

# DIGITAL SPRING TESTING MACHINE

Digital Spring Testing Machine has been developed for quick and accurate testing of spring rate of Tension and Compression Springs. It is a small machine designed for tabletop operation but can accommodate almost all types of springs available.

## POWER SUPPLY

The STM-01 operates on 230V AC, 50 Hz supply.

## SAFETY PRECAUTIONS

Always ensure that force more than rated capacity is never applied on Load cell of the instrument. This will damage the load cell permanently. Above 95% of the rated load the LCD Display starts displaying 'Overload'.

## OPERATING CONTROLS

### 1. ON/OFF SWITCH

This switch controls the main supply to the instrument. It is located on back of the main housing.

### 2. FUSE HOLDER

Located next to the ON/OFF Switch, it protects the motor from damage in case of a fault.

### 3. LCD DISPLAY

A 16-Bit Alpha-Numeric Display is used for indication.

### 4. KEYBOARD

The Keyboard has 4 soft keys, the function of which is defined below:

- |                 |   |
|-----------------|---|
| TARE Key:       | Resets the initial reading to zero.   |
| UNIT Key:       | Changes the measurement unit. The device supports the following units Kg, lbs., N (Newton). |
| PEAK Key:       | Shows the Peak force measured during the current test.                                      |
| PEAK CLEAR Key: | Resets the peak value to the current force.   |

## 5. OTHER PARTS

The load frame consists of 2 columns supported frame with a lead screw and a hand wheel on top. With the help of hand wheel, the lead screw is rotated. A crosshead is mounted on lead screw travels up or down for tension or compression testing respectively.

The Load Cell is mounted below the base plate of the Machine Load Frame. Both compression and tension testing fixtures are fixed on Load Cell. A Digital Vernier Gauge is mounted on moving crosshead between two compression plates to monitor the displacement across the test sample. The Compression Plates with Adapters and Tension Hooks of various sizes are available for testing of different sizes of springs.

## OPERATING PROCEDURE

1. Switch on the mains supply to Digital Indicator Unit
2. Display indicates the following message while the device is booting up *SNC STM-01*.
3. Once boot sequence is complete it shows the current force reading as *UP F 1 - 1.3230 Kgs*.
4. Select the desired unit gm, Kg, N, KN, CN or lbs. by pressing of UNIT key.
5. To carry out any test, keep the spring on the bottom plate. Rotate hand wheel and moving crosshead is brought down, so that it touches the upper side of the spring.
6. At this stage the reading on Digital Vernier Gauge can be tared to read zero. Also load reading should be set to zero by pressing TARE key.

## COMPRESSION TESTING

- a. For compression test install the compression plate on the top side.
- b. Now rotate the hand wheel slowly in clockwise direction. As the spring starts experiencing the force, digital display will show the reading of force and simultaneously Digital Vernier Gauge will show the displacement.

## TENSILE TESTING

- a. For tensile test install hook type fixture on the top plate.
- b. Now rotate the hand wheel slowly in clockwise direction. As the spring starts experiencing the force, digital display will show the reading of force and simultaneously Digital Vernier Gauge will show the displacement.
7. Note displacement v/s force reading at specified intervals of 1 mm to 5 mm or at desired compressed length of spring.
8. After the required test has been completed, rotate the hand wheel in reverse direction in order to unload the spring.

## MAINTENANCE

The column and the lead screw should be regularly lubricated with the help of lubricating oil. The electronics normally does not need any regular maintenance. The Load Cell provided with it however, needs to be calibrated as per the duration specified in the calibration certificate. Typically calibration certificates are valid for one year.

However a stable power of 230 V AC within +/- 10% fluctuation should be ensured for the correct operation of electronics.

## GUARANTEE

The machine carries guarantee for one year against any manufacturing defects. During guarantee period, the instrument is required to send to us for repairing under warranty. The guarantee of replaced parts, if any, will also expire along with guarantee of main instrument.

The guarantee is void in case of mechanical damage, because of overloading of the load cell and load frame or attempted repairs. Guarantee is also not applicable for standard off the shelf accessories such as Digital Vernier/Dial Gauge etc.

## MODEL VARIATIONS

All variations on the digital spring testing machine are based on the capacity of the load cell. For example STM-20 has a maximum capacity of 20 Kgs, STM-100 has a maximum capacity of 100 Kgs and so on. All machines above this capacity have to be motorized.

## SPECIFICATIONS

Force Display	: 16-Character Alphanumeric LCD Display
Accuracy	: +/- 0.5% of FSD
Displacement Measurement	: Digital Vernier Gauge
Maximum Displacement	: 150 mm or 6 in
Displacement Resolution	: 0.01 mm or 0.001 in
Maximum Spring Size	: 160 mm
Diameter	: 90 mm
Weight	: 20 Kgs

## OPERATING MANUAL

Supply : 230 V AC, 50 Hz

MODEL : STM-20

Maximum Force Rating : +/- 20 Kgs

Force Resolution : 2 grams approx.

MODEL : STM-50

Maximum Force Rating : +/- 50 Kgs

Force Resolution : 5 grams approx.

MODEL : STM-100

Maximum Force Rating : +/- 100 Kgs

Force Resolution : 10 grams approx.

MODEL : STM-200

Maximum Force Rating : +/- 200 Kgs

Force Resolution : 20 grams approx.

## CONTACT INFORMATION

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