

OFITE

OFITE MODEL 250

COMPRESSIVE

STRENGTH TESTER

INSTRUCTIONAL

MANUAL

OPERATING INSTRUCTIONS

OFI AUTOMATED COMPRESSIVE STRENGTH TESTER

GENERAL

OFI's Automated Compressive Strength Tester was designed to determine the compressive strength of a well cement. The most common means of determining the compressive strength of a cement involves applying a force to the sample at a constant rate until the sample fails. The maximum loading at which the cement fails is defined as the cement's compressive strength. Unfortunately, data obtained from this type of testing is typically inconsistent and widely varied. Manually operated hydraulic presses are normally used for testing purposes and maintaining a constant loading rate is very difficult. OFI's Automated Compressive Strength Tester incorporates a personal computer to control the loading rate. Operator inconsistencies are significantly reduced in comparison to the manually operated hydraulic presses.

METHOD OF OPERATION

A cement slurry is prepared according to the guidelines outlined in API Specification 10 and placed into typical 2" X 2" X 2" cement molds. The molds are placed into a Curing Chamber (Autoclave) and allowed to cure at either simulated well conditions or at temperatures and pressures classified by a schedule within API Specification 10. The cement specimens or allowed to cure for a predetermined amount of time and then removed from the Curing Chamber. The sample is then placed onto the platen of the Curing Chamber. The hydraulic unit is turned on and the loading rate selected.

AUTOMATED COMPRESSIVE STRENGTH TESTER SPECIFICATIONS

- Maximum Press Capacity of 40,000 lbs.
- Microprocessor controls the Loading Rate
- Variable Loading Rates
- Compact Design
- Compressive Strength Read Directly on Monitor
- Safety Shield Protects Operator

INSTALLATION

1. Carefully remove the instrument from the wooden crate.
2. Please note that leveling legs are provided to level the instrument. If adjustment is required rotate the legs until the instrument is leveled.
3. Securely connect the control panel to the hydraulic unit with the electrical cord supplied.
4. The unit should be plugged into a suitable grounded electrical supply.
5. The back of the hydraulic unit should be removed and hydraulic oil added to the reservoir of the hydraulic pump. Oil level should be **no more than two inches** from the top of the reservoir.

PERFORMING A TEST

1. Apply power to the unit by depressing the "POWER" switch. This provides power to the microprocessor.
2. Place the cement specimen on the lower platen of the hydraulic cylinder. The upper platen should be adjusted so that it is no more than one eighth of an inch from the specimen. The two contacting surfaces of the platens must be parallel. Input the cube dimensions (inches) into the dialogue boxes
3. Close the safety shield.
4. The hydraulic pump may be started by clicking over the "PUMP ON" switch. At this time fluid is circulating throughout the system, but the hydraulic ram is not motivated because the proportional control valve is bypassing the hydraulic ram.

Select the loading rate by entering into the dialogue box.

5. To begin the test left click and hold over the "RUN TEST" key. The hydraulic cylinder will begin to raise and crush the cement specimen. The proportional control valve will maintain the loading rate until the specimen fails. When the specimen fails, the maximum value will be displayed in the "CRUSH STRENGTH" dialogue box. Record this value as the compressive strength.
6. The "STOP" switch should be pressed at this time to stop the hydraulic pump. The "RESET" key should be depressed on the keypad to reset the microprocessor.
7. Repeat steps two through six to continue to test more specimens.

GENERAL MAINTENANCE

1. The system incorporates a filter to keep the hydraulic fluid clean. In the event that the filter needs to be cleaned the "FILTER" light will become illuminated. Remove the filter element from the filter housing and clean with a mild solvent and/or ultrasonic cleaner.
2. Every six months drain oil from the reservoir and replace it with clean hydraulic grade oil.

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