TITAN - UNIVERSAL STRENGTH TESTER
T19 CHECK WEIGHT SET

The **T19 Check Weight Set** should be used periodically, between annual loadcell calibrations, to determine the force reading accuracy and consistency of the Titan Universal Strength Tester.

The 794-891 - T19 Check Weight Set cannot be used on Titan[1], Titan[2] or Titan[3].
If you require a Check Weight Set for these models then contact your James Heal Agent and ask for 794-817.

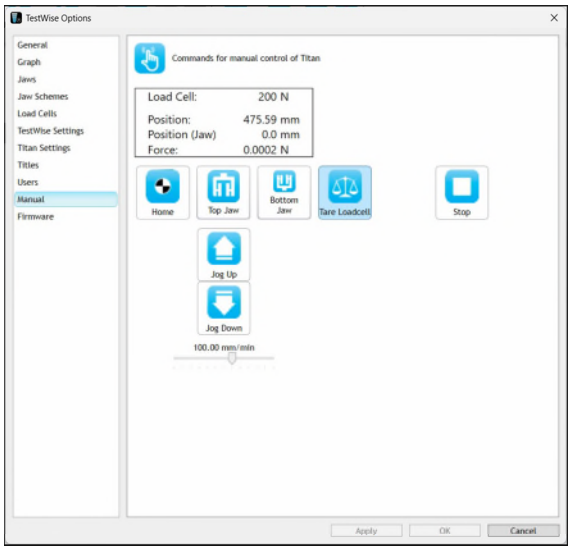
Instructions for Use

Power on the Titan instrument and start the TestWise software and Login as normal.

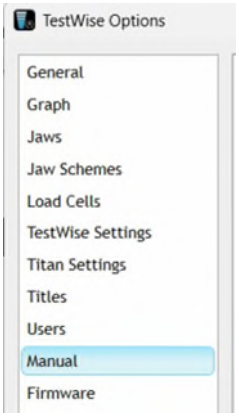
Allow the instrument 30 minutes to “warm up” so that the loadcell and its associated electronics stabilise at room temperature. This is good practise in general whenever you are using Titan and is always done prior to this verification procedure.

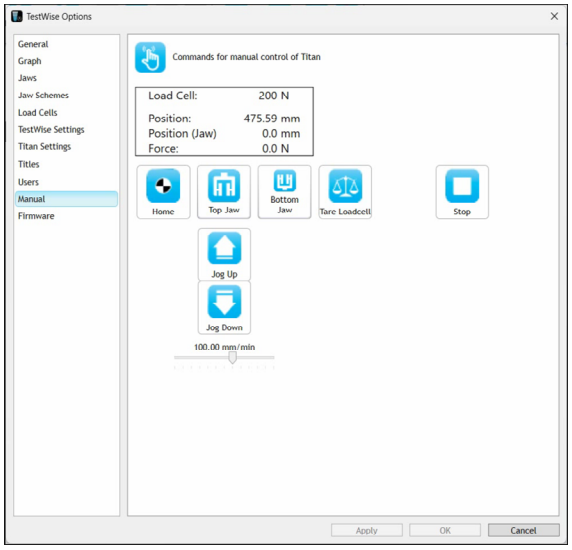
Remove both the top and bottom jaws from the screw thread adaptor.

Fit the Check Weight Holder in place of the top jaw. This allows the five circular weights to be centrally positioned on the loadcell.

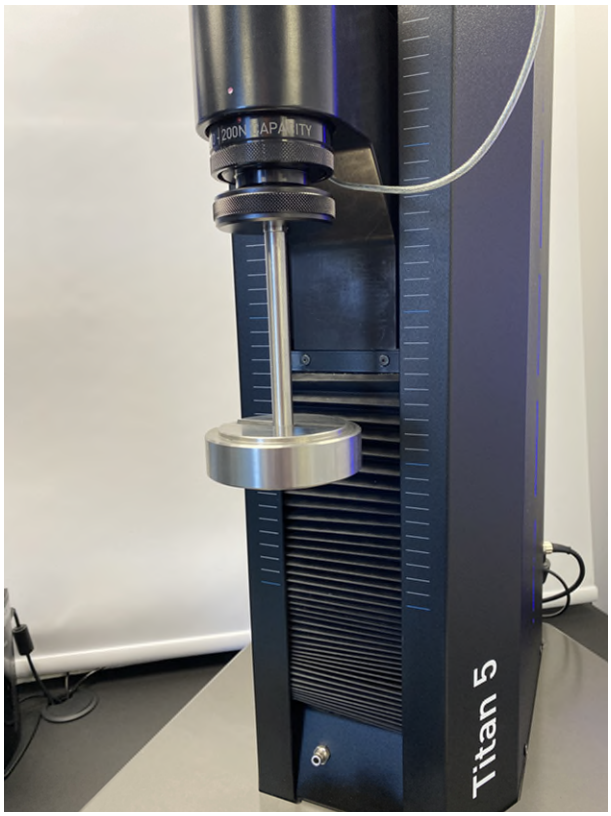


From the File menu, choose Options, then Manual.





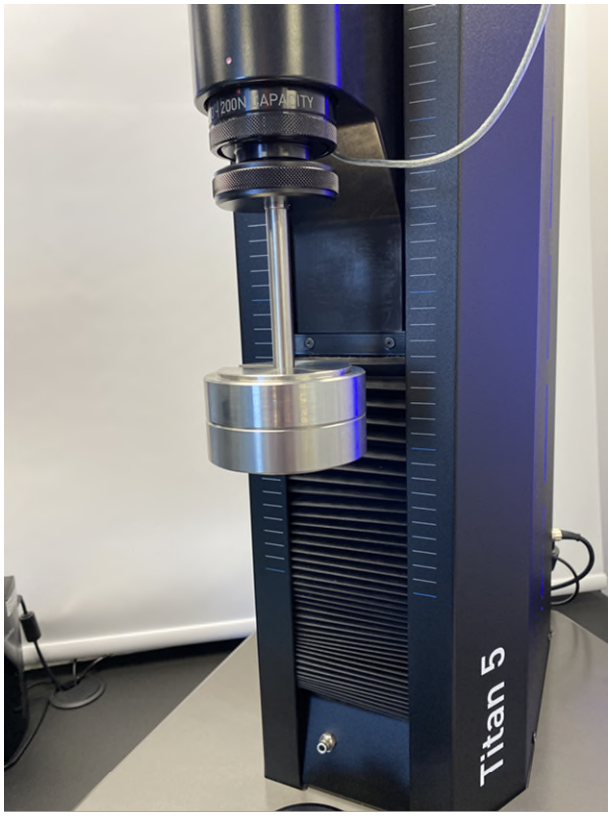
Click Tare Loadcell to zero the loadcell reading.



One at a time, carefully place all 5 circular check weights on to the Check Weight Holder, ensuring they are mounted centrally.

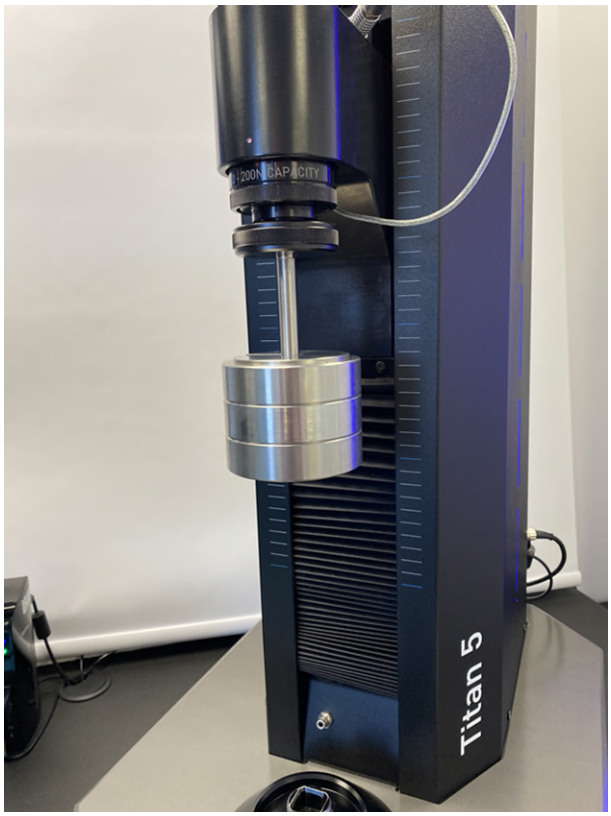
Record the Force reading after the fifth (final / last) weight has been added.

Load Cell:	200 N
Position:	475.59 mm
Position (Jaw)	0.0 mm
Force:	9.996 N



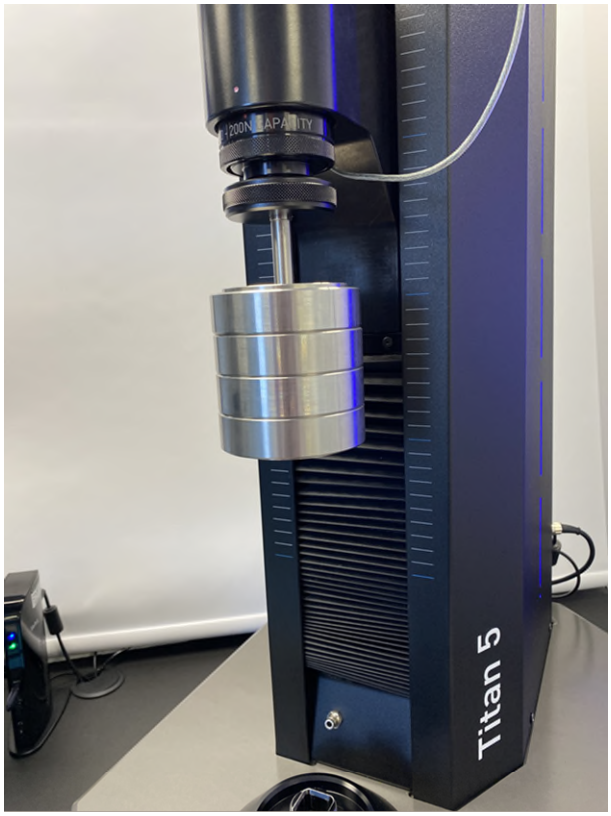
The second weight.

Load Cell:	200 N
Position:	475.59 mm
Position (Jaw)	0.0 mm
Force:	19.992 N



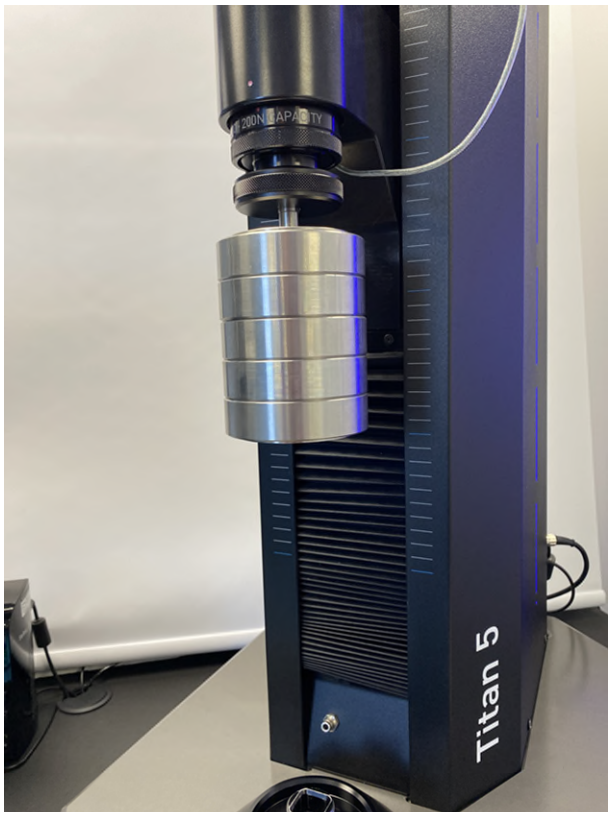
The third weight.

Load Cell:	200 N
Position:	475.59 mm
Position (Jaw)	0.0 mm
Force:	30.005 N



The fourth weight.

Load Cell:	200 N
Position:	475.59 mm
Position (Jaw)	0.0 mm
Force:	40.003 N



The fifth and final weight.

Load Cell:	200 N
Position:	475.59 mm
Position (Jaw)	0.0 mm
Force:	50.002 N

The total force you have added is 50N. The force reading on the screen should confirm this. You can use this value to determine the accuracy and consistency of the loadcell fitted to the Titan. For 0.5% this value should be between 49.75 N and 50.25 N (see notes on next page).

In your log you should record:

- Date and time
- Load cell capacity and serial number
- The final reading from all 5 weights
- Pass / fail according to the tolerances above
- Initials of the operators carrying out the check

If the reading is out of tolerance and the loadcell fails the check, please repeat the check to ensure no errors have been made in the procedure. If the loadcell still fails the check, please contact your James Heal Agent to arrange for recalibration of the load cell(s).

Notes Relating to Gravitational Field Strength on T19 Check Weights

The acceleration due to gravity on Earth is not a uniform 9.81 m/s^2 universally; it ranges from approximately 9.76 to 9.83 m/s^2 based on location. These variations of approximately 0.7% from place to place are primarily caused by the Earth's non-spherical shape (equatorial bulge), centrifugal force from rotation, altitude, and local geology.

The exact standard value defined for scientific and metrological purposes is 9.80665 m/s^2. This value represents the average acceleration that any object experiences near Earth's surface due to the planet's mass and size.

Generally, the closer to the poles you are located, you are closer to the centre of Earth's mass, resulting in higher gravity. If you are closer to the equator, you are further from the centre, resulting in weaker gravity.

For example, Sri Lanka located in the Indian Ocean, an area featuring the one of the lowest gravity values. This anomaly means the gravitational pull is weaker in this region. The gravitational field strength in Colombo is 9.7811 m/s^2

Gravity's main implication in metrology is for weight measurements in that weight is a variable force ($W = m \times g$) rather than a constant amount of matter (mass). While mass remains constant everywhere, weight changes depending on local gravitational field strength, meaning objects weigh less at higher altitudes and slightly less on the equator than at the poles.

Using Sri Lanka again as example, the force range for acceptance on the previous page (i.e., 49.75 N and 50.25 N in the UK) would be adjusted to 49.62 N and 50.12 N in Sri Lanka.