

# DF series electro-hydraulic servo hydraulic test system

## DF系列电液伺服液压试验系统

型号product model

DF61 液压万能试验机



### 01 概况 Overview

DF61 series hydraulic universal testing system is suitable for high-precision and reliable tensile, compression, flexure and shear tests of high-strength specimens with different shapes and sizes. The test force ranges from 300kN to 2000kN. DF61 series has a high-strength frame and a compact integrated hydraulic station. At the same time, the test system uses high-precision electro-hydraulic servo unit and high-speed digital closed-loop controller to control the hydraulic actuator, which can realize the test of force control, displacement control or strain control.

### 02 测试解决方案 Test solution

Metal tensile test, flexure property test, shear property test, metal flaring test, fastener mechanical test

### 03 标准与方法 Standards and methods

- GB/T 2611 《试验机通用技术要求》
- GB/T 16826 《电液伺服万能试验机》
- JJG 139 《拉力、压力和万能试验机检定规程》
- GB/T 228 《金属材料室温拉伸试验方法》
- GB/T 50081 《混凝土物理力学性能试验方法标准》
- GB/T 232 《金属材料弯曲试验方法》
- GB/T 3098 《紧固件机械性能》
- GB/T 1499 《钢筋混凝土用钢》
- GB/T 5224 《预应力混凝土用钢绞线》
- GB/T 242 《金属管扩口试验方法》

## 04 优势和特点

Advantages and features



## 05 设备主要参数

Technical parameter

Model	DF61.305	DF61.605	DF61.106	DF61.206
Rated capacity (KN)	300	600	1000	2000
Accuracy	class 0.5/1			
Relative error of test force	$\pm 0.5/1\%$			
Effective measuring range	1%~100%FS			
Loading rate	0.02%-2%FS /s			
Displacement resolution (mm)	0.007/0.012			
Test space	Double space			
Effective column spacing(mm)	405	430	430	640
Max. piston speed (mm)	180	140	90	70
Max. piston stroke (mm)	150	250	250	250
Max. tensile space (mm)	620	720	720	920
Max. compression space (mm)	670	830	790	950
Plate sample range(mm)	2-25	2-30	2-40	10-70
Round sample range(mm)	$\varnothing 6-\varnothing 32$	$\varnothing 10-\varnothing 40$	$\varnothing 12-\varnothing 55$	$\varnothing 15-\varnothing 70$
Compression platen(mm)	150×150	150×150	220×220	240×240
Power supply	3~3W+N+PE,380V/50HZ			
Power (kW)	2.2	3	3	4.5
Overall dimension(mm)	1950×800×600	2370×860×640	2540×930×660	3150×1250×900
Weight (kg)	1500	2500	3500	8000

# Fixture 夹具单元



Peel grips



Counter top tensile grips



Double shear tensile grips



Winding cloth belt grips



Rope tensile grips



Geotextile grips



Pneumatic yarn tensile grips



Shoulder grips



Involute type wire grips



Chain tensile grips



Four point flexure grips



Scale tensile grips



Shear grips



Cable grips



Small double row tensile grips



Cloth belt tensile grips



Handle type tensile grips



High temperature tensile grips



High temperature compression



High temperature shear grips

### Handle type tensile grips

- The wedge grips produced by SINOTEST is operated manually. The clamping force increases with the test force. Convenient, economical and reliable.
- Characteristic:
  - a) Capacity ranges from 50kN-300kN;
  - b) Manual operation (lifting, spring tightening automatically), convenient for maintenance;
  - c) Round sample end range:  $\varnothing 6$ -  $\varnothing 34$ mm;
  - d) Flat sample end range: 0-24mm;
  - e) Reliable clamping, no slipping.



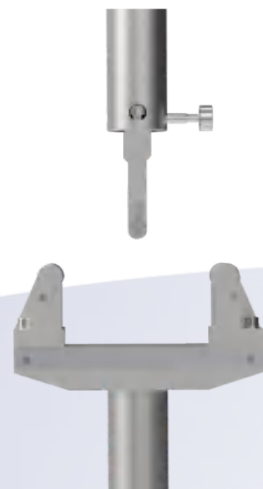
### Compression platens

- The compression platens produced by SINOTEST has high precision base and hardened surface with practical value.
- These platens have various sizes. Adopt universal joint designs and optional threaded bracket joints for easy installation. Centering groove, anti rotation and integrated positioning pin improve the accuracy and repeatability.
- Characteristic:
  - a) It can provide various test force;
  - b) Equipped with sample centering groove;
  - c) Anti rotation characteristics and integrated positioning pin
  - d) The material can be chose according to the sample.



### Three point flexure grips

- The span is adjustable and easy to use. Equip with a ruler on base to position the roller accurately. High hardness grinds can reduce the unnecessary load and friction force on the sample to ensure the test accuracy.
- Characteristic:
  - a) It can provide various test force;
  - b) The span is adjustable and flexible;
  - c) High rigidity and stable performance.



## EXTENSOMETER

### 引伸计



CBY series axial extensometer is used to measure and control the axial deformation of the gauge length section of the specimen under tension, compression or fatigue test:

Sensor level: 0.5 (indication  $\pm 0.5\%$ )

Deformation measurement range: 2% FS ~ 100% FS

Sensitivity: 1.5mV/V

Model	Gauge	Range
CBY1 10-2.5	10	2.5
CBY1 25-2.5	25	2.5
CBY1 25-5	25	5
CBY1 25-12.5	25	12.5
CBY1 50-2.5	50	2.5
CBY1 50-5	50	5
CBY1 50-12.5	50	12.5
CBY1 50-25	50	25
CBY1 100-2.5	100	2.5
CBY1 100-5	100	5
CBY1 100-25	100	25
CBY1 200-12.5	200	12.5
CBY1 200-25	200	25
CBY1 250-12.5	250	12.5
CBY1 250-25	250	25
CBY1 300-12.5	300	12.5
CBY1 300-25	300	25
CBY1 350-12.5	350	12.5
CBY1 350-25	350	25
CBY1 400-12.5	400	12.5
CBY1 400-25	400	25
CBY1 500-12.5	500	12.5
CBY1 500-25	500	25
CBY1 600-12.5	600	12.5
CBY1 600-25	600	25

## SENSOR

### 传感器



This load sensor has large rigidity and high precision, ensuring the stability of high strength and long-term test. By using intelligent compensation technology, the influence of external environment and additional load on the sensor is effectively avoided, and the influence of inertial force on force measurement is automatically compensated.

Features:

High precision and good consistency.

Integral seal brings stable and reliable performance.

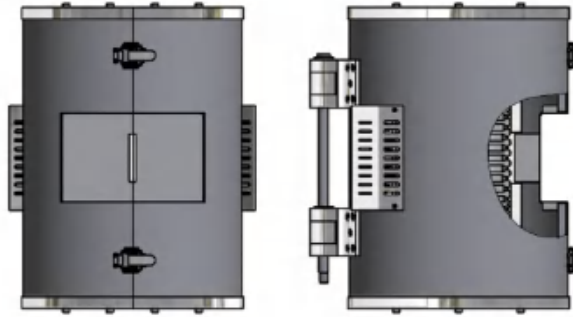
Strong resistance to lateral force.

Low output sensitivity, good rigidity and long service life.

Model	Specification
CLY20 spoke sensor	2KN
	5KN
	10KN
	20KN
	30KN
	50KN
	100KN
	100KN
	200KN
	300KN
	500KN
	600KN
	800KN
	1000KN
	2000KN
	3000KN
CLY30 spoke sensor	20KN
	50KN
	100KN
	200KN
	300KN

## HIGH TEMPERATURE

### furnace 高温炉



High temperature furnace structure: furnace shell, upper & lower end cap, heat insulation board, muffle tube, heating part, electrode plate, insulation layer, etc. The furnace shell, upper & lower end cap and heat insulation board are made of high temperature resistant stainless steel; The furnace muffle tube is made of sintered alumina high temperature resistant material. The heating part (divided into upper, middle and lower sections) is inlaid and wound in the muffle tube with Fe-Cr-Al Alloys. The furnace is heated semi naked and exposed. The oxidation resistance and service life of the furnace wire are improved. The ultra-fine ceramic wool is selected as the insulation material. The overall structure of the high temperature furnace is compact, easy to operate and has good insulation effect.

#### Technical parameter:

Structure	split type
Heating control	three section heating, subsection control
Wire diameter	Φ1.5mm
Working temp.	300-1100°C
Uniform temp.	150mm
Temp. fluctuation	≤ ±2°C
Gradient	≤ 3°C
Internal size	Φ90X380
External size	Φ320X460
Power	AC 380V 4KW

## ENVIRONMENTAL

### box 环境箱



The high and low temperature environmental test chamber is mainly composed of high and low temperature chamber, temperature measurement and control system, refrigeration system, etc. This device is a kind of equipment simulating high and low temperature environment in atmosphere. It mainly provides controllable high and low temperature test environment for various test devices. The device has a wide temperature setting range, it adopts the balanced temperature regulation mode and be able to adjust the ideal temperature environment, and has the characteristics of stable temperature control and good temperature uniformity. It can be widely used in Colleges and universities, scientific research institutes, quality inspection, production enterprises and other industries.

#### Technical parameter:

Working temp.	- 70°C ~ +350°C
Temp. fluctuation	≤ ±2°C
Temp. gradient	( 50 mm axial direction) ≤ 3°C
Heating power	2kW
Blower motor	220V、180W
Cooling power	2.5kW
Effective space	240x240x400mm(LxWxH) accept customization

## 05 设备主要参数 Technical parameter

Model	DF71.605	DF71.106	DF71.206	DF71.306
Rated capacity (KN)	600	1000	2000	2000
Accuracy	class 1			
Relative error of test force	±1%			
Effective measuring range	2%~100%FS			
Loading rate	0.02%-2%FS /s			
Displacement resolution (mm)	0.007/0.012			
Effective column spacing(mm)	320	380	380	440
Platen distance(mm)	> 300			
Max. piston speed (mm)	130	75	75	50
Max. piston stroke (mm)	> 135	> 135	> 135	> 200
Compression platen (mm)	ø230	ø300	ø300	ø300
Power supply	3~3W+N+PE,380V/50HZ			
Power (kW)	2.5	4.5	4.5	4.5
Overall dimension(mm)	1300×500×400	1520×600×550	1520×600×550	1650×700×600

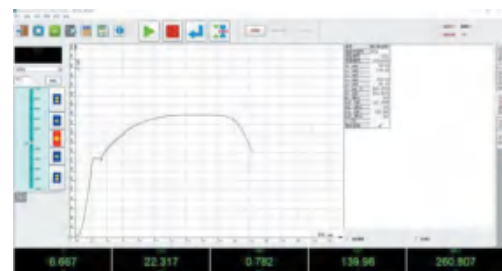
### MGC measurement and control system



#### Features

- 24 bit ADC sensor measurement, high resolution and stability
- High speed acquisition digital quadrature pulse signal
- Digital closed-loop control, force/ deformation/ displacement
- 16 bit DAC control channel, quickly adjust actuator response
- Support USB2.0 full speed or RJ45 Ethernet communication

### ActiveTest software



#### Features

- Support interface switching between Chinese & English
- Complete test standard and test scheme Library
- Powerful data analysis and curve processing ability
- Flexible user rights management
- Free edit of test report
- The test data can be exported to multiple file formats



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