

# COMPRESSION TESTING MACHINES

Conforming to IS 516, IS 14858

It is important to test the quality of cement concrete work. Testing of raw material fresh concrete and hardened concrete is an inseparable part of any quality control program for concrete which helps to achieve higher efficiency of the material used and greater assurance of the performance of the concrete in regard to both strength and durability. Heico compression machine have been designed to accurately measure the compressive, flexure, strength of concrete. Following pages describe various models of HEICO CTM, selection can be made from these models to suit the requirement.

## Portable Compression Testing Machines (Hand Operated)

For carrying out Compressive Strength Test on mortar and concrete cubes.

The frame is a totally welded type or pillar type to give structural stability. Even with some eccentric loading, the frame's stability is not affected at all. The lower plate of the frame has integral jack/bolted jack and the upper plate carries the spherical seating. A special type of pump with concentric plunger is attached to the loading unit. Pressure can be created to the maximum with minimum possible effort. The outer plunger is for filling the gap without taking



CTM - HAND OPERATED

load and gets automatically disconnected on closing of the gap.

Pressure gauge is fixed at an angle for the ease of readings and is calibrated against standard dynamometer calibrated by either NPL or NCCBM.

Accuracy of the machine is maintained within  $\pm 2\%$  as per IS 516, BS 1610 grade I or on special request can be calibrated as per BS 1881, DIN 51220.

## Motorised Compression Testing Machines

Electrical version of Compression Testing Machines capacity ranges from 100 kN to 5000 kN.

These machines are suitable for testing cubical specimen of 10 cm, 15 cm or cylinder of 15 cm dia x 30 cm height. Smaller specimens can be tested with fixtures & spacers. Any machine with the higher capacity is a special model that can be manufactured as per the customer requirement. These machines are stable with a high degree of accuracy and stability conforming to IS 516/IS 14858. On special request the machine can be made to meet the essential requirements of BS 1881 or DIN 51220, 51223.

## Basic machines have the following components:-

### Load Frame

Load frame is a steel welded structure. It is designed to withstand a few million times of full cycles of loading without any sign of distortion or fatigue. These frames are light in weight. The base carries a fine finished hydraulic ram and the lower platen. The top plate has the spherical seating to take care of any irregularity of the specimen surface or slight misplacement of the specimen from the central position. As a safety precaution front cover is provided, as a protection to the operator while at the same time giving an unobstructive view of the specimen under test.

Cat No. KN	Capacity KN	Max Ram Travel (mm)	Day Light Clearance (mm)	Horizontal Clearance (mm)	Platen Size (mm)
HC44.01	100 x 0.5kN	50	330	200	115
HC44.06	250 x 1kN	50	330	200	115
HC44.16	500 x 2kN	50	330	200	165
HC44.55	1000 x 5kN	50	330	225	165
HC44.70	1250 x 5kN	50	330	> 225	165
HC44.74	1500 x 5kN	50	330	> 320	256
HC44.75	2000 x 10kN	50	330	320	256



### Pumping Unit

Pumping unit is attached on the right hand side of the loading unit. It is a multi plunger pump with booster arrangement. This facility is for fast raising of ram without load. Pump is submerged in the tank and is powered by 1.5 kW electric motor. Operating on 220 volts 50Hz AC supply. (other voltages optional). Power pack gives non-pulsating flow to the hydraulic ram. This ensures smooth loading of the specimen which can be seen by the movement of the load gauge/digital display. The flow of the oil can be precisely controlled by the strain control knob located at a convenient height. With the proper check on the oil, the life of the pumping unit and the hydraulic ram is almost as long as, life of machine. Keeping in view the operators safety regulations, safety features like expanded sheet metal door, overload relief valve is provided as standard in the hydraulic circuit.

### Compression Testing Machines with Single Gauge

This particular series of models have loading unit, pumping unit and load gauge with safety valve.



COMPRESSION TESTING MACHINE - SINGLE GAUGE

Cat No. (With Single Gauge)	Capacity KN	Ram Travel (mm)	Day Light Clearance (mm)	Horizontal Clearance (mm)	Platen Size (mm) diameter
HC44.01W	100 x .5kN	50	330	200	115
HC44.10-W	250 x 1kN	50	340	200	150
HC44.20-W	500 x 2kN	50	340	300	256
HC44.40-W	1000 x 5kN	50	340	300	256
HC44.80-W	1500 x 5kN	50	340	300	256
HC44.90-W	2000 x 10kN	50	340	300	256
HC44.95-W	3000 x 10kN	50	340	400	300
HC44.105-W	5000 x 20kN	50	340	510	300

**Note:** Square Platens on request

### Compression Testing Machines with Three Gauge

These machines are similar to the earlier series except that these systems have three gauges instead of a single gauge. Other essential elements like power pack and loading unit remains the same as described earlier.



COMPRESSION TESTING MACHINE - THREE GAUGE

Cat No. (With Three Gauge)	Capacity KN	Ram Travel (mm)	Day Light Clearance (mm)	Horizontal Clearance (mm)	Platen Size (mm) diameter
HC44.36W	0-100 x 0.5kN 0-200 x 1kN 0-500 x 2kN	50	340	300	256
HC44-41-W	0-250 x 1kN 0-500 x 2kN 0-1000 x 5kN	50	340	300	256
HC44.95-W	0-500 x 2kN 0-1000 x 5kN 0-2000 x 10kN	50	340	300	256
HC44.100-W	0-500 x 2kN 0-2000 x 10kN 0-3000 x 10kN	50	340	400	300
HC44.110-W	0-2000 x 10kN 0-3000 x 10kN 0-5000 x 20kN	50	340	510	300



## ●● HLM 592

### Compression Testing Machines with Digital Readout Unit

This series of machines have loading unit and pumping unit as described earlier. Indication of load is on digital display system, which is directly indicated, in respective engineering unit. The electronic display unit is totally microprocessor based with a built in RS232 serial port. It has indication for load, peak load, and pace rate indicator.

Pace rate is achieved manually by controlling the flow control knob and the system is released manually after the peak load is achieved.

Readings can be transferred through the serial port to the computer at an interval of 1 sec till specimen failure



COMPRESSION TESTING MACHINE - ELECTRONIC

Cat No.	Capacity kN	Range kN	Max Ram Travel (mm)	Day Light Clearance (mm)	Horizontal Clearance (mm)	Size of Platen (mm)
HLM592.101	500	0 - 200 200 - 500	50	340	300	256
HLM592.201	1000	0 - 200 200 - 1000	50	340	300	256
HLM592.301	2000	0 - 200 200 - 2000	50	340	350	256
HLM592.401	3000	0 - 200 200- 3000	50	340	400	300
HLM592.501	5000	0 - 200 200 - 2000 2000- 5000	50	340	510	300