试验机

能够 3 轴同时加振并计测出防振橡胶和防振零部件的动态特性。

◀Elastomer Multi-axial Testing System

Multi-axial Elastomer Testing System can measure the dynamic characteristics of EG mount and Bushing in three orthogonal directions simultaneously.

▶扭振阻尼器

用于在生产线和检查线上测定扭转阻尼共振点，来进行是否合格的判定。
以加振器振动头部输出转动力矩，和得到的加速度输出峰值时的频率来测定共振频率。

▶Torsional Damper Test System

This system is used as an inspection machine in the manufacturing line. It has functions to measure the resonance frequency and judge it based on the criteria whether the product is good or bad. The resonance characteristics are calculated by torque and acceleration signals.

◀扭转动态特性试验机

能够计测出防振橡胶在扭转方向上的动态特性。

◀Torsional Elastomer Test System

Dynamic torsional stiffness and damping factor can be measured up to high frequency.
It has a unique function, which catches the resonance frequency and pursues its change depending on the temperature rise in order to evaluate the durability.

BCH 耐久试验机

BCH Durability Test System

▶防振橡胶耐久试验机

对防振橡胶或防振部件进行耐久试验。

▶Rubber Isolator Dynamic Characteristic Test System

This system can evaluate the durability of rubber isolator and isolation parts.

◀3连耐久试验机

在同一框架结构内设置 3 台加载试验机，完成多轴耐久试验。

◀Triple Test System for Mount and Rubber Parts

This system, which equips three actuators in one load frame, can evaluate the durability test with different conditions in one time.

▶防振座模拟试验装置

可对包括防振橡胶在内的成品部件，模拟实际使用状态进行试验。

▶E/G Mount Simulator

Since E/G Mounts are subjected to complicated loads in assembly conditions, it is required to reproduce actual vibration and torques to estimate the actual durability.

BCH 耐久试验机

BCH Durability Test System

▶3 轴耐久试验机

通过连杆机构实现 3 轴向加载，对防振橡胶进行接近实际工况下的耐久性试验。

▶Multi-axial Durability Test System

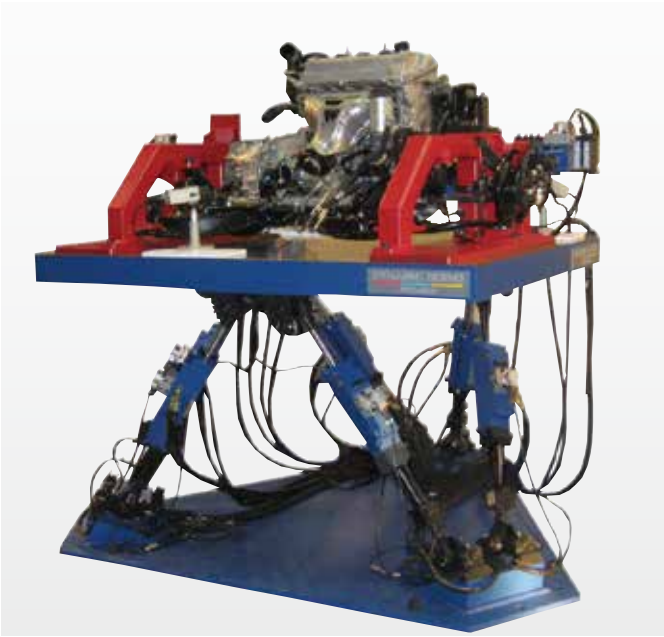
This system can evaluate the durability of rubber viblator insulators and other rubber parts by using the link structure with three exciting forces close in the full-scale car.

◀6自由度耐久试验机

对试验体进行 6 自由度加载，完全再现实车的运动状况，对发动机悬置等实行耐久试验。

◀6DOF Durability Test System

This system can evaluate the durability test of E/G mount by reproducing the motion which real car produces with exiting forces of 6 degrees of freedom



▶防振橡胶实机模拟装置

通过模拟接近实车的运行状态，对含有防振橡胶的实机部件进行耐久试验评价。

▶E/G Mount Durability Test System

This system can evaluate the durability test of E/G mount including isolator rubbers, various materials and components close in the full-scale car condition.

AIH 管路试验机

AIH Hose Test System

▶管路内压试验机

能够对汽车的各种管路同时进行内压试验和振动试验的试验机。
另外，也有能够进行高压管的冲击耐压力的耐久试验以及连接处的振动试验的“高压管脉冲试验机”。

▶Hose Impulse Test System

There are several types of hose impulse test systems. This type performs an endurance test applying both internal high pressure and vibration. There is also impulse tester whose purpose is to examine hose joints.

BIH 热交换器试验机

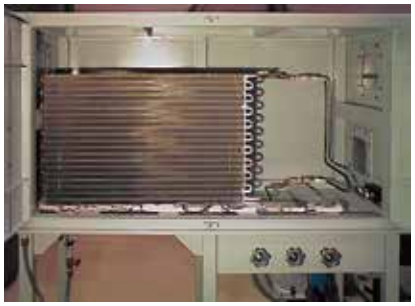
BIH Heat Exchanger Test System

◀热交换器试验机

对热交换器施加反复的压力进行加压脉动试验和破坏耐久试验。

◀Heat Exchanger Test System

Durability and rupture test of Heat Exchanger can be conducted by applying internal pulsating pressure continually.



CIH 内压试验机

CIH Internal Pressure Test System

▶内压试验机

对试验件施加反复的压力，进行加压耐久试验和破坏耐久试验。

▶Internal Pressure Test System

Durability and rupture test of a pressure vessel can be conducted by applying internal pulsating pressure continually.

ALH 座垫试验机

ALH Seat Test System

◀座垫耐久试验机

可以给座垫施加振动，前后滑动和旋转载荷，来测试座垫以及靠背的耐久性。

◀Seat Cushion Endurance Test System

This system conducts an endurance test applying various loads to a seat. It simulates vertical vibration, horizontal sliding and twist test of buttocks model with standard weight.

BLH 安全带试验机

BLH Seat Belt Test System

▶安全带试验机

使用 8 台伺服液压缸能够在所定的时间内做牵引载荷的试验。以便得到汽车固定座椅上的安全带的有关诸规定的基准强度的确认。

▶Seat Belt Anchor Test System

The purpose of this system is to examine the strength of seat belt anchor, which accords to various safety standards. Eight servo cylinders are equipped to apply tensile load under the certain conditions.

CLH 倾斜装置

CLH Inclination Test System

▼倾斜装置

能够使汽油罐等在倾斜的状态下测试其性能。

▼Tilt Test System

Various tilt effects of vehicle components can be examined in this system, such as suction performances of gas tank and lubrication effects of driving train.

DLH 燃料电池试验机

DLH Fuel Cell Test System

◀燃料电池试验机

在一定的环境下，对氢罐施加变动载荷压力来进行耐压疲劳测试。

◀Fuel Cell Test System

Pressure-proof durability large volume and high internal pressure vessels like hydrogen tank can be examined by applying internal pulsating pressure continually under certain artificial circumstance.

ELH 自行车 摩托车试验机

ELH Two Wheel Test System

▶自行车 • 摩托车试验机

能够做自行车、摩托车车架的振动疲劳试验。

▶Two Wheel Test System

Frame of bicycle and other parts of vehicle can be tested to this versatile test system for examining the durability and conducting the quality control checks.

土木和建筑用试验装置

Test Systems for Civil Engineering and Construction

对土木和建筑领域的结构物或是作为结构物中的部分构件的耐久性以及其它性能的验证是必不可少的。有必要对调查的结构物给予既知的外力，得出实验结果清晰的显示其力学特性。鹭宫制作所的动态伺服机构“土木・建筑用试验装置”涵盖了各种结构物，以及各种各样的土木・建筑用材料和复杂的加工材料的试验主题和试验目的。

土木・建筑用试验装置的主要用途

- 通过试验来验证理论解析结果
- 通过试验来探求理论解析中不明确的复杂的合成构造特性
- 作为对设计载荷的安全确认试验来探索其破坏特性
- 新施工方法・新材料的力学・物理特性的验证
- 品质管理等

One of essential factors for civil engineering and building construction is to fulfill performances on both the capability of earthquake resistance and high cost-performance. In order to verify the earthquake-proof, many types of testing are being conducted, such as pseudo dynamic test, seismic test and virtual real simulation test.
SAGINOMIYA Dynamic Servo applies a wide range of studies and researches for civil engineering, building construction and isolation technologies.

Major Uses of Test Systems for Civil Engineering and Construction

- Verification of theoretical analysis results through experiment
- Experimental research of complicated composite structure characteristics which cannot be elucidated by theoretical analysis
- Research of the breaking characteristic as a safety verification experiment to the design load
- Verification of dynamic and physical characteristics of new engineering methods and new materials
- Quality control, etc.

ADH 结构物载荷试验机

ADH Structure Loading Test System

▶拟动态试验系统

通过对试验体加力，进行静态加力试验，根据其变形和反力来做出的应答解析，来逐次判断加力之后试验体的变形，再现由地震力造成的破坏过程。

▶Pseudo Dynamic Test System

This method is a quasi-static test and very useful for the studies to examine dynamic characteristics of the structures without shaking by dynamic waveforms. Pseudo dynamic test simulates the process of deformation up to the rupture point by adding layered forces, which are controlled on the basis of the differential equation.

◀组合加载系统

为了在实验室内再现结构物于自然环境下复杂的动态或是静态的外力环境，来解析实际情况而进行的试验。

◀Hydraulic Servo Jack System

The versatile Jack system is used to analyze the characteristics of structures by applying static and dynamic loadings, which simulate the actual loads being caused under actual environment.

▶缩放仪式构造物试验机

在柱形构造物不加载弯曲力矩的情况下，能够同时进行垂直和水平方向加载的试验。

▶Pantograph Type Structure Test System

In order to examine a shearing strength of column structure, it is required to prepare an exact boundary condition, which keeps the input planes horizontally. This pantograph mechanism is a unique method to simulate the exact shearing test of columns.

ADH 结构物载荷试验机

ADH Structure Loading Test System

▼ 移动载荷疲劳试验机

用多轴作动器进行模拟移动载荷，完成疲劳试验。

▼ Moving Load Fatigue Test System

This system can evaluate the fatigue test of moving load by multi-axial actuators.

▼ 结构件混合试验机

通过对构造件的 3 轴交替载荷试验和高速载荷试验，再加上结合外部分析，来实现混合加载试验。

▼ Structure Loading Hybrid Test System

This system can evaluate the fatigue test of high-speed loading and 3 axial alternating loads with the external analysis.

BDH 柱用载荷加热炉

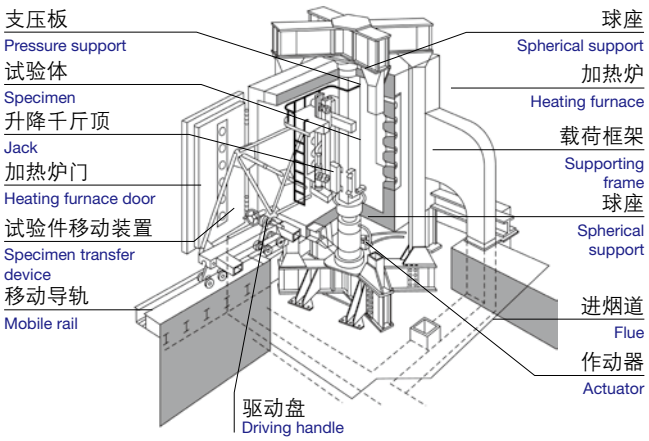
BDH Loading Furnace for Pillars

▶ 柱用载荷加热炉

用此装置能进行对高承载力的柱形构件的载荷加热试验。可以得到火灾时构件内部结构的应力分布，热量特性，变形，破坏等的力学数据。

▶ Loading Furnace for Pillars

This furnace can test high yield strength pillar members by loading and heating them. The internal distribution of members, thermal properties, deformation, rupture, and other dynamic data in the occurrence of a fire can be obtained.



CDH 免震橡胶试验机

CDH Isolation Rubber Test System

▼免震橡胶试验机

用此装置能够对层叠橡胶在给予垂直载荷的状态时，测定出静态或动态的剪断方向负荷量 - 位移 (剪断弹力) 特性。

▼Isolation Rubber Test System

This test system can measure the load-displacement (shearing spring) characteristic statically and dynamic-ally in the shearing direction while applying the vertical load to the isolation rubber.

▲300kN 级　300kN class

▲2MN 级　2MN class

▲20MN 级　20MN class

DDH 木质系列试验机

DDH Wood Test System

◀实物等大强度试验机

能够对房梁和横梁等与实物等大的木材加工件，集合木材做弯曲试验以及连接处的牵引试验。

◀Full-size Strength Test System

This test system can execute the bending test of full-sized materials and aggregate materials of beams, girders, etc. and the tension test of joints.

▶壁剪断试验机

此装置能够对木质结构房屋的强耐震壁板的剪断强度做评价。

▶Wall Panel Shearing Test System

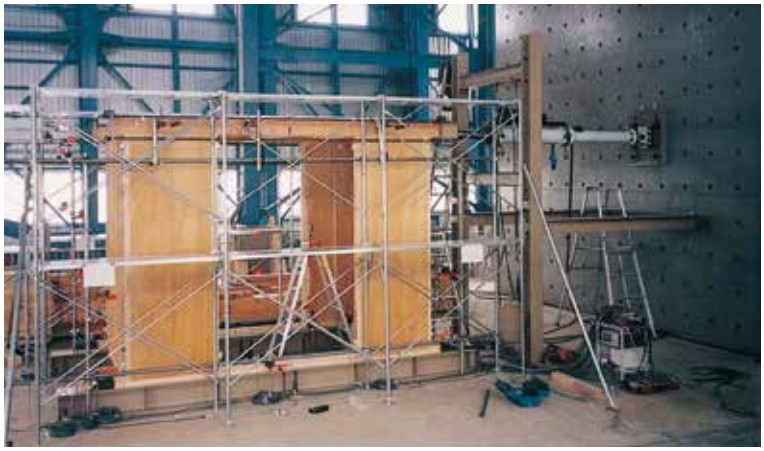
This test system can evaluate the shearing strength of strong earthquake-resisting wall panels of wooden houses.

▶木质系列拟动态试验机

能够对和实际物体等大的木质房屋进行拟动态试验。

▶Wood Pseudo Test System

In order to evaluate earthquake resistance of wooden houses, a pseudo dynamic test is one method to enable that without shaking the whole structure.



EDH 土质・岩石试验机

EDH Soil Mechanics and Rock Mechanics Test System

▶岩石三轴压缩试验机

能够对岩石做在三轴应力下求出应力 - 变形关系的试验。

▶Rock mechanics Test System

It is essential for underground development to understand the failure process of rock, which is subjected to tri-axial compression. This system has a tri-axial vessel loading high pressure, temperature and high compression force, which is controlled by servo actuator.

EDH 土质・岩石试验机

EDH Soil Mechanics and Rock Mechanics Test System

▶土质冻结融化载荷试验机

此装置能够分析土质在冻结融化时的特性。

▶Soil Mechanics Test System

This system is used for studies to analyze the soil mechanics on the process of freezing and melting.

◀土质振动三轴压缩试验机

可以对软岩～土砂等做广范的振动试验。其轴向载荷作动器和侧压用的作动器采用独立工作方式。

◀Soil Mechanics Test System

This type is adapted to a wide range of tri-axial test ranged from soft rock to sediment. The condition of tri-axial vessel is controlled by two servo actuators, which give the test piece dynamical loading.

FDH 沥青路试验机

FDH Asphalt Test System

▼跑道沥青试验机

能够测试地面跑道在超大型航空机离、着陆时的冲击耐久性。针对轮重和跑行，来对沥青加压使其变形。此试验机适用于对跑道地面材料和构造的研究等。

▼Runway Asphalt Test System

The subsidence of runway is a serious problem for airport maintenance. This system is useful for studies to evaluate a runway structure from sinking level. The asphalt surface is rolled by the jumbo jet's wheel loads, which are same as those when airplanes are taking off and landing.

航空和铁道用试验装置

Test Systems for Airplanes and Railroads

鹭宫制作所的动态伺服“航空・铁道用试验设备”系列，不仅可以对与航空・铁道密切相关的振动进行模拟再现试验，而且还可以对在机构上承担重要任务的旋转驱动轴等进行耐久疲劳以及品质评价试验。

SAGINOMIYA Dynamic Servo Systems apply a broad spectrum of aviation structure testing, railway testing in order to conduct new material /structure researches, optimizing manufacture process and quality control checks.
Unique test rigs which produce boundary fitting conditions and control techniques which reproduce actual loading waveforms are our key technologies for accomplishing your mission based on many delivery records.

AKH 航空机用试验机

AKH Test System for Airplanes

▼旋转轴试验模拟装置

此装置在同时对旋转轴进行牵引力、扭力以及旋转的复合动态加载的情况下，模拟旋转轴的花键连接部的疲劳状态。

▼Jet Engine Shaft Test Simulator

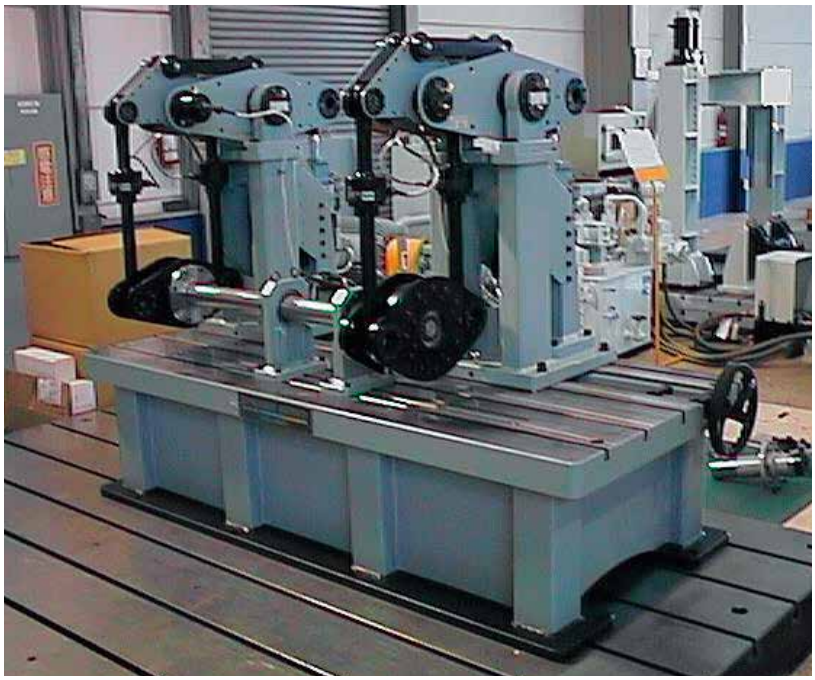
Engine shafts are subjected to complicated loads when taking off and landing. In order to meet aviation standards, it is required to conduct some defined endurance test. This authorized simulator reproduces dynamical multi-forces, which consist of tensile, torsional and rotational bending moment and evaluates the durability.

▶旋转轴试验模拟装置

对旋转轴在一个方向施加固定扭矩载荷，同时在旋转轴连接部再施加 2 个相反方向的动态弯曲力矩的状态下，测试旋转轴的耐久性。

▶Shaft Test Simulator

Applying dynamical torsional torques on both side of shaft without any interference to dynamical radial forces is often required to simulate the actual shaft boundary conditions. This patented mechanism performs endurance test without iterated compensation.



BKH 铁道用试验机

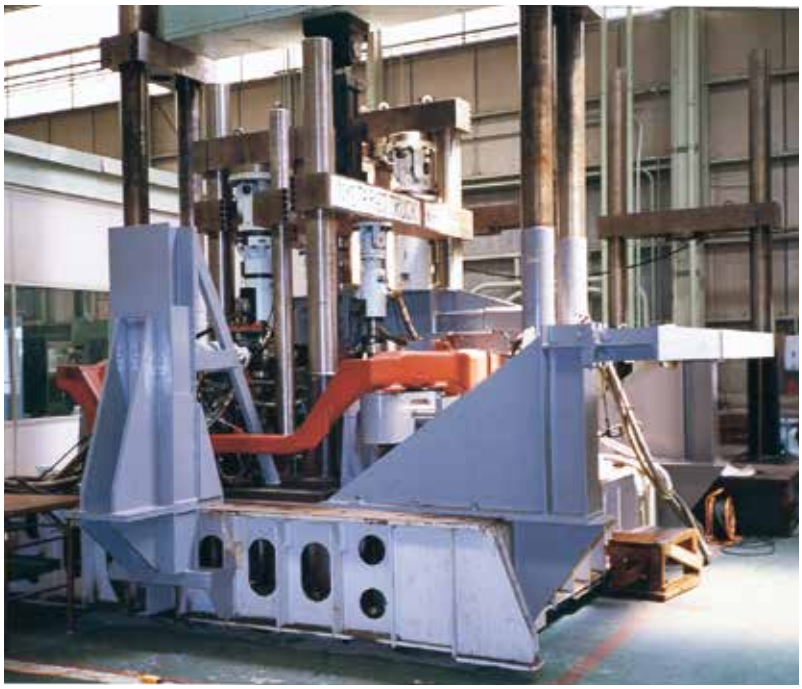
BKH Test System for Railroads

▶转向架试验机

此装置能够模拟转向架的实动状态，进行疲劳试验。

▶Railway Bogie Test System

This test system can execute the fatigue test by simulating the real driving condition of the railway bogie.



▼车辆模型振动试验机

此装置能够对铁路车辆模型的振动特性做出解析。

▼Vibration Test System for Railway coach Model

This system applies for studies to analyze the dynamic characteristics of railway coach.

BKH 铁道用试验机

BKH Test System for Railroads

▼架线振动试验机

可对吊线和电缆等试验件施加振动，进行振动的可信度试验，耐久试验，性能试验等。

▼Vibration Test System for Aerial wire

This system is used for studies of aerial wires to examine the vibration effect to them and conducting the reliability and endurance test. It simulates dynamical vibration of wires, which is caused during a train pass.

▶隧道覆工模型实验试验机

可以对隧道覆工模型 (1/5 尺寸) 多角度方向地模拟现场施工负荷状态的试验机。

▶Tunnel Shield Strength Test System

The strength of Tunnel Shield can be estimated by exerting multi-forces to one-fifth model in a condition of actual loads.

DYNAMIC SERVO

Mother technologies bring your future
with reliability, appreciation and
new values being created by tests

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⚠ 关于安全 请注意

使用前，请仔细阅读使用说明书后，
正确使用

因为产品的改变，有变更规格，构造的情况，恕不通告

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⚠ NOTES FOR SAFETY

Failure to read and follow all instruction carefully before installing or operating the product could cause personal injury and/or property damage.

Specifications are subject to change without notice.

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