

Green Compression Strength



General Features

Green Compression Strength Testing Machine determines the load value that pellets resist to the point of crushing. The designers and developers of this machine have made an effort to make sure it measures the crushing point at the precision of one decimal place in kilograms. In other words, the technological advantage with this machine is that determining the point and load of crushing. This tester receives a thousand pieces of data per second from the load cell to find the fastest route to the peak crushing force. Along with the highest degree of sensitivity, the machine is designed to be operated with ease, to receive data, to conduct the testing requiring minimum technical expertise as well as to process and perform the research projects with the power of great degree.

The main parts of the machine consist of:

1. The power mechanism
2. Electronic eyes
3. The disc
4. The electronic board
5. The display
6. The computer

System Features

The loading device, with a capacity of 50 daN (~50 kg), works at constant compression speed (8, 15, 20, or 40 mm/min). The low speed is kept only during the compression period. High-speed movement of the compression plate is provided in the approach and return phases to reduce total test time. The load measuring system is equipped with an electrical self-calibration procedure,

performed periodically. Data are displayed and printed both in kilogram and with a resolution of 0.1 kg.

Feeding

Firstly, the operator places 10 pellets in the disc holes. Then the machine is turned on and so is the operator's dashboard (HMI). After each turn, the crushing system and the disc return to the starting point.

Operating Mode

The machine functions automatically. The disc moves the pellets below the ramrod and crushing is conducted. The crushed pellets are then moved to the exit points built into the container. The number of pellets to be crushed can be adjusted in the settings and can vary from one to eleven in every disk. The load cell is located between the upper-pressure arm and the pellet ramrod. Once the ramrod touches the pellets, the movement speed reduces to the test speed. The controller is adjusted so as the distance between the ramrod and the surface is never below 3 millimeters; and in case of a collision with the surface, the ramrod moves up to avoid any damage to the machine. It is because the power reduces to a particular degree. All the position coordinates are in accordance with the encoder in Servomotor the moves the ramrod using a ball screw mechanism.

Electronic Unit

The electronic unit drives the compression process and provides to display and print the crushing strength values and to calculated statistic data. The available statistics are minimum and maximum value, the number of tests with values under different thresholds, mean value, standard deviation, and variation coefficient. One of the sensitive parts is the electronic board designed and developed by this

company and can manage all processes of the functioning parts and the instrumentation. The electronic board includes a considerable number of ICs, resistors, and relays which are all supplied by authoritative companies to improve the quality and lifespan of the board. A remote host computer interface (RS232C) is included to allow data logging and/or graphic representation of the results. The Pasco CCS software is available for providing a user-friendly interface to archive and graphical print out the test results.

Pasco CCS software

The Pasco CCS software is an optional dedicated Software that allows the operator to have online monitoring of test results and to get the printout of the Test report as in the Standards. Acquisition, archiving, printing, and export of test data, together with the graphical representation of the results are fully provided. The software is compatible with the Microsoft Windows© environment.

Load Cell Calibration system

The CCS Calibration System is an external comparison tool that allows the users to perform a periodic calibration of the device with a certified load cell. All mechanical parts needed to operate with the load cell are included in the kit. The provided calibration certificate guarantees the precision of the readings.

Features and Requirements of Operating the Machine

Specifications	
Electromechanical press	
Compression speed	8, 15, 20 or 40 mm/min
Max compression load	50 kg
Motor Servo Controller	
Principle	static frequency converter
Output voltage	230 V 3 Ph (PWM Control)
Motor type	asynchronous 3 Ph motor
Electronic Control, Display And Print Unit	
Display and print resolution	1 kg
Printer	Alphanumeric on thermal paper
Data Digital output	RS 232 C to host computer
Main power	230 V a.c. \pm 10% 50/60 Hz 250 VA max