

WET TENSILE STRENGTH MACHINE



OPERATIONAL MANUAL

1 Application

- Used to check the Wet Tensile Strength (WTS) of the Green Moulding Sand in the Foundries & Laboratories.

2 Description

- The machine working on single phase 230 Volt AC supply, consists of pneumatic lifting arrangement, heating arrangement, loading mechanism, load cell, electronic controller unit to read - control the temperature, timer & to indicate the tensile strength of the sample in gms/cm². Provided with special specimen tube with ring & pedestal cup.

3 Pre-Setting

- Place the machine on the platform & fix the FRL (Filter, Regulator & Lubricator) unit which is separately sent along with the machine, on the right-side cover panel of the machine where FRL fixing provision is provided.
- Connect the pneumatic air connection to FRL unit & set the air pressure by lifting & rotating the air setting round knob on FRL unit to 4-5 bar on the air pressure gauge. After setting pressure push the air setting knob downwards to lock the air pressure. Now switch ON the machine.
- The controller display will show strength indicator column, current temperature of the heater & set timer value in seconds.
- Default values for Temperature & timer are set to 300°C & 30 seconds.
- To change the set temperature value press the **TEMP** button, display will show set temperature value, to increase the set value press **↑** up arrow key & to decrease the set value press **↓** down arrow key button. After setting desired value press **START** button to save the value.
- To adjust the timer setting press **TIMER** button & follow the above procedure to adjust the desired value.

4 Operation

- After temperature reached to 300°C, put the round ring on the specimen tube & Place the tube along with ring in the pedestal cup. Now take the green moulding sand in the tube & prepare 50mm x 50mm size standard sand specimen with the help of Sand Rammer.
- Carefully remove the specimen tube from the sand rammer & take out the pedestal cup slowly. The sand specimen prepared lies in the tube holding the ring.
- Now gently insert & place the specimen tube on pneumatic lifting assembly keeping ring on upper side in between the lifting fork jaws. While inserting the tube take care to not to hit the lifting fork.
- Press the **START** button, the tube will get lifted by pneumatic assembly, upper surface of the sand specimen touches the heater block & timer countdown will start.
- After timer gets to zero, tube will be unlifted to initial position & loading starts. While loading, the ring gets lifted by lifting fork & the dried sand sample ring will be separated from the sand sample by tensile load & the strength indicator displays the Wet Tensile Strength (WTS) in gms/cm².
- Without hitting the fork slowly remove the tube, lift the ring, take out the tested sand sample from specimen tube by using the stripper of sand rammer.

- Note down the reading & after the **unloading** message on display goes, press **ESC** button, the strength display will show 0 reading.
- Machine is ready for further testing. Take 3 readings of sand sample & take the average which indicates the WET TENSILE STRENGTH (WTS) of the sample.

5 Precautions

- Do not touch the heater block & ring after test by bare hands, it will may cause burning hazard.
- Place the equipment in clean place for trouble free function of the controller.
- If voltage fluctuation is present in the supply, provide voltage stabilizer for controller safety.
- Do not press/play with the other keys on controller as it may disturbs the controlling functions/settings of the controller.
- Use always the special specimen tube supplied with the machine.
- Do not put the load by hand or hit the lifting fork while placing/removing the specimen tube as it may disturbs its position settings & may cause damage to the loadcell.
- Remove the moisture if collected in the FRL unit time to time by losing the screw provided at the bottom side of the FRL unit to ensure the proper functioning of pneumatics.