专业工程试验与测试解决方案提供商

国机集团 SINOMACH

SINOTEST 中机试验

蠕变持久试验系统

中国高端试验装备技术引领者

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中机试验官方微信平台

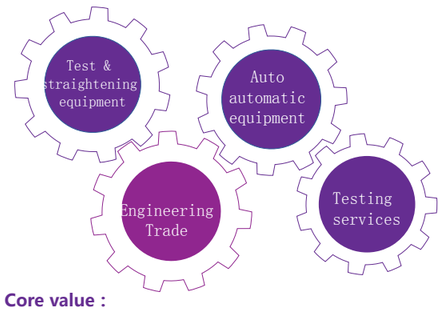
COMPANY PROFILE

Sinotest Equipment Co., Ltd. (short name: SINOTEST) was founded in 1959 (original name: Changchun Research Institute for Testing Machines of the Ministry of Machine Building Industry; former name: Changchun Research Institute for Mechanical Science Co., Ltd.). SINOTEST is a subsidiary of SINOMACH GROUP, one of the world's top 500 large state-owned enterprises. It is the support unit of the national testing machine quality supervision & inspection center and the national testing machine standardization committee. The national testing machine industry association and the association Secretariat are all located in SINOTEST. SINOTEST is known as the "cradle of China's testing machine technology". It is a high-tech enterprise with perfect innovation ability in China's test equipment industry.

SINOTEST is a state-level scientific and technological innovation enterprise mainly engaged in R & D and manufacturing of "test equipment". At present, the company has 120 patents, including 61 invention patents, 30 software copyrights and 29 utility models. The company presided over the formulation of 30 national standards and 42 industrial standards. SINOTEST has undertaken 4 national major scientific instrument projects. 3 of them have been accepted by the state. Currently, the project of "high temperature and high frequency in situ testing technology and application" is passing the acceptance of scientific research achievements. SINOTEST has kept continuously innovating. It has a number of international cutting-edge core technologies in the test equipment industry, and has solved a number of national "neck sticking" technical problems, including hydrostatic support technology, measurement and sensing technology, etc. A batch of key technology has been in an advanced position in the world.

SINOTEST is a professional engineering test and solution provider in China. It has advanced product innovation ability and special product R & D and manufacturing system in the industry. It is a high-end solution provider in the whole industry chain covering the development of unit components, manufacturing of finalized products, customized special products and overall construction of laboratory.

Now, SINOTEST has formed an industrial layout of one center and two bases, with R & D center located in Beijing and manufacturing bases located in Changchun and Wuxi. SINOTEST focuses on the field of high-end equipment manufacturing, leads the development of China's test equipment technology and industry, and makes unremitting efforts for the rise of national industry!



Core value :

Integrity, innovation, passion, joint efforts and win-win cooperation

With 60 years of material testing experience, SINOTEST provides professional material testing solutions for users with rich technology accumulation and strong innovation ability.

Enterprise qualification

High tech Enterprise

Innovative technology enterprise

ISO9001 quality management system

German Rhine certification

EU CE certification

Safety production standardization certification

Intellectual property management system certification

Industry qualification

National testing machine quality supervision & Inspection Center

National Technical Committee of testing machine standardization

National straightening machine standardization group

Secretariat of National Testing Machine Industry Association

Industry journal “Engineering and testing”

R & D and testing institutions

Academician workstation, postdoctoral research workstation

Engineering Research Center of material testing instrument in mechanical industry

Research Center of straightening equipment in mechanical industry

From standardized test equipment to customized test system and series test solutions, SINOTEST is working hard to meet the special needs of users, to build and establish a domestic first-class and internationally influential high-end brand.

MATERIAL
MECHANICS TEST EQUIPMENT

SINOTEST is recognized as the most powerful test equipment technology leading brand in China. With excellent product quality, professional technical support and perfect after-sales service, it aims to provide users with perfect test solutions.

Application area

The technical capability of SINOTEST covers the whole system of material mechanics test, and can provide you with comprehensive test solutions to meet the test requirements of almost all industries, especially in the aspects of micromechanics, large-scale material structure, mechanical property test under high temperature and complex environment in scientific research level, as well as personalized special demand test equipment.

Application fields: metals, plastics, rubber, textiles, biomedical materials, composite materials, electronic industry, parts processing, automobile manufacturing, aerospace, etc.

Flexible modular test procedure

Standard modular test accessories

Intelligent automatic test software

Accurate digitized measurement and analysis system

国机集团 SINOMACH

At present, due to high temperature and corrosion in petrochemical, energy, metallurgy and other industries, load carrying requires higher reliability and safety. The failure of most load carrying in high temperature environment is caused by high temperature creep under high temperature and high pressure. High temperature creep is more effective than high temperature strength in predicting the strain trend and fracture life of materials in long-term use at high temperature. It is one of the important mechanical properties of materials. It is related to the material and structural characteristics of materials. Generally, creep limit, rupture strength and other indicators are used to describe the creep properties of materials.

PARTNER
合作伙伴

High temperature creep endurance test equipment is generally composed of several machines to form a system, including host, control system and data processing system, and can also be composed of different types of machines
SINOTEST has always been focusing on the continuous innovation of creep equipment technology. The new generation of creep testing machine is based on the years technology accumulation of creep equipment. Coupled with advanced design concept, we seek breakthroughs in mechanical design, electrical control, software manipulation, ergonomics and other aspects. On the premise of retaining the original stiffness of the equipment, the new generation of creep testing machine improves the structure and operation of the host in order to provide more perfect new experience for customers. We have carried out all-round technical upgrading in the aspects of control mode and cluster control. Over the years, SINOTEST has provided thousands of high temperature creep endurance test equipment for hundreds of customers, serving the key industries and fields of the lifeline of the national economy.

重点战略合作客户

中国特种设备检验研究院	175
宝山钢铁股份有限公司	170
天津重型装备工程研究有限公司	145
中科院沈阳金属所	138
东方电气集团东方汽轮机有限公司	111
北京科技大学(国家长期材料服役中心)	112
合肥通用机械研究院	94
中国钢研科技集团 (钢铁研究总院、钢研纳克检测技术有限公司、钢研高纳科技股份有限公司)	91
长春中机检测公司	80
哈尔滨汽轮机有限公司	73
中国一重集团公司	55
西安热工研究院有限公司	53
东方电气集团东方锅炉股份有限公司	52
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湖南航天天麓新材料检测公司	30
哈尔滨东安发动机	30
浙江海岩国检	30
山东电力研究院	30

高校

- 哈尔滨工业大学
- 吉林大学
- 大连理工大学
- 东北大学
- 北京科技大学
- 北京航空航天大学
- 北京工业大学
- 华北电力大学
- 天津大学
- 河北工业大学
- 燕山大学
- 太原理工大学
- 太原科技大学
- 武汉科技大学
- 海军工程大学
- 中南大学
- 湖南大学
- 长沙理工大学
- 国防科技大学
- 华中科技大学
- 浙江大学
- 浙江工业大学
- 江苏大学
- 南京航空航天大学
- 南京工业大学
- 上海交通大学
- 上海大学
- 同济大学
- 华东理工大学
- 上海工程技术大学
- 中国石油大学(华东)
- 中国科学技术大学
- 山东理工大学
- 南方科技大学
- 南昌航空航天大学
- 广东工业大学
- 西北工业大学
- 西安交通大学
- 西安科技大学
- 西北大学

科研院所

- 中国特种设备检验研究院
- 合肥通用机械研究院
- 中国核动力研究设计院
- 核工业西南物理研究院
- 中国科学院沈阳金属所
- 重庆仪表材料研究所
- 中国科学院长春应用化学研究所
- 上海电缆研究所有限公司
- 中国科学院上海应用物理研究所
- 南京玻璃纤维研究设计院有限公司
- 中国兵器工业第五二研究所烟台分所
- 中国钢研科技集团公司
- 中国船舶重工集团公司第七二五研究所
- 北京钢研高纳科技股份有限公司
- 中石油管道工程技术研究院
- 钢研纳克检测技术有限公司
- 清华大学核能与新能源技术研究院
- 上海发电设备成套设计研究院有限责任公司
- 上海材料研究所

材料机械

- 大连鑫运佳机械有限公司
- 德阳钰鑫机械制造有限公司
- 沈阳新松机器人自动化股份有限公司
- 中国人民解放军第五七0一工厂
- 鸿富锦精密工业（深圳）有限公司
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- 山东兖矿合金有限公司
- 江苏图南合金股份有限公司
- 湖南金天钛业科技有限公司
- 浙江久立特材科技股份有限公司
- 聚威工程塑料（上海）有限公司
- 长沙群辉金属材料科技有限公司
- 长沙羽杰新材料科技有限公司
- 江西省宏达机械成套设备有限公司
- 哈尔滨中科龙祥科技有限公司
- 山东南山铝业股份有限公司
- 天津忠旺铝业有限公司
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- 北京市理化分析测试中心
- 山东省特种产品质量监督检验中心
- 四川省产品质量监督检验检测院
- 长春中机检测有限公司
- 上海上材工程材料检测有限公司
- 钢研纳克检测技术有限公司
- 西安热工研究院有限公司
- 苏州热工研究院有限公司

重型装备

- 东方电气集团东方锅炉股份有限公司
- 东方电气集团东方汽轮机有限公司
- 哈电集团哈尔滨锅炉厂有限责任公司
- 哈电集团哈尔滨汽轮机厂有限责任公司
- 中船重工龙江广瀚燃气轮机有限公司
- 山东伏雷克电气有限公司
- 华北电力科学研究院有限责任公司
- 上海电气电站设备有限公司汽轮总厂
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- 二重集团（德阳）重型装备股份有限公司

钢铁

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- 山西太钢不锈钢股份有限公司
- 马鞍山钢铁股份有限公司
- 中信重工机械股份有限公司
- 抚顺特殊钢股份有限公司
- 哈电集团(秦皇岛)重型装备有限公司
- 大冶特殊钢股份有限公司
- 湖北新冶钢有限公司

航空航天

- 沈阳飞机工业集团有限公司
- 哈尔滨飞机工业集团有限责任公司
- 沈阳黎明航空发动机（集团）有限责任公司
- 哈尔滨东安发动机有限公司
- 中国航发成都发动机（集团）有限公司
- 中国航发四川成发航空科技股份有限公司
- 中国航空工业标准件制造公司
- 首都航天机械公司
- 信阳航天标准件厂
- 成都成发泰达航空科技有限公司
- 中航上大高温合金材料有限公司
- 无锡透平叶片有限公司

R series creep
durability test system

It can be used for all kinds of high temperature creep test from 30KN to 600kN

01 Overview

R series CREEP DURABILITY TEST SYSTEM is mainly used for tensile, compression, durability, creep and relaxation tests of metal and nonmetal materials, as well as low cycle fatigue, creep fatigue and stress corrosion tests. It includes electronic high temperature creep rupture testing machine, mechanical high temperature creep rupture testing machine, creep fatigue testing machine, slow tensile stress corrosion testing machine, etc.

02 Standards and methods

According to the different characteristics of materials or products, we provide a complete set of solutions for stress rupture and creep tests.

Fully meet the GB, ISO, ASTM, EN, JIS and other standards

JJG276-2009 High-Temperature Creep and Stress-Rupture Testing Machines

GB / T2039-2012 Metallic materials - Uniaxial creep testing method in tension

ASTM E139-11 Standard Test methods for Conducting Creep, Creep-Rupture and Stress-Rupture Tests of Metallic Materials

GB / T10120-2013 Metallic materials - Tensile stress relaxation - Method of test

ASTM E328-2013 Standard Test Methods for Stress Relaxation for Materials and Structures HB5151-1996 Test Method for High temperature tensile creep of metals

HB5150-1996 Test Method for High temperature tensile rupture of metals

ASTM E2714-2013 Standard Test Method for Creep-Fatigue Testing

GB / T15248-2008 The test method for axial loading constant-amplitude low-cycle fatigue of metallic materials

Large Screen Data Monitoring System

LCD Large Screen Data Display

03 Advantages and characteristics

A Split screen display: display the test status and data information of all testing machines through the large LCD screen

B Software dynamic calibration: calibrate the force, deformation and other measurement signals during the test

C Three stage temperature control and two stage temperature control switch each other

D Breakpoint recovery, curve automatic refresh function; overrun alarm and automatic protection function

E Wide temperature range of environmental unit: -70℃ - 3000℃

F Offline test function: the controller can complete the test independently without the computer

R series

Electronic creep tester

Product model: RDL/RWS Series

01 Overview

RDL series electronic creep durability testing machine is jointly developed by SINOTEST and GERMANY DOLI. The control system adopts EDC digital controller customized and developed by DOLI specially for SINOTEST creep testing machine. The software system adopts CreepTest software with exclusive right of use and Creep Test Expert v2.0 software independently developed by SINOTEST, which has the characteristics of mature and stable technology and reliable long-term test. The measurement and control part of RWS series electronic creep durability testing machine adopts TMC series digital controller independently developed by SINOTEST.

02 Advantages and characteristics

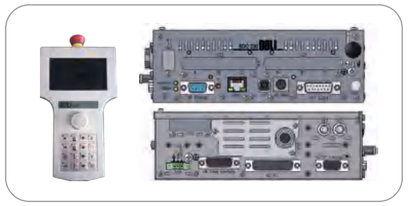
- *Highly integrated host (temperature control system and controller integrated in the host) saves space, which has intuitive display and convenient operation.*
- *Electronic creep tester can realize multiple hosts placing side by side without clearance, saving the space occupied by the host.*
- *The software can test offline and recover all data (force, temperature, deformation, displacement).*

DoLI EDC Controller

High resolution of 24 bits (1 million yards), which can realize high precision measurement.
The test parameters can be set through the manual control box to complete the test independently.
It can communicate with the temperature controller and control it to ensure that the test process is not disturbed.
The temperature will be raised automatically according to the test, and the test will be carried out automatically when the set ambient temperature is reached.
It can automatically calibrate the load measurement system to prevent its temperature drift and ensure the measurement and control accuracy.
It can automatically identify different inserted sensors.

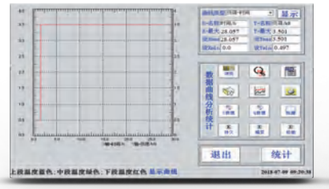
TMC controller

High resolution of 19 bits (500000 yards), which can realize high precision measurement.
The temperature drift of analog signal sampling is small.
The external independent screen display manual control box can independently complete basic test functions without computer.
Automatic identification plug technology.
Verification of 10000 hour creep rupture test.
The maximum transmission rate is 5000Hz.
Four measuring channels of strain sensor (load cell extensometer) can be configured.
Four AB signal measurement channels (encoder, grating ruler) can be configured.

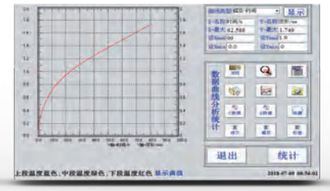


EDC controller and manual control box

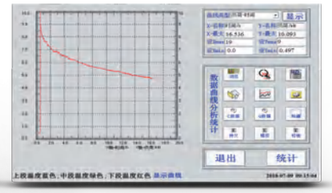
TMC controller and touch manual control box



Endurance curve



Creep curve



Relaxation curve

03 RDL series electronic permanent creep tester technical parameter table

Model	RDL-10	RDL-30	RDL-50	RDL-100	RDL-200	RDL-500
Max Ccapacity	10kN	30kN	50kN	100kN	200kN	500kN
Force Error	±0.5%				±1%	
Force Range	1%-100%FS					
Force Control	0.5%					
Host Coaxiality	≤8%					
Pull Rod Stroke	200mm					
Overall Dimension	2300*710*550			2300*730*550	3200*950*740	
Host Weight	500kg			600kg	1200kg	
Host power	220V、500W			220V、1KW	380V、2KW	380V、3KW
Atmospheric furnace power	1.5mm furnace 4kw (5mm furnace 5kW)					

R series

Mechanical high temperature creep durability testing machine

Product model:RDJ Series

01 Overview

RDJ series mechanical high temperature creep endurance testing machine

RDJ mechanical creep endurance testing machine adopts weight loading mode, which has the characteristics of long-term stability and reliability. It is mainly used for creep and rupture strength test of metal and alloy materials.

02 Advantages & Characteristics

Highly integrated integrated host (temperature control system integrated in the host) saves space.

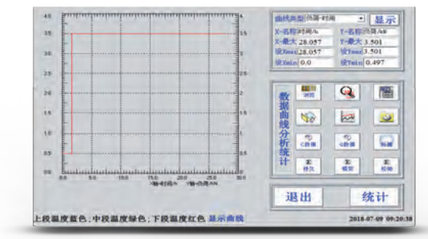
LCD + network communication manual control box makes user experience more convenient.

The automatic leveling system adopts redundant control and two-way opposed slot photoelectric switch, which is stable and reliable.

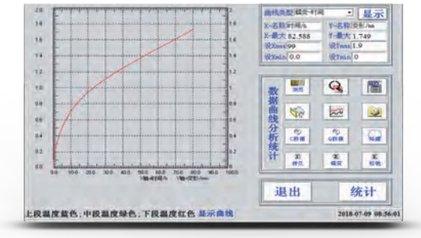
Ethernet distributed control is adopted, the data transmission speed is fast, and the wiring is simple and regular.

Software one key power off recovery test function, more convenient operation.

Each fulcrum of the lever adopts the structure of knife edge and knife bearing, which ensures the high sensitivity of the whole machine.



Endurance curve



Creep curve

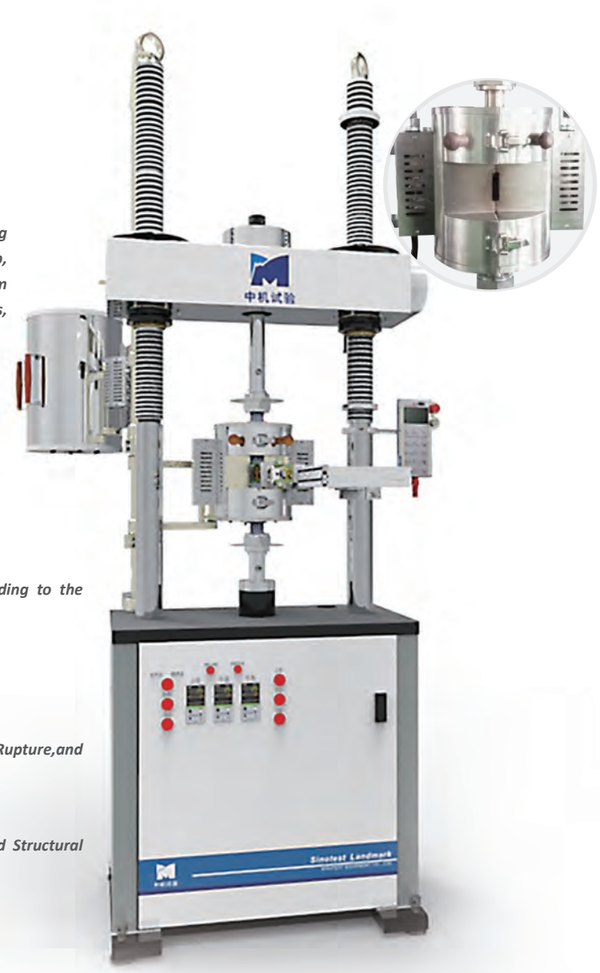
03 RDJ series mechanical high temperature creep durability test technical parameter table

Model	RDJ10	RDJ30	RDJ50	RDJ100	RDJ600
Max test force	10kN	30kN	50kN	100kN	600kN
Accuracy level	0.5级				1级
Host coaxiality	≤8%				
Measurement range	0.5-10kN	0.5-30kN	0.5-50kN	1-100kN	12-600kN
Lever ratio	1:20	1:40	1:50	1:100	1:60
Lever level	一级			二级	
Lever offset	±0.1mm				
Minimum load	1N				100N
Down-rod speed	2.5---50mm/min				0.1---10mm/min
Down-rod stroke	≥200mm				
Power	Host220V, ≤750W; Atmospheric furnace380V, ≤4kW			Host220V, ≤1.5kW; Atmospheric furnace380V, ≤4kW	

R series

High temperature electronic creep fatigue testing machine

Product model:RPL Series



01 Overview

RPL series of high temperature electronic creep fatigue testing machine has powerful functions, in addition to the basic creep, relaxation and endurance testing functions, it can also perform tension and compression zero crossing, low cycle fatigue tests, and creep fatigue tests.

02 Standards and methods

Provide a complete set of creep fatigue test solutions according to the different characteristics of materials or products.

Fully meet the GB, ISO, ASTM, EN, JIS and other standards

High-Temperature Creep and Stress-Rupture Testing Machines

Test Methods for Uniaxial Tensile Creep of Metallic Materials

Standard Test Methods for Conducting Creep,Creep-Rupture,and Stress-Rupture Tests of Metallic Materials

Test Methods for Tensile Stress Relaxation of Metallic Materials

Standard Test Methods for Stress Relaxation of Materials and Structural Parts

Test Methods for High Temperature Tensile Creep of Metals

Test Methods for High Temperature Tensile of Metals

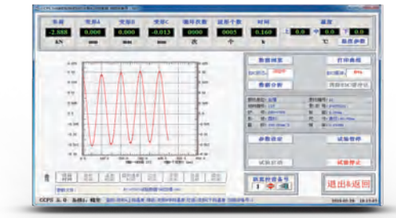
Standard Test Methods for Creep-Fatigue Testing

03 Advantages and characteristics

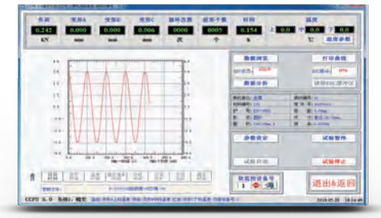
The dynamic test process is pull pull or pull press type, which can cross zero without gap.

Two sets of static and dynamic test systems can be configured (including pull rods, clamp fixtures, extensometers, high temperature furnaces) according to the user needs. It can be completed separately and controlled automatically by the controller.

Tensile endurance test, creep test, relaxation test, low cycle fatigue test and creep fatigue test under normal high temperature environment, as well as tension and compression low cycle fatigue test and creep fatigue test



Real-time test curve of cosine deformation



Real-time test curve of cosine force

04 RPL series high temperature electronic creep fatigue testing machine technical parameter table

Model	RPL10	RPL30	RPL50	RPL 100
Max test force	10kN	30kN	50kN	100kN
Accuracy level	0.5			
Host coaxiality	≤8%			
Measurement range	1%-100%FS			
Dynamic frequency	0.01-0.5Hz			
Dynamic waveform	Triangle wave、Trapezoid wave、Cosine wave			
Deformation resolution	0.001mm			
Deformation error	±0.002mm			
Pull rod speed	0.01-100mm/min			
Pull rod max stroke	≥180			
Power	Host220V, ≤400W; Atmospheric furnace380V, ≤4kW		Host220V, ≤1kW; Atmospheric furnace380V, ≤4kW	

R series

Slow tensile stress corrosion tester

Product model:RDL-F Series

01 *Overview*

RDL-F series slow tensile (pre-crack) stress corrosion testing machine

It is mainly used to detect and study the mechanical performance test of metal materials under the dual effects of extremely slow tensile stress and corrosive medium environment. It can also be used to simulate the corrosion resistance of parts under constant tensile stresses in a corrosive environment, conduct a constant load pre-crack stress corrosion test, and detect and study the destructive performance of metal materials under the dual effects of constant tensile stress and corrosive medium environment. The accelerated stress corrosion susceptibility accelerated test of ductile materials is carried out by applying dynamic strain to the sample, which solves the problem that the stress corrosion cracking cannot be stimulated even if the test period is fully extended under constant load and constant deformation conditions.

02 *Standards and methods*

According to the different characteristics of materials or products, we provide a complete set of solutions for stress rupture and creep tests. Fully meet the GB, ISO, ASTM, en, JIS and other standards

Corrosion Stress Corrosion Test of Metals and Alloys

03 *Advantages and characteristics*

Various combinations can be designed to meet various requirements such as different temperatures, pressures, corrosive media, and different corrosive media circulation rates.

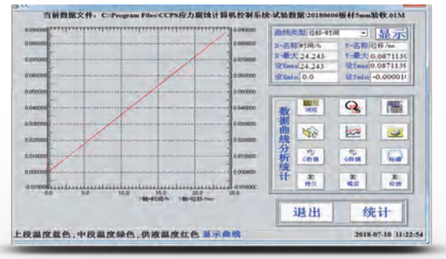
It can realize the crack growth measurement under the corrosive medium environment.

It can be equipped with heating, temperature maintenance and automatic liquid supplement device.

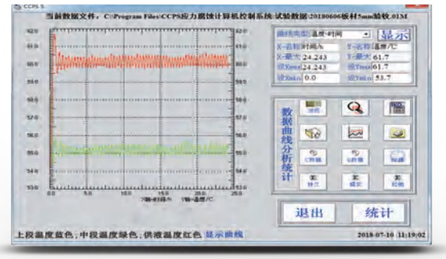
Corrosion medium: NaCl, methanol, N2O4, NH3, H2 S, NaOH, NaNO3 and other aqueous solutions.

Corrosion-resistant material: 316 stainless steel for fixtures and organic glass for corrosion tanks.

The number of clamped samples can be expanded according to requirements.



Stress corrosion- displacement



Stress corrosion-temperaturer

04 *RDL-F slow tensile series stress corrosion tester technical parameter table*

Model	RDL-F30	RDL-F50	RDL-F100
Max test force	30kN	50kN	100kN
Force range	1%-100%FS		
Force Accuracy	Indicated value ±0.5%		
Force resolution	0.5%		
Deformation range	0-10mm/0-30mm		
Deformation deviation	±0.002mm		
Coaxiality	≤8%		
Pull-down rod stroke	200mm		
Slow stretching speed range	0.000001-0.0001mm/s (Can be designed as requirements)		
Stretching speed deviation	±1%		
Corrosion environment tank volume	Not less than 400ml (Can be designed as requirements)		
Temperature range	Room temperature+10℃-60℃ (Can be designed as requirements)		
Fluctuation	±2℃		
Main appearance(mm)	2300*710*550(50kN)	2300*730*550(100kN)	
Overall power	Host220V≤500W(50kN), 220V≤1kW(100kN), Constant temperature circulation device≤2KW		

Typical
Application introduction

Multi-head electronic relaxation creep testing machine

Product model: ZRDL-D Series

Main uses

The multi-head electronic creep endurance testing machine is mainly used for the compression creep and relaxation tests of non-metallic materials at a certain temperature.

Advantages and Characteristics

Three independent loading systems can be used for different tests at the same time.
With the corresponding accessories and software, creep test, relaxation test, low cycle fatigue test and creep fatigue test can be carried out.
Continuous working time: more than 500 hours.

Biaxial tensile creep testing machine

Product model: ZRDL-T Series

Main uses

It is mainly used to test the persistent creep test of glued materials under the condition of simultaneous force in the horizontal and vertical directions.

Bending creep testing machine

Product model: ZRDL-W Series

Main uses

It is mainly used for bending creep test of FRP and related materials under temperature environment. According to GB / T1456 Test Methods for Bending Performance of Sandwich Structure, the bending stiffness and shear stiffness of FRP can be calculated by three-point bending test of extended beam.

Compression creep testing machine

Product model: ZRDL-Y Series

Main uses

It is used for compression creep test of materials in high temperature environment.

Test Methods for Compression Creep of Rigid Foam

Small punch testing machine

Product model: ZRDL-CK Series

Main uses

It is used to test the creep properties of micro sheet specimens at high temperature. It is a new method to obtain the creep properties of in-service components.

Rubber creep testing machine

Product model: ZRDL-Y Series

Main uses

It is mainly used for tensile compression creep rupture test of rubber materials at high and low temperature. It meets the standard of GB / T1685 Determination of Compression Stress Relaxation of Vulcanized Rubber or Thermoplastic Rubber at Room Temperature and High Temperature.

Corrosion testing machine

Product model: ZRDL-GF Series

Seawater corrosion creep endurance testing machine
High temperature corrosion testing machine
High temperature salt spray corrosion testing machine
C-ring stress corrosion testing machine