

COMPRESSION TESTING MACHINES



SALIENT FEATURES

Loading Accuracy $\pm 1\%$ confirming to IS-1828 - 1991

Simplified design for ease of operation and maintenance

Safety provisions against over load and over travel Highly rigid loading frame

FSA's guarantee of quality

Motor driven crosshead for easy adjustment facilitates rapid fixing of test specimen

Wide range of accessories available Straining at variable speeds to suit wide range of materials

APPLICATION

Compression Testing Machine have a wide range of applications. It is designed to check materials under compression, bending, Transverse, Brinell Hardness & Shear testing etc.

CONSTRUCTION

The machine consists of 2 units viz. loading unit and control panel.

A. Loading Unit

It consists of a base at its center, hydraulic cylinder, piston and two screws. A crosshead is mounted on the screws and is driven by a motor for rapid adjustment of test height. A table is mounted on the piston with a ball joint in between. The precisely ground piston and the individually lapped cylinder piston assembly ensures smooth transfer of the force with minimum friction losses.

B. Control Panel

It consists of hydraulic system with power pack, load measuring & indicating system and electrical system.

a. Hydraulic System

It consists of hydraulic power pack with directly driven radial plunger pump. Power pack consist of oil filter, oil strainer, air breather, drain plug, oil level indicator etc. It can generate an oil pressure up to 250 bar. A pressure compensated flow control valve is provided for controlling the oil flow to cylinder thereby archiving a desire piston speed.

b. Load Measuring & Indicating system

For dial type machines

The oil pressure in the main cylinder is transferred to the small dynamometer cylinder. The dynamometer piston is kept rotating at slow speed to ensure dynamic friction condition. The piston exerts a force proportionate to the pressure on the hanger connected to the pendulum through an auto range selecting lever system. The force deflects the pendulum. A damping system is provided to ensure slow return of pendulum. The Pendulum lever pushes a rack which slides over two pulleys a rack movement is proportional to the load. A pinion engaged with a rack rotates and moves the pointer. A window type dial is provided for easy and clear indication. A continuous roll type recorder is provided for plotting a load verses deformation graph.

For Electronic & Computerised Machines

The oil pressure in the main cylinder is transferred to an electronic pressure transducer which gives proportional electronic signal. Displacement measurement is carried out by a rotary encoder mounted on the base. The linear motion of piston is converted in rotary motion and the encoder undergoes angular displacement. This gives proportional electronic signal for deflection. The pressure transducer and encoder signals are given to electronic panel / computer.

C. Electrical System

A separate switch box and electrical panel is provided. Both hydraulic pump motor and cross head motor have interlocks. Limit switch is provided for over travel safety. A push button station is provided on the control panel with UP, DOWN pushbuttons for cross head motor and ON, OFF push buttons for pump motor.

OPERATION

The specimen to be tested is to be kept on the machine table, The position of the cross head can be adjusted by operating UP, DOWN push buttons. The Compression test can be conducted by positioning the specimens between the compression plates. The Bend / Transverse tests can be conducted by positioning the specimen over the bending supports. The load is applied by operating the hand operated valves ergonomically placed for ease of control.

ACCURACY AND CALIBRATION

Every machine is calibrated in accordance with the procedure laid down in BS 1610 : 1964 and IS 1828 : 1991 with an accuracy of ± 1

STANDARD ACCESSORIES

Compression platens I Pair

EXTRA ACCESSORIES

- | | |
|--|---|
| 1) Load stabilizer | 5) Brinell Microscope |
| 2) Shear test attachment | 6) 180° Bend test attachment |
| 3) Transverse test attachment | 7) Bend - Rebend test attachment |
| 4) Brinell Hardness test attachment
(With 1 Omm ball) | 8) Printer (Only for Electronic &
Computerised Versions) |

TECHNICAL SPECIFICATIONS

Dial Type Machines

MODEL	FCT- 500 kN	FCT- 1000 kN	FCT- 2000 kN	FCT- 3000kN	FCT- 5000 kN
Maximum capacity (kN)	500	1000	2000	3000	5000
1st Measuring Range (kN)	0-500	0-1000	0-2000	0-3000	0-5000
Least count (kN)	1	2	4	5	10
2nd Measuring Range (kN)	0-250	0-500	0-1000	0-1500	0-2500
Least count (kN)	0.5	1	2	2.5	5
3rd Measuring Range (kN)	0-100	0-250	0-500	0-600	0-1000
Least count (kN)	0.2	0.5	1	1	2
4th Measuring Range (kN)	0-50	0-100	0-250	0-300	0-500
Least count (kN)	0.1	0.2	0.5	0.5	1
Number of divisions on load measuring dial	500	500	500	600	500
Electronic Machines					
MODEL	FCT-E- 500 kN	FCT-E- 1000 kN	FCT-E- 2000 kN	FCT-E- 3000 kN	FCT-E- 5000 kN
Maximum capacity (kN)	500	1000	2000	3000	5000
Measuring Range (kN)	0-500	0-1000	0-2000	0-3000	0-5000
Least count (kN)	0.05	0.1	0.2	0.3	0.5
Resolution of Piston					
Movement (mm)	0.1	0.1	0.1	0.1	0.1
Computerised Machines					
MODEL	FCT-C- 500 kN	FCT-C- 1000 kN	FCT-C- 2000 kN	FCT-C- 3000 kN	FCT-C- 5000 kN
Maximum capacity (kN)	500	1000	2000	3000	5000
Measuring Range (kN)	0-500	0-1000	0-2000	0-3000	0-5000
Least count (kN)	0.05	0.1	0.2	0.3	0.5
Resolution of Piston					
Movement (mm)	0.1	0.1	0.1	0.1	0.1
General Common Specifications (for all ver)					
Maximum capacity (kN)	500	1000	2000	3000	5000
Max. clearance for compression test at fully decended piston position (mm)	500	500	700	700	1000
Piston Stroke (mm)	100	100	150	150	250
Power Supply	3ph	415 V	50Hz	A. C.	
HP (Total)	1.5	2	3	6	6
Weight in tonns (approx)	2	2.5	3.5	9	12

FSA reserves the rights to change the above specifications due to constant improvement in design.

We can also supply: Universal / Tensile Testing Machines, Hardness Testers (Rockwell, Brinell, Vickers), Impact Testers, Fatigue Testing Machines, Dynamic Balancing Machines etc.