



BANBROS ENGINEERING PVT. LTD.

The Precision Measurement People

DYNAMIC & CYCLIC COMPUTERIZED FATIGUE TESTING MACHINE



- *VALUE*
- *VERSATILITY*
- *PERFORMANCE*



BUTDS-5



DESCRIPTION:

Fatigue testing equipment is often used to determine how a material will perform over time and repeated use.

BANBROS offer the BUTDS series Electronic Dynamic Universal Testing Machine/ Cyclic Testing Equipment widely used at material and components, parts dynamic mechanical property test, include tension, compression, low cycling test, match with high-low temperature chamber can execute the temperature test.

APPLICATION:

Widely used for industrial application, factory quality control, science and research institute, QC &QA college student training, education institute, testing and inspection center, laboratories, construction company, aerospace, mechanical production, electric appliance fields.

Comply with different standards such as ASTM F2606, ASTM F2516, ASTM F2267, ASTM F384, EN 397 etc.

FEATURS:

LOAD FRAME AND DRIVEN TYPE:

- Frame is double column frame structure, servo liner actuator installed at upside of frame. Clamper will be installed on the crosshead and top of actuator piston rod;
- Frame crosshead adjustment use leading screw rising and falling, manual clamping, elastic loosen structure, ensure the crosshead is reliable during test. And ensure the crosshead is locked unmoving at non-test condition.
- Column outer surface processed by dur ionise, enhance the anti-wear ability, improve anti-corrosion ability, and more beautiful appearance.
- With feature of compact structure, high stiffness, high centring, easy clamp test sample; can match various test fixture to extend test function.



Fatigue Testing on An Elastomer



Cyclic test EN 397 Compression Testing Industrial Safety Helmets

ACTUATOR:

- Servo liner actuator is the key part in this testing machine, the test output load through this actuator; with Barbro’s technology self-design, the actuator internally install on the top side of frame, consist of actuator, servo motor, servo driving system, and load cell.
- Servo liner actuator frequency limitation position have relief area, avoid the damage of out control.
- Liner sensor with USA Schaevitz company LVDT, move smoothly, piston rod made by extra-fine process, surface chrome-plated polishing to $R\alpha 0.4\mu$.
- Between load cell and clamper connection, push-pull rod and clamper position have specialized gap elimination device, then improve the dynamic response ability.

**CONTROL SYSTEM, SOFTWARE:**

- One control channel, with load, displacement, deformation three close-loop control, these three-control type smoothly switch.
- Max. close-loop data flash frequency is 6Khz;
- Controller A/D, D/A resolution is 16-bit, signal generate frequency is 0.001Hz~ 50HZ; 4), Signal generate waveform include sine wave, triangular wave, quare wave, sawtooth wave etc.
- Two levels servo valve driving unit used to drive the servo valve, remote hydraulic pump used to remote control the hydraulic pump station.
- controller with limitation parameter setting function, and protect function. Can free setting the load up/ low limitation protection, frequency protection etc.,

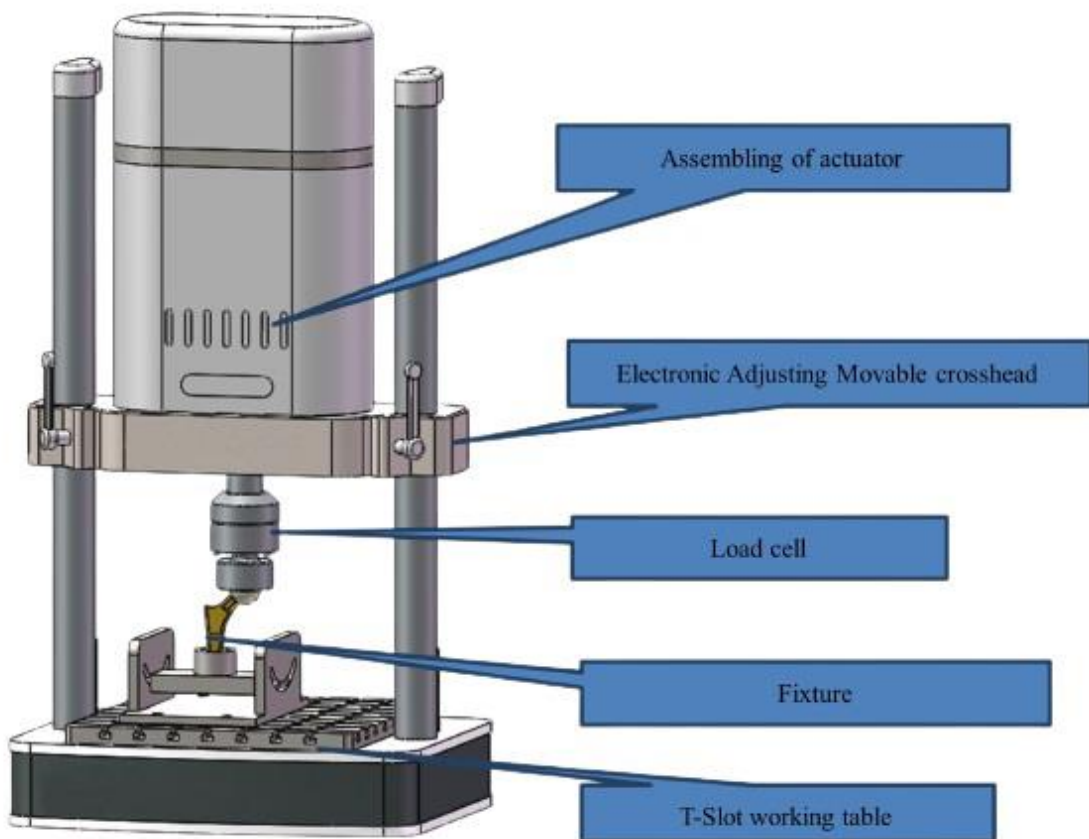
TECHNICAL SPECIFICATION:

Model No.	BUTDS-5
Max. dynamic load	±5KN Accuracy ±1%
Max. static load	±5kN
Dynamic fluctuation	Less than ±1%FS
Actuator max. stroke	±50mm, accuracy ±0.5%FS
Amplitude at Max. frequency	±1mm
Max. Frequency	0.1HZ~15Hz
Max. line velocity	150mm/s
Control mode	Load, displacement, deformation
Main test waveform	Sinusoidal wave, triangular wave, square wave, sawtooth wave etc.,
Pass through Zero	Complete display the pass through zero hysteresis loop curve.
Columns number	2
Vertical space	1000mm
Max. test space	450mm (include test fixture)
Test width	450mm
Weight	350kg
Dimensions	785*620*2050mm
Standard Power	380/220V, 50/60HZ, 3 phase, 4Kw
Working system	MS Win7 / Win10
Load cell	USA, Vishay Celtron



ACCESSORIES:

High Stiffness Frame	1 set
Servo liner actuator	1 set
Servo motor/driver (Japan Panasonic)	1 set
Loadcel: (USA Vishay Celtron)	1 set
LVDT (Japan Tamagawa liner displacement sensor)	1 set
Tensile test fixture (optional according requirement)	
Compression platen (100mm)	1 set
Fully digital servo controller	1 set
Professional testing software	1 set
Computer	1 set
Printer	1 set
Documents (Manual, packing list, certificate)	



UTDS series Electronic Dynamic Universal Testing Machine mainly consist of parts as below: 1, movable loading platform, can 360-degree free adjusting, easy for sample test.

2, Imported actuator, Japan Panasonic driving system.

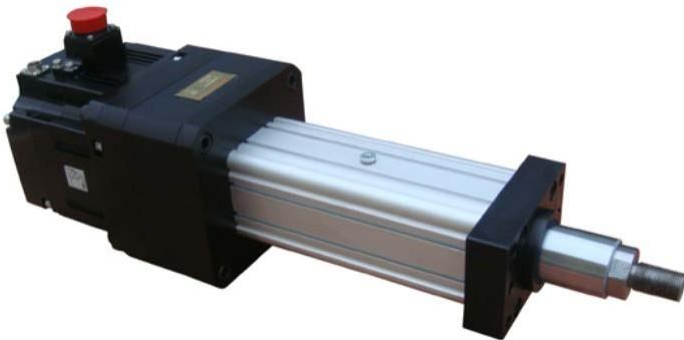
3, Data collection system, English software, static/dynamic controller. 4, USA Vishay celtron load cell.



6.1 Servo actuator

Actuator mounted on the top pf working table.

- Max. load capacity: 10000N.
- Effective stroke: +/-50mm (total 100mm)
- Actuator include Japan Tamagawa high accuracy displacement sensor.
- Actuator amplitude limitation position designed with buffer zone, avoid the damage caused by outof control.
- Include device to eliminate the gap clearance, minimize the side force, reduce the impact duringhigh frequency test.



6.2, Load cell

- Use the USA Vishay Celtron load cell, 10KN, overload capacity 150%, mounted at front end of actuator piston, with self-lock nut.
- Calibrated before delivery.

6.3, Data collection system and controller

Servo control system include fully digitally servo controller, computer, software etc.,

1. Controller main consist of:

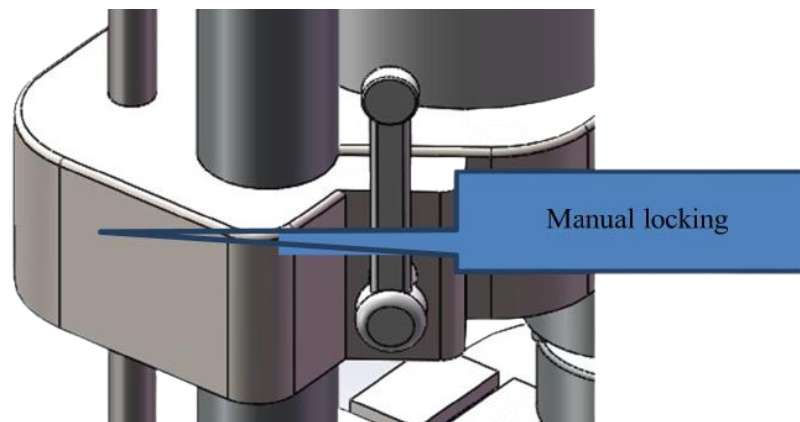
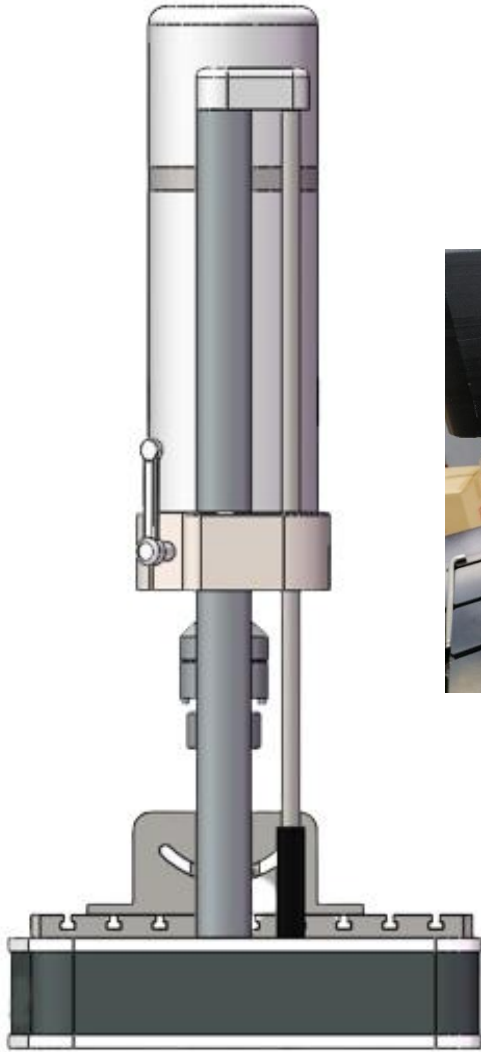
- Controller frame SUPERTEST T8.3, max. upgrade to 6 channel.
- With two sensor signal unit (load, displacement)
- Signal generator unit
- Computer

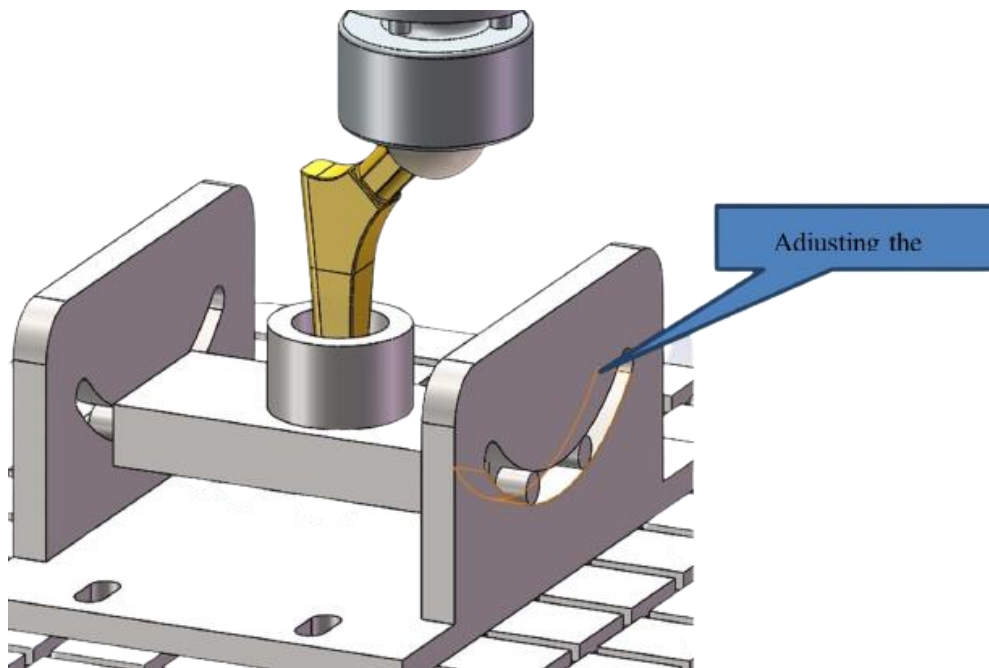
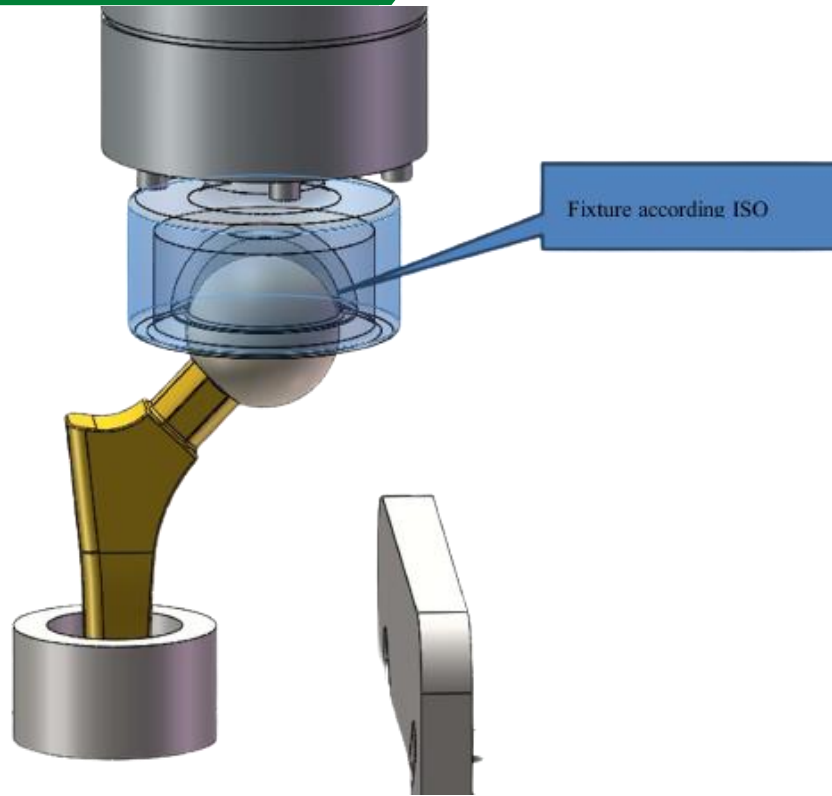
2. Controller frame SUPERTEST T8.3 specification:

- Control unit: fully digital PIDF control.
- Frequency range: 0.01 ~15HZ, resolution: 0.01Hz
- Control waveform: Sine wave, Triangle wave, square wave, oblique wave, half of wave etc.,
- Control mode: Load, displacement close-loop control.
- System with load cell calibration, zeroing etc., function.

3. Main function of controller:

- Controller with various corresponding software suite, can meet kinds of different test requirement.
- With calibration system to help customer to calibrate the machine easily.
- With multi-control mode, can realize smooth swift, with automatically zeroing, save and recover PID setting, automatically data collection, sample protection function etc.,







SOFTWARE :

Main interface:

The screenshot shows the main interface of the SuperTest_DSC[V4.0.0] software. It features a toolbar at the top, a central display area with two graphs (Move (mm) vs Time (s) and Load (kN) vs Move (mm)), and a control panel at the bottom. Callouts identify the following elements:

- Toolbar:** Located at the top right of the window.
- Display value:** Points to the numerical readouts for Move (mm), Load (kN), TestTime, and Cycles.
- Curve shows:** Points to the Move (mm) vs Time (s) graph.
- Position control:** Points to the Load (kN) vs Move (mm) graph.
- Test:** Points to the control panel area containing test parameters and buttons.

Language : English

This close-up shows the Move (mm) and Load (kN) display area. Callouts identify the following elements:

- MoveZero:** Points to the Zero button next to the Move (mm) display.
- CurrentMove:** Points to the numerical value -0.0864 in the Move (mm) display.
- MovePeak:** Points to the numerical value 0.000 in the Peak display.
- MoveValley:** Points to the numerical value 0.000 in the Valley display.

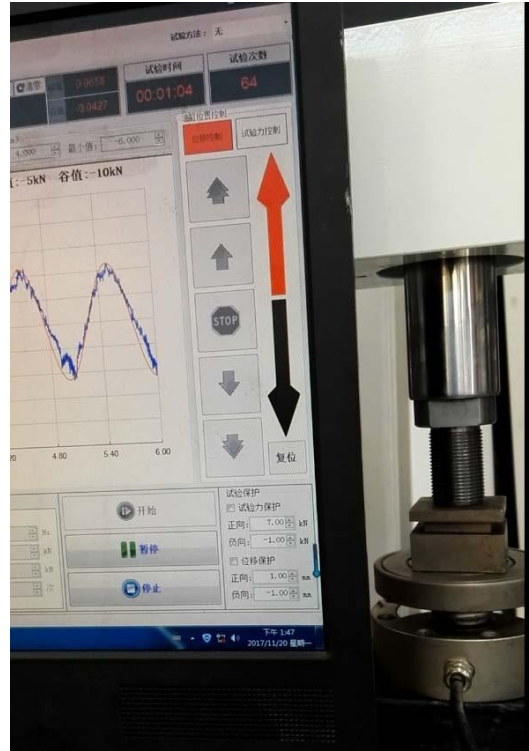
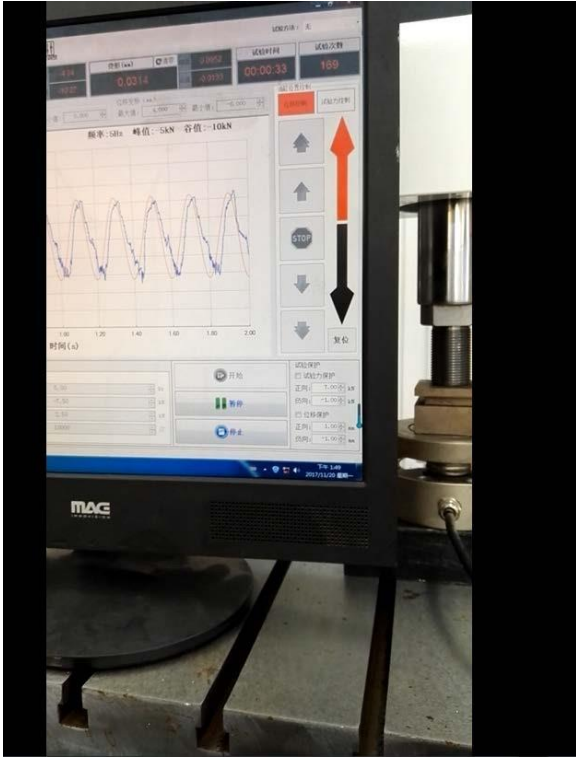
TestTime
00:00:00

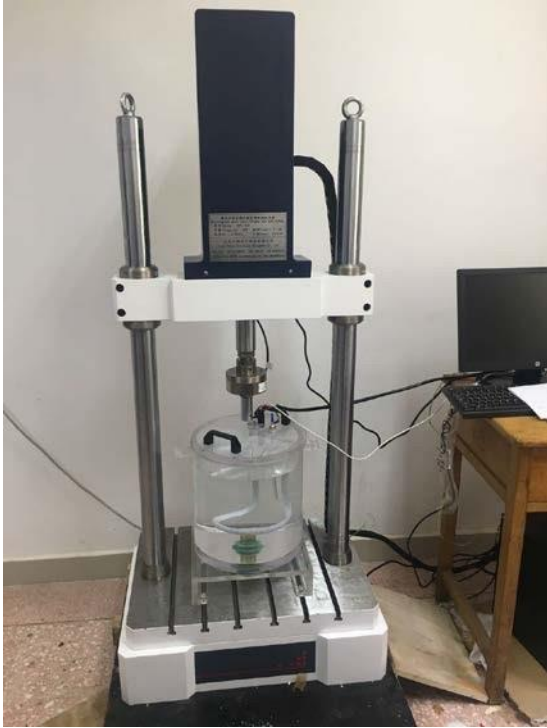
Cycles
0

Clear Before Test Start
 Clear



Setting	
PositionControlSpeed	SaveData
Move FastSpeed: 5.00 mm/s SlowSpeed: 1.00 mm/s	SaveDataInterval: 0.00 s SaveDataTime: 1.00 s
Load FastSpeed: 1.00 kN/s SlowSpeed: 1.00 kN/s	GatherDataInterval Time: 0.0100 s <i>Example: 0.1s for every 0.1s collecting data at a time</i>
ResetSpeed Move: 1.00 mm/s Load: 1.00 kN/s	ShowStrain: <input type="checkbox"/> Enabled ShowChart2: <input checked="" type="checkbox"/> Enabled
PositionControlDirection <input checked="" type="radio"/> PositiveUpward <input type="radio"/> PositiveDownward	DisplayedValuePrecision Move: 4 Load: 4 <i>Example: two display two decimal places</i>
LoadFullProtection <input type="checkbox"/> Enabled Positive: 100.00 kN Negative: -100.00 kN	LoadUnit Unit: kN
ProtectionFunction <input type="checkbox"/> StopPump <input type="checkbox"/> Switch to the low pressure state	Product_FrequencyAndAmplitude Product: 250000.00
DatabaseName	
<input type="checkbox"/> SaveGatherValue <input type="checkbox"/> SavePeakAndValley	
FilePath: D:\Program Files\SuperTest_DSC[V4.0.0]\TestData <input type="button" value="Browse"/>	
FileName: 2017-04-27_10_25_29 .dat /.txt	
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	





OPTIONAL TEST ACCESSORIES:



Spinal Implant angle



Medical Devices



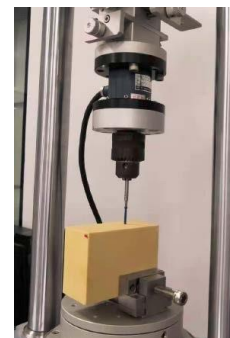
Osteosynthesis and spinal devices.



ISO 7206 Hip joint



Spinal Implant



Bone screws