

**Computer Controlled Electronic Creep & Rupture Testing Machine****Application:**

This series is a kind of full electronic creep rupture testing machine to perform routine creep and stress-rupture test, and also can carry on stress relaxation test, high-temperature tensile test in short time, cycle load test (load spectrum test), low cycling test etc.

Specification

- Max. Load: 30kN, 50kN, 100kN, 200kN
- Effective measuring range: 1%-100%FS;
- Test load accuracy: $\leq 1\%$;
- Resolution: 1/60000

Deformation measurement

- Gauge length: 50mm (or 100mm);
- Max. Deformation: 5mm (or 10mm);
- Resolution: 0.001mm;
- Error: 0.002mm

Structure

This machine consists of main frame, high-temperature furnace, water cooling system, temperature control system, measurement & control system and computer system, etc.

**Load Frame**

- Load frame consists of double column, working bench and upper crossbeam form close loop frame with high stiffness.
- After by harmonic wave reducer and synchronous belt drives-pulleys decelerating, the drive drives nut rotating by motor to make the ball screw move up & down. As the no-backlash & stable transmission and fast speed response, the precision control of test load (or deformation) can be assured.
- Direction joint using for auto-centering on the pull-rod can guarantee the coaxiality effectively.

Measurement control system

- It has high resolution on load and deformation measuring (24bits) and no shift between outside and inside. The whole stroke resolution has no change and can be set according to the user's requirements.



- It adopts high precision load cell and fine stability in long time.
- Double direction extensometer adopts digital micrometer (or differential transformer) with the characters of high precision, anti-heat and high anti-jamming. The guide part of extensometer has fine stiffness and rolling bearing guide easily.
- It has the functions of automatic zero and calibration.
- It has the protected functions of overload, over-stroke, over voltage, over flow and over heat etc.
- Equipped with timing device, it begins to time and display when the load reaches the set value.
- Equipped with position limit switch or alarming control and interlock protect between every executive parts.
- Equipped with UPS (Uninterrupted Power Supply), the descending furnace temperature and shrink specimen make the test load increasing when the electric furnace power off suddenly. When test load increase to 0.1% (Set value), the loading system starts up to make test load return to the original set value. So it can automatically keep test load and alarm to avoid the damage for specimen and testing machine.
- Adopting digital measurement & control meter and low noise transducer, there is smaller system drift and so it can meet the requirements of creep rupture longtime test completely.

Main function of this system as follows:

- Complete auto-measurement and collection for the temperature, deformation data of multiple sets of creep and stress-rupture testing machine
- Complete the real time monitor for the temperature, deformation data of multiple sets of creep and stress rupture testing machine, and the real time display, alarm, control for the data of each testing machine.
- Process the collected data and work out report the user needed.
- If equipped with computer in the server end, it can realize uniform data processing for test data of multiple sets of testing machine in which multiple testing machines is regarded as one set.

System data Process

This system software carries on the detailed analysis for high-temperature creep and stress rupture test and is designed more rational and ideal data flow combine with the software design thought of using object-oriented. Adopting multithreading design scheme performs data collection, data display, image display and data saving synchronously so that it can save the system sources of computer hardware effectively.

System database hold

Using multi-functional database management system InterBase performs data saving management. Compared with other small mode desktop database, Access, Foxbase or files, this system software has powerful advantages, especially in large demands for data capacity and data managements. And it also bases on the software developed direction in future.



MCR Series Mechanical Creep & Rupture Testing Machine

**Main Applications**

The creep and rupture strength testing machine is an important equipment to determine the characteristic of metallic materials under high temperature. The significance of this instrument is more prominent especially in selecting materials for high temperature structures, increasing the reliability in estimating the life of working components, monitoring the safety of working components as well as the research and development of new materials.

Specifications:

Model	MCR-3	MCR-0930	MCR-0950	MCR-0980	MCR-09100	MCR-1130	MCR-1150	MCR-1180	MCR-1110	MCR-1230	MCR-12100
Load Rang (kN)	0.3-30	0.3-30	0.5-50	0.8-80	1-100	0.3-30	0.5-50	0.8-80	1-100	0.3-30	1-100
Load accuracy (%)	≤±1										
The eccentricity of the upper & lower chucks (%)	≤±10										
Temperature range (%)	200-900					200-1100			200-1200		
Controlling accuracy of temperature (°C)	F:±3 G:≤3	Fluctuation: ±2 Gradient: ≤2									
Max. Power of furnace (kW)	1.2								3		
The length of heating area (mm)	150								200		
Continuously Working temperature time under Max. Temp. (Hours)	≥1500										



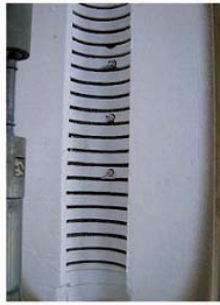
Outside temp. of furnace under Max. Temp (°C)	<90								
Dimension of furnace (mm)	φ300x420						φ330x470		
Dimension of chamber (mm)	φ75x420						φ90x470		
Size of Specimen (mm)	Creep test: φ10x100 Rupture strength test: φ10x50						C: φ10x100 R: φ10x50		
Load, deform. & disp. measuring range (mm)	0-2								
Indicating accuracy / Min. Resolution (mm)	Grade 02/0.0001								
Dimension of load frame (mm)	780x550x 2312	790x560x 2275	790x560 x2335	1005x580x2370	780x550 x2312	790x560x2335	1005x580x 2370	790x560 x2415	1005x550x 2415
Net weight (kG)	700		800	1000	700	800	1000	800	1000
Power supply	380V 50Hz								

High temperature furnace & Temperature-controller

- Working Temp. range: 400°C ~ 1200°C
- Length of effective soaking zone: 150mm
- Furnace pipe & electric furnace size:
Furnace pipe: $\phi 90\text{mm}$ (Inner Dia.) $\times 400\text{mm}$ (L),
Furnace: $\phi 300\text{mm}$ (outer Dia.) $\times 420\text{mm}$ (L);
Furnace life: $\geq 3000\text{hours}$ (Constant working time less than 1000°C)



Furnace



Thermocouple



Temperature controller



High temp grip



Upper and lower pull rod