



Physical Test Solutions

Innovative Solutions in Material Test Equipment

Dynamic - Static Servo-Hydraulic Universal Testing Machines



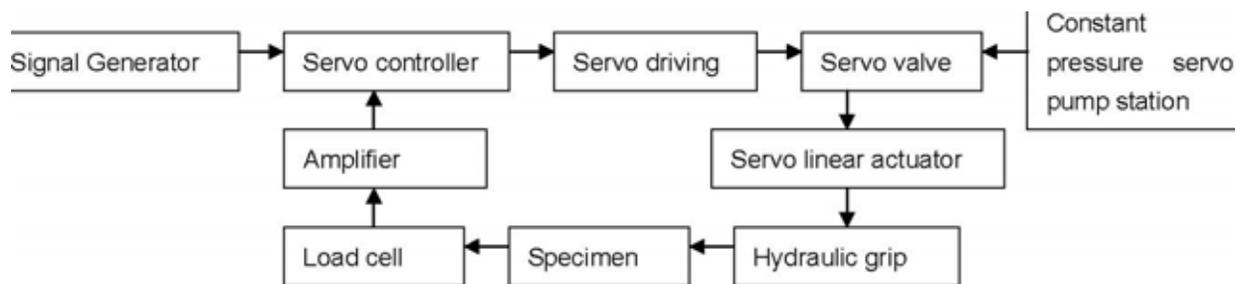
PLS Series Dynamic-Static Servo-Hydraulic Universal Testing Machines

The **Physical Test Solutions (PLS)** series of dynamic and static servo-hydraulic universal testing machines feature modular design that facilitates standardization and enhances the stability and reliability of the system. The **PLS series** performs static tension compression and flex tests in addition low cycle, high cycle, crack propagation tests and other material tests on a variety of materials in the aerospace, automotive, ship-building and defense industries, among others.

Physical Test Solutions (PTS) universal testing machines are manufactured in an ISO 9001 certified facility, and comply with ASTM A730, ASTM E4, ASTM E83, ISO6892, ISO7438, ISO75000-1 and EN 10002-4.

Configuration

The **PLS** servo-hydraulic universal testing machine consists of load frame (linear actuator NCA50 at the bottom), constant pressure servo pump BST36, hydraulic grip HG50, single channel servo controller and correlative test software and other necessary accessories. The working principle of the system is as follows.

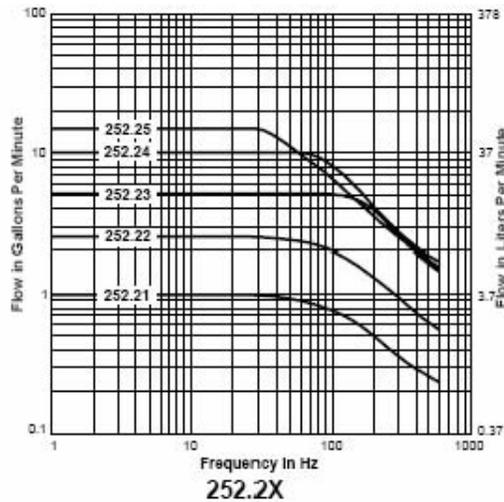


Load frame:

The load frame has a double column structure, and the servo linear actuator is at the bottom. The crosshead is displaced by hydraulic force. Pre-tensile stress clamping and hydraulic loosening guarantee the stability and reliability of the test and meanwhile guarantee the crosshead locked during non-test status.

1. Shape of the crosshead has the feeling of three dimensions and looks terrific.
2. Surface of double columns is plated with chrome, which make it looks good as well as anti-abrasive.
3. Servo linear actuator is at the bottom, in which there is a LVDT displacement transducer, out of which there is a servo valve, and equipped with a precise filter and accumulator to constitute a servo module.

4. Servo valve is the special high response two grades servo valve, and the frequency curve is as follows.
5. Applied NCA series linear actuator with the features of lower damp, high response, long life and big clearance design, the design concept of which is the same with to 244 Series Linear Actuators of MTS;
6. The seal parts of servo linear actuator adopt the special high –speed seal parts.
7. The frequency response of servo linear actuator is not less than 250 Hz
8. Equipped with high precious load cell.



Load Frame Specifications:

Model		PLS-50	PLS--100	PLS--200	PLS--500	PLS--750	PLS—1000
Load capacity (KN)	Static	±50	±100	±200	±500	±750	±1000
	Dynamic	50	100	200	500	750	1000
Measurement accuracy	Load	± 1.0% of reading					
	Displacement	±1.0%FS of each file					
	Deformation	±1.0% of reading					
Function generator Range of frequency (Hz)		0.01 ~ 100					
Stroke of piston (mm)		±50					
Distance between columns (mm)		500	565	700	820	820	1000
Distance between grips		50 ~ 600					

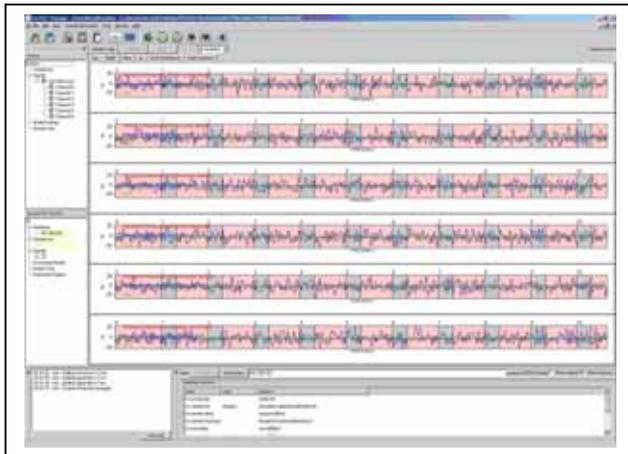
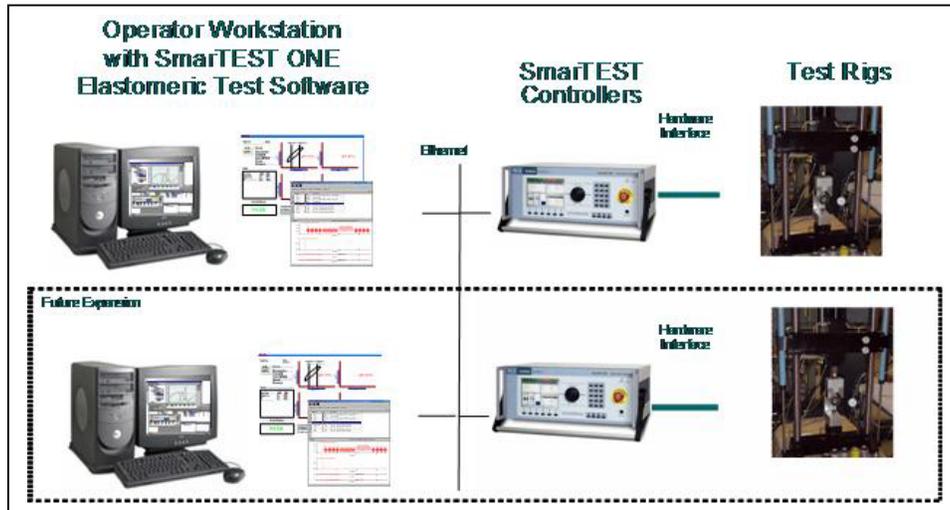
Constant pressure servo-pump BST36:

Low noise: Install dual-elastic support between motor pumps to lower the noise of pump station, which is equipped with low noise AC motor and low noise linear conjugate inner engaging gear pumps. Long life: Linear conjugate inner engaging gear pump has the feature of strong anti-abrasion, and in which there is one layer of oil film between parts; Also adopt the principle of dual-grade pressing to bear pressure difference which improve the working of pump; High-low pressure soft switch hydraulic module consists of main overflow valve, accumulator, auxiliary main overflow valve, auxiliary overflow valve, direction-exchanging valve and precious filter; water cooler; Hydraulic pipes and high pressure hoses; Liquid position controller; Temperature control meter; With the alarm function of oil temperature, liquid position and filter obstruction or stop function.

Advanced FCS Moog Servo Controller and Software

PTS uses cutting edge servo controller systems manufactured by Moog FCS. FCS has developed this general purpose stand-alone digital controller that can be used without a PC. Each chassis can handle from one up to four control channels. Most of the functions of the controller are accessible through a turn/push control knob right next to the large full color 640 x 480 display.

Customers also have the option of using the controller of their choice.



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