

Turf-Tec Penetrometer Instructions



The Turf-Tec Penetrometer is a professional instrument to determine soil compaction.

The Turf-Tec Penetrometer is a necessary tool to help determine problems before they become visually apparent. It is useful in determining when to aerify an area and also assess an area for potential problems. The Penetrometer is useful in determining how golf balls will react when they land on an approach or golf green.

Features:

Monitor soil compaction on:

- Golf Courses
- Golf Tees
- Fairways
- Dry Spots
- Pathways
- New Construction
- Sports Fields

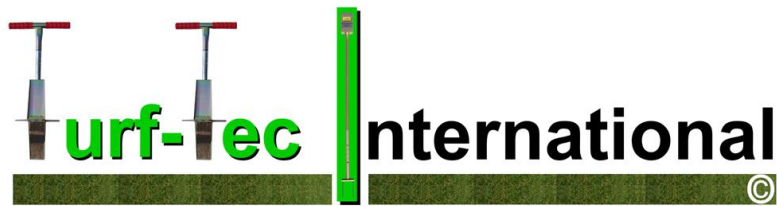
Specifications:

- Easy to use.
- Readings are immediate.
- Overall height 48" tall.
- Weight 5 pounds.
- Plated for long life.
- Reliable, gravity operated.
- Spring trigger quick release.
- Calibrated from 0% to 100% compaction.



Use the Turf-Tec Penetrometer to determine soil compaction in percentages of pore space within the soil profile.

On athletic fields, the Penetrometer will show how hard the soil is to gauge player safety and also footing. It can prevent player injury by allowing sports turf manager to keep fields in playable conditions year round.



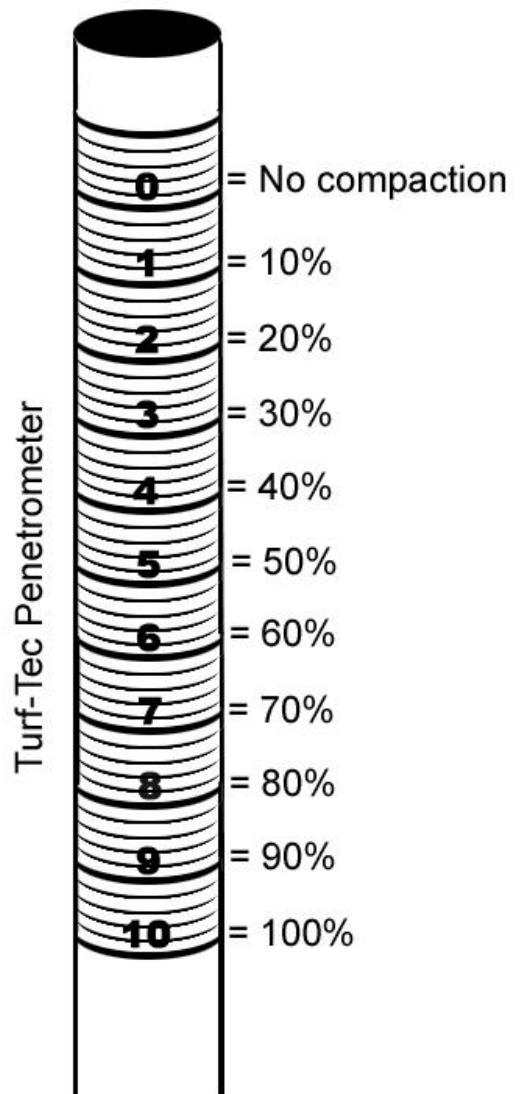
Instructions

The Turf-Tec Penetrometer* is a precision instrument to determine compaction in the soil profile. It operates on the simple principle of gravity. A calibrated known weight is released and dropped. A specially shaped penetrating needle enters the soil and its depth of penetration registers on the scale.

Since the Turf-Tec Penetrometer is activated by gravity, its scale readings will always be consistent. It does not have to be adjusted or need replacement parts.

HOW TO USE THE TURF-TEC PENETROMETER INSTRUCTIONS

- A) Position the base of the instrument on the turf.
- B) Release the lock handle located at the top of the outside tube so that the calibrated weight shaft slides up and down freely.
- C) Raise the calibrated rod until it clicks past the release trigger. Lower gently until it locks in place. The rod will now extend 18 inches from the top of the tube to "0" on the scale.
- D) Press trigger away from tube and hold to release weight rod. Read depth of penetration on the scale.
- E) The Turf-Tec Penetrometer is calibrated from 10 to 0, "10" represents 100% compaction and zero represents no compaction.



The Turf-Tec Penetrometer is an excellent tool to help the turfgrass manager to better determine the condition of the soil and the needs of the turf.

The calibrations are assumed to be approximations of actual conditions. Wet or dry soils will obviously alter the results shown on the scale. Best readings of the scale can be achieved when soils are in the mid range of soil moisture.

Turf-Tec Penetrometer Applications

GOLF GREENS

When the Penetrometer is used in mid-moisture range of soil, 50% compaction appears to be the average for good golf green soils. New USGA greens or greens being top dressed with sand will average slightly higher, or nearer 60% compaction. These are generalities and compaction percentages may run higher or lower on your greens. Each green should be analyzed in relation to playability. If a green plays well, compaction levels should be recorded for that particular green. Subsequent readings with your Turf-Tec Penetrometer will then show deviations from the norm. Often consistency from one green to another green is more important than actual percentages as all greens will play and react with the ball the same way.

DRY SPOTS

Dry spots can be detected before they cause wilting. They can be detected visually when grass turns a bluish or purple, and when foot prints are visible on the turf surface. To confirm that a dry spot is starting to form, the Turf-Tec Penetrometer will register the difference in penetration.

LAYERS

Layers of sand, peat or thatch will be evident from wide fluctuations in depth readings on the scale. Soil compaction layers, usually found in the two to four inch zone will be evident on the scale. Rocks or stones will, of course, be quite evident on the scale.

SURFACE COMPACTION

Perimeters of greens, walk-off areas, and cupping areas may show more compaction than the rest of the green. These areas can be spot aerified with the Aeriforke or mechanically aerified with a powered machine, without doing the whole green.

ATHLETIC FIELDS AND OTHER SPORTS AREAS

These areas should be monitored with the Turf-Tec Penetrometer in relation to the intensity of use.

FOOTBALL FIELDS

Readings should be made and recorded at each ten yard line from end to end and at least four from side to side in each ten yard area.

BASEBALL FIELDS

Random readings should be made on the infield and outfield recorded and compared to detect the development of problems.

OPEN PLAYFIELDS AND OTHER SPORTS TURF AREAS

Record Turf-Tec Penetrometer readings on the soils of each area. At least nine readings should be taken (three on each side and three down the center). Compare on regular monthly intervals.

LIMITED WARRANTY OF TURF-TEC INTERNATIONAL PRODUCTS

Turfgrass Products Corporation - dba - Turf-Tec International ("Seller") warrants to the final purchaser, that all Turf-Tec International tools will be free from defects in material or workmanship for a period of one year from date of purchase. SELLER'S SOLE OBLIGATION AND YOUR EXCLUSIVE REMEDY under this Limited Warranty and, to the extent permitted by law, any warranty or condition implied by law, shall be the repair or replacement of parts, without charge, which are defective in material or workmanship and which have not been misused, carelessly handled, or improperly repaired by persons other than Turf-Tec International. To make a claim under this Limited Warranty, you must return the complete tool, transportation prepaid, to Turf-Tec International after contacting Turf-Tec International and receiving a return authorization number. Please include a dated proof of purchase with your tool.

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Hold Harmless Agreement

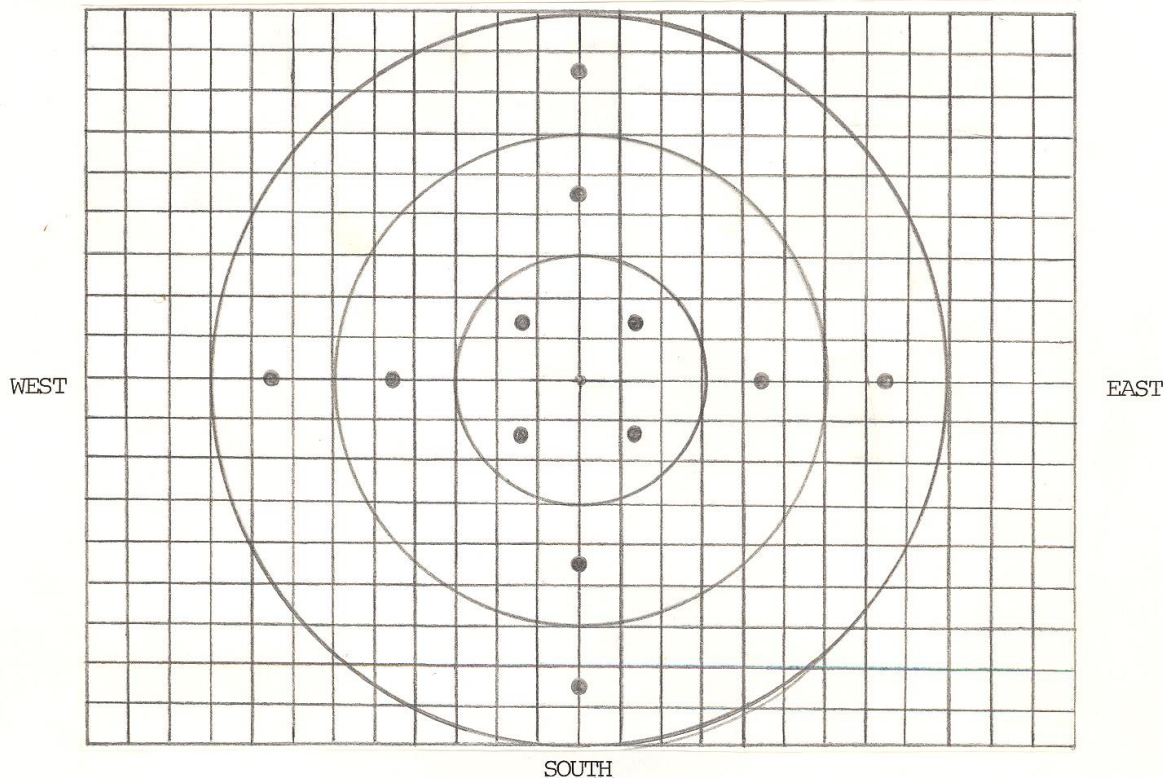
The seller shall protect, defend, indemnify and hold the purchaser and their respective assigns and their attorneys, accountants, employees, officers and directors harmless from and against all losses, costs, liabilities, claims, damages and expenses of every kind and character, as incurred, resulting from or relating to or arising out of the inaccuracy of results, injury of user, injury of sports participant, turfgrass loss, warranty, covenant or any agreement made by the seller in this agreement.

TURF-TEC PENETROMETER[®]

Monitoring Record

SKETCH GREEN ON GRAPH

NORTH



COUNTRY CLUB NAME : _____

SUPERINTENDENT : _____ DATE : _____

HOLE NUMBER _____ GREEN TEE FAIRWAY

PERIMETER READINGS : NORTH _____
 EAST _____
 SOUTH _____
 WEST _____

INNER PERIMETER READING : NORTH _____
 EAST _____
 SOUTH _____
 WEST _____

CENTER READINGS : NORTH _____
 EAST _____
 SOUTH _____
 WEST _____

*** NOTE *** Make copies of this sheet
 (one for each intended area) and
 keep this copy for the original.

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TURF-TEC INTERNATIONAL

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 (850) 580-4026

TURF-TEC PENETROMETER[®] MONITORING RECORD

FOR ATHLETIC FIELDS

NORTH										
Goal	10	20	30	40	50	40	30	20	10	Goal
NORTH EAST										NORTH WEST
CENTER										CENTER
SOUTH EAST										SOUTH WEST
Goal	10	20	30	40	50	40	30	20	10	Goal
SOUTH										

ALWAYS RECORD FIELD FROM EAST TO WEST.

SPORTS FIELD NAME _____

SPORTS TURF MANAGER _____ DATE _____

EAST TO WEST READINGS

<u>YARDAGE</u>	<u>NORTH</u>	<u>CENTER</u>	<u>SOUTH</u>
EAST GOAL			
10			
20			
30			
40			
50			
40			
30			
20			
10			
WEST GOAL			

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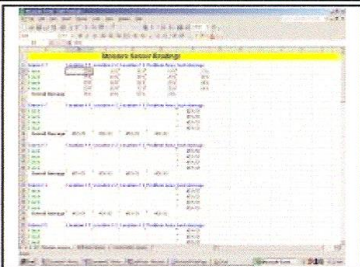
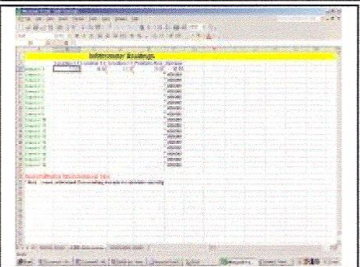
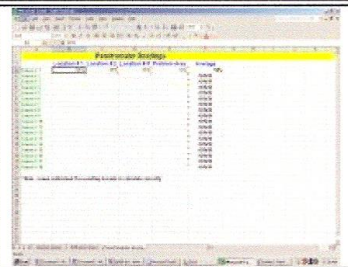
Turf-Tec International free downloadable spreadsheets for monitoring turfgrass areas.

Turf-Tec International

Free downloadable spreadsheets for monitoring turfgrass areas.



Included is Moisture Sensor data, Penetrometer data sheet and Infiltrometer data sheets with automatic calculation of averages.

		
Sample of the Turf-Tec Moisture Sensor monitoring spreadsheet. This sheet includes moisture readings for levels of 1, 2, 3, and 4 inches in the soil profile. It also calculates average moisture by depth and by area.	Sample of the Turf-Tec Infiltrometer monitoring spreadsheet. It is meant for infiltration readings for three different test areas and will automatically calculate average infiltration readings in inches per hour.	Sample of the Turf-Tec Penetrometer monitoring spreadsheet. It is meant for Penetrometer readings for three different test areas and will automatically calculate average compaction readings.

For A free download of Excel spreadsheet for diagnosing Golf Greens click here and **save** the file to your computer:

<http://www.turf-tec.com/Excel/Golf-Tests.xls>

For A free download of Excel spreadsheet for diagnosing Athletic Fields click here and **save** the file to your computer:

<http://www.turf-tec.com/Excel/Sports-Tests.xls>

Note: This file will only work if you have Excel already on your computer.



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