

UTEST became leading testing equipment supplier in Turkey and aims to maintain highest product standard in the world with continuous research and development activities. UTEST manufactures Electromechanically or Servohydraulically driven systems for tests carried out in institutes, universities, laboratories and many industrial sectors. Moreover UTEST offers customers technical consultancy, training, after sale services and modernization of older systems.

UTEST also supplies testing equipment part by part for wide range of standard or customized tests held in the automotive and aircraft industry, metal industry, plastic and rubber industry, the chemical industry, construction industry, bio mechanics. Below you will find brief description of servohydraulic actuators, hydraulic power packs, universal load frames and testing software. In addition to these, UTEST offers customers various fixtures and grips, accessories for simulation of environmental conditions, and digital controllers according to costumers individual testing needs.

### SERVO-HYDRAULIC ACTUATORS

Utest manufactures servohydraulic actuators for static, quasi static, dynamic and high performance testing. Actuators are doubled ended and equal area linear actuators to generate equal force in both tension and compression. Actuators has various usable stroke length and are mounted with manifold attached on it. Fast response servo-valve (0-25 Hz) and accumulators are close coupled in order to improve performance with highest possible response and minimum pressure losses where most accurate test control is achieved. Required maximum allowable piston speed is aligned according to system pressure and flow rates(0-100 lt/minute). Precision displacement sensor with appropriate resolution is integrated in the actuators. All dynamic testing systems are equipped with precision fatigue rated load cells where they are mounted on piston's rod end for accurate force measurement and control.



Short Travel, Fatigue Rated, 500 kN



Long Travel, Fatigue Rated, 5 kN



Actuators Mounted on Strong Wall



Long Travel, Fatigue Rated, 300 kN



Power Pack



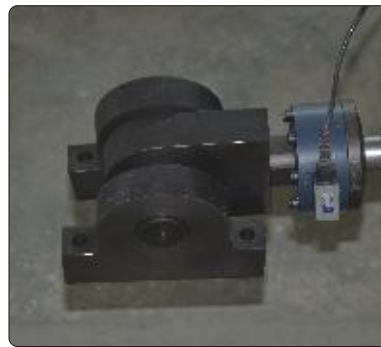
Distribution Unit



Powerpack Controller



Universal Joint



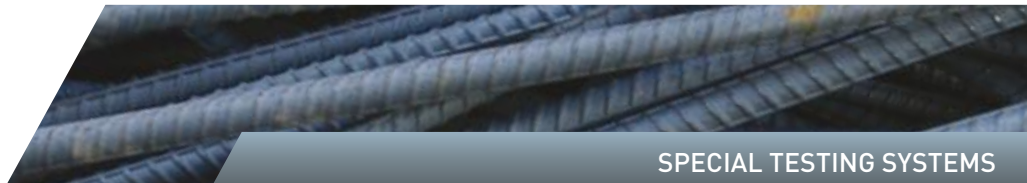
Actuators Mounting Plate

## HYDRAULIC POWER PACK AND DISTRIBUTION UNIT

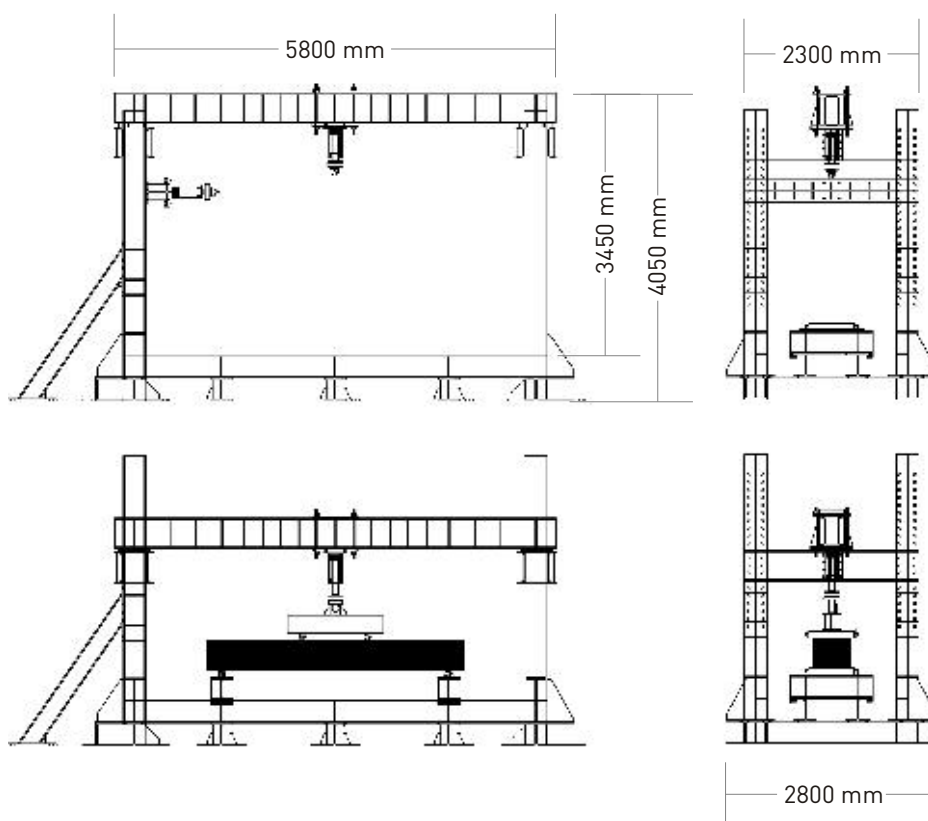
UTEST's hydraulic power units are specially designed for dynamic performance of test systems. Units has mostly 280 bar system pressure and various oil flows up to 100 l/min. The units can be modified to suit customers' requirements such as for higher piston speeds and load capacities. Electrical parts as indicators, system management buttons and controller are involved in the power pack. Bladder type accumulators are supplied with the pack in order to compensate pressure drops while actuator is operating and any pressure losses between the HPU and test station, in order to smooth pump ripples. Oil level, oil temperature, filter's condition and motor temperature are continuously checked by controller and system has necessary interlocks for fault conditions. Factory-set pressure relief valve prevents excessive increases in pressure. Variable-capacity pump ensure maximum electrical efficiency, consuming only sufficient electrical power to maintain the required flow, even during times of reduced flow demand. Compact designed hydraulic power units allow systems

## UNIVERSAL LOAD FRAMES

UTEST provides rigid, robust constructed load frames to suit your customized or standard testing needs. Frames are available in various load capacities and also in different variations to meet the requirements for horizontal and vertical test space, extended travel or for higher/lower force ratings. The frames may be designed for static testing capability to high performance dynamic testing according to application.



Reaction Frames





### DATA ACQUISITION & PC SOFTWARE

UTEST's test systems are controlled by a computer with the free of charge software uDyna. uDyna is flexible and user-friendly windows based application software for both static and dynamic testing. In the software user can create either test methods (dynamic, fatigue or static) or custom test sequences where you can manage to run simple ramp to cyclic waveforms (sine, haversine, trapezoidal, square, triangle etc. ), even arbitrary custom motion profiles. Synchronized 100 Hz data transfer from feedback signals supplies detailed recording of running tests. This rate is flexible up to 4 kHz if the application is applicable. Graphical and numeric monitoring is displayed real time in the user interface. Data reduction and peak values recording are running in cyclic tests. Safety limits (pressure and displacement limits) and internal algorithm protect the machine against any fault condition occurred in the system. uDyna always optimizes the control parameters(PID and feed forward terms) during test in order to adapt actuator control to the changing stiffness characteristic of the specimen. The software also includes an easy calibration check facility. Furthermore uData and DCS 100-A are also delivered to customer freely, where data analyzing and reporting operations will be handled with uData while data loggers' gathered data will be observed through DCS 100-A.

