



Equipments for test in centrifuges

SAND HOPPER

The purpose of this equipment is the preparation of dry homogenous sand blocks sampled at a preset density.

The LCPC designed hopper guarantees a constant flow and a constant falling height from a fully automated horizontal and vertical motion control of the hopper.

The design principle generates an excellent mass density uniformity all across the container volume (point to point relative variation in the order of 1 to 2%) and a perfect repeatability of sand models preparation.



With an appropriate choice of sand flow and falling height it is possible to obtain largely different values of sand density from loose to very dense (e.g. with Fontainebleau sand, homometric sand $D_{50} = 0,17$ mm; I_d adjustable from 30 to 90%).

The fully automated hopper, operates in a depressurized man free closed environment, that warrants acceptable hygienic work conditions for operators, who otherwise could be subject to silicon diseases when manipulating large amount of sand that is emitting free harmful dust when being rained.

The hopper translation displacement is supported and guided by two rails that are either attached to the ceiling or supported by a steel frame.

The translation drive system consists of a motor gear assembly and an AC/AC variable speed controller.

The hopper height is controlled by a lift mechanisms consisting of two steel cable roller drums driven by a variable speed motor gear controller.

C67 Sand rainer

A sand vacuum cleaner permits the cleaning of used sand models in containers, and the automatic loading of the hopper.

The system is fully automated, the controller is made of a digital programmable industrial automat associated with a personal computer used as an operator interface.

Technical Data	Model	C61	C65-C67	C72-C80	C84-C85
Hopper					
Width	mm	500	650	850	2000
Depth	mm	300	430	430	800
Height	mm	400	500	550	800
Usable volume	m ³	0.05	0.1	0.125	1
Sand weight	kg	100	175	225	3000
No load mass	kg	20	30	40	180
Horizontal motion					
Displacement range	mm	0 to 1000	0 to 1500	0 to 2000	0 to 3000
Command resolution	mm	0,1	0,1	0,1	0,1
Linear speed	m/min	1 to 15	1 to 15	1 to 15	1 to 15
Rate resolution	m/min	0.1	0.1	0.1	0.1
Vertical motion					
Displacement range	mm	0 to 1500	0 to 2000	0 to 2000	0 to 2500
Model construction	mm	0 to 600	0 to 800	0 to 1100	0 to 1600
Command resolution	mm	0,1	0,1	0,1	0,1
Linear speed	m/min	0.2 to 1.2	0.2 to 1.2	0.2 to 1.2	0.2 to 1.2
Rate resolution	m/min	0.01	0.01	0.01	0.01
Environment					
Line Voltage	V	410 / 480	410 / 480	410 / 480	410 / 480
Power consumption	kW	2	2	2	10
Frequency	Hz	50 to 60	50 to 60	50 to 60	50 to 60
Operating temperature	°C	15 to 35	15 to 35	15 to 35	15 to 35
Humidity (non condensing)	%	20 to 80	20 to 80	20 to 80	20 to 80

Sand model construction in rectangular container

