

## S D INSTRUMENTATION Ltd

### CLEGG IMPACT SOIL TESTER TYPE CIST/884 – 4.5 Kg (With Integral Global Positioning - GPS)

#### Ruggedly Designed Tool for Checking Trench Re-instatement & Soil Strength



**Introduction:** - The GPS equipped 4.5 Kg CIST/884 Clegg Impact Soil Tester manufactured by SDi provides an easy and straightforward means for measuring and controlling soil strength and consolidation levels during trench re-instatement. The GPS 884 readout is held to the Bumble Bee guide tube and the displayed reading is viewed from the top during use. Single button operation design provided for easy use.

**Data Logging Feature:**- On board data logging and data storage with wireless data transfer facilities are provided with the CIST/884 instrument. Latitude & Longitude coordinates of the test location are received by the in-built GPS then stored providing users with an accurate location reference for later viewing in eg Google earth™. Users can download their site test results to a PC by Bluetooth, using the PC software supplied with the instrument.

**Usage:**- Used to confirm uniform compaction of over wide areas of ground, identifying poorly compacted areas and ineffective rolling of materials.

**Tough Design:**- The CIST/884 Clegg Impact Soil Tester is a very rugged design suitable for prolonged use in damp, dirty and harsh site environments. The CIST/884 readout unit is made from high strength alloy that has been proven to last for decades. The instrument runs from 2 x 'AA' batteries for typically 12 months operation. The CIST/884 Clegg Impact Soil Tester is a compact and reliable instrument. An aluminium Transit & Storage Case is included.

**Operating Principle:** - The Tester consists of a 4.5 kg compaction hammer operating within a vertical guide tube. The Hammer falls through the tube when released and strikes the surface under test, decelerating at a rate determined by the stiffness of the material within the region of impact. The readout registers the deceleration in units of Impact Value (IV). The IV is an indication of soil strength.



**CBR Measurement:** - Good correlation with results from CBR tests exists. Data from the CIST/884 can be used in a similar manner to results from CBR tests performed in the laboratory and in the field. The CIST/884 display when enabled by the user can directly show the %CBR result based upon Dr Clegg's original pioneering work.

**History:**- The Clegg Test was introduced by British Gas in the UK in 1990 following extensive laboratory and site testing. Since then several thousands of the instrument are now being used throughout the UK and overseas, with operators employing the recommended test routines.

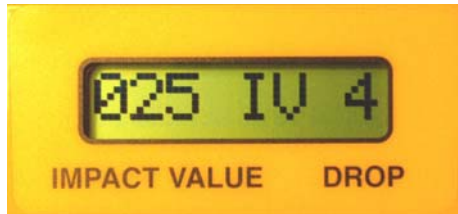


## GPS CLEGG IMPACT SOIL TESTER TYPE CIST/884 – 4.5 Kg

The Tester, described in the UK Design Manual for Roads and Bridges (DMRB) has been approved by the American Society for Testing and Materials and a Standard, under Designation No D 5874 was issued in 1995, entitled “Standard Test Method for Determination of the Impact Value (IV) of a Soil”.

The Clegg Impact Soil Tester is designed, manufactured and marketed by S D Instrumentation (SDi, UK) under an exclusive licence from Dr Baden Clegg, the original Australian inventor.

### CIST884 READOUT UNIT



The Readout Unit displays readings of Impact Value (IV) and also shows the number of times that the hammer has been dropped during each test operation. The number of GPS satellites detected is also displayed confirming successful GPS location fixes.

Carrying out a test is quick and straightforward. The ground surface is brushed lightly with the foot to remove loose material and the Bumble Bee guide tube is placed in position. The digital readout is located on the guide tube shown on the right during testing. The GPS antenna receives the satellite signals. The hammer is raised to a height of 450 mm as indicated on the hammer head and then allowed to fall freely. This procedure is repeated four times, the reading achieved on the fourth drop being recorded as the Impact Value. Software selectable %CBR display and recording is supplied. An automatic GPS measurement is taken with the hammer drops providing a Lat / Long fix.

Tables of target IV for a range of backfill and subgrade materials are given in the operating manual, enabling the operator to check the compliance of reinstatements with the specification levels.



### Specification and Ordering Code

<b><u>CIST/884 Specification:-</u></b>	<b>Order Code:- CIST/884/4.5K/Stor/Blu</b>
Model Number	: CIST/884/4.5K/Stor/Blu
Hammer Weight	: 4.5 Kg (Also for sports surfaces: With 2.25 Kg and 0.5 Kg Hammers).
Bumble Bee Guide Tube	: Strong Anodised Yellow Aluminium, Black Acetal Base Flange & Handle.
Readout Display ( <i>alphanumeric</i> )	: Backlit vertical display. Readout unit clamped to Guide Tube – Easy to view.
Readout Range	: Up to 101 Impact Values (IV).
Power Source	: Low power 3V: From two 1.5V 'AA' Cells. 12 Month typical battery life.
Battery Level	: Displayed at switch-on.
Power 'On' & Controls	: Single push button. Auto switch off after 5 minutes from last reading.
Data Storage in Readout	: Flash Memory for approx 10,000 5-drop tests. Each field contains the 5 drop IV readings, time & date of each test, latitude, longitude & no. of satellites.
Data Transfer Method	: Bluetooth™ Wireless data transfer. No cables & hence hassle free connection to Microsoft based PC or laptop. Bluetooth USB Dongle provided.
Data Files when Transferred	: Comma Separated Variable (CSV) data for manipulation in 3 <sup>rd</sup> party packages such as Excel™ & KML readable by eg Google earth™. Viewable directly in Google map™. Calculates & stores Ordnance Survey GB Eastings & Northings.
GPS Accuracy / Output	: Typically < 2.5m average. Google map™, Google earth™ & Ordnance Survey GB Easting & Northing to 1m res. (eg “ST 80269 55704” & “E380269 N155704”).
Readout Displaying %CBR	: Software Selectable %CBR display & memory storage.
Readout Q. A. Firmware	: Software Selectable TREND Algorithm checks inter-IV readings & Readout advises user if surface being tested has failed (Readout displays 'ABORT').
System Software	: PC Software provided from SDi to facilitate data transfer, real time test view, time/date setting and configuration set-up. Very easy to use.
Transit & Storage Case Size & Weight (approx).	: Type CIST/ATS/15. Aluminium case for added protection in transit. 71 x 13 x 13 cm. Instrument weight 7 Kg. Packed weight in case 16 Kg.

Specifications subject to change without prior notice.