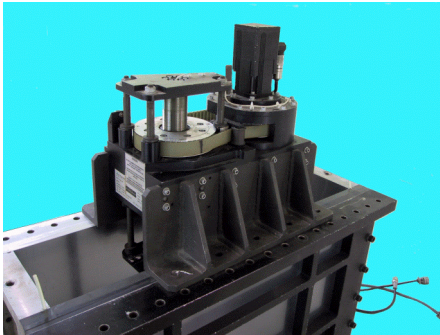




Equipments for test in centrifuges

DYNAMIC LOADING EQUIPMENT

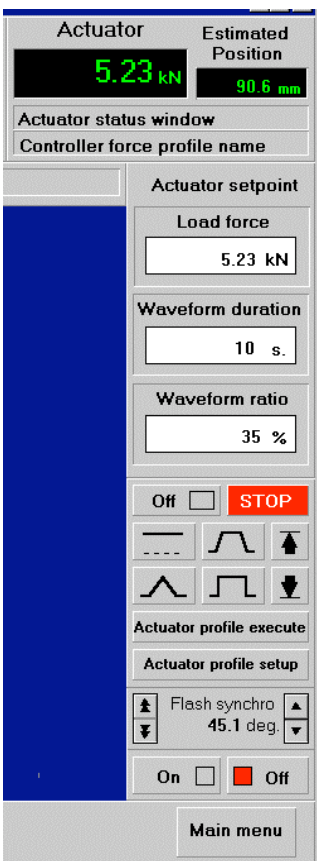


This robot like loading equipment is suitable for applying a static or dynamic variable force to a foundation's bearing or a structure.

This dynamic loading equipment is designed for testing foundations bearing or piles under vertical forces.

The equipment allows exercising loading and unloading forces.

The loading law can be either monotonous or made of successive steps, it may also include multiple cycles.



The loading or unloading force is generated by a ball screw assembly which nut is belt driven by an electrical motor.

The system is designed to operate test under acceleration up to 100 g's, it is capable of delivering up to +/-10,000 N force.

The servo loop system, which controls the actuator speed, consists of an AC brushless motor driving the ball screw assembly via a timing belt and pulleys.

The rate feedback and the relative position of the actuator tip is derived from the motor's optical encoder.

The axis control system consists of a ball screw assembly powered by an AC brushless motor and an AC to AC digital loop controller.

An industrial grade programmable controller supervises the axis loop controller and executes all measurements, readout and safety tasks.

The dynamic loading equipment is a fully computerized system which is remotely operated from the centrifuge control room where a resident PC is used as an operator interface.

Digital communication between the various control devices is made via an Ethernet network and optical fiber connection.

The dynamic loading equipment can be used as a:

- Cone penetrometer
- Foundation loading equipment
- Scissometer
- Pile driver

The loading law can be monotonous or periodic or made of successive steps, it may also includes multiple cycles.

The loading force periodic waveform can be triangular, rectangular, sinusoidal both frequency and amplitude are independently adjustable.

Force transducers of different scale and sensitivity can be used to adapt to the application.

As an option the dynamic loader can receive two additional degrees of freedom:

- a rotation around the Z axis
- a translation along the X axis

Technical Data	Model	C61	C65-C67	C80	C84-C85
Mainframe					
Length	mm	500	700	1104	Specification Per Request
Width	mm	350	350	350	
Height	mm	420	420	600	
Weight	kg	40	50	655	
Z axis displacement	mm	150	150	300	
Z axis speed	mm/s	0 to 5	0 to 5	0 to 10	
Z axis force	kN	-10 +30	-10 +30	-20 +50	
Optional					
θZ rotation	°	360	360	360	
θZ rate	°/s	0 to 20	0 to 20	0 to 20	
θZ torque	Nm	0.5	0.5	0.5	
X axis displacement	mm	250	400	560	
X axis speed	mm/s	0 to 80	0 to 80	0 to 80	
X axis force	N	+/- 500	+/- 1000	+/- 1000	
Miscellaneous					
AC mains line voltage	V	380/480	380/480	380/480	
Number of phase		3	3	3	
Operating frequency	Hz	50/60	50/60	50/60	
Installed power	kW	1	1	2	
Operating temperature	°C	15 to 35	15 to 35	15 to 35	
Humidity (non condensing)	%	20 to 80	20 to 80	20 to 80	