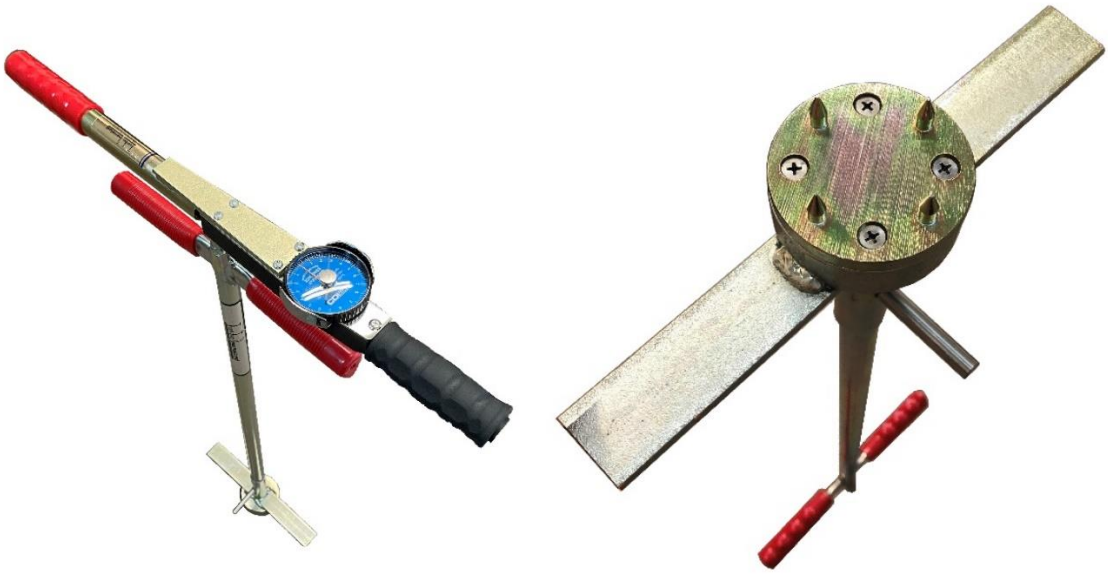
Turf-Tec Synthetic Turf Shear Strength Tester for Synthetic Athletic Field Turf TSHEAR2-SYNTH-M



For testing synthetic turf fields, the Synthetic Turf Shear Strength Tester has a specially designed foot. This foot is specifically designed for testing Synthetic Turf and has an extremely sensitive, precision 0-9 nm (newton meter) wrench for exact readings on synthetic and infill surfaces. This newly designed tool has a foot that has four hardened steel spikes that protrude 1/2 inch (12.7 mm) below the foot and into the synthetic turf fibers and infill.

This depth is optimal for testing synthetic shear strength values without damaging the turf or penetrating the synthetic turf backing material. The overall goal is to achieve consistent shear strength values across the entire playing surface. When testing, in addition to the standard 10 recommended test areas shown below, careful attention should be given to painted areas and inlaid areas to ensure footing is consistent in these areas as compared to non-painted and non-inlaid areas.

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Turf-Tec Synthetic Turf Shear Strength Tester for Synthetic Athletic Instructions

 	**Step 1** Determine if you are going to test with cleats or the synthetic turf foot.
	**Step 2** Using the horizontal foot pad, press the Turf-Tec Synthetic Turf Shear Strength Tester for Synthetic Athletic Field Turf into the synthetic turf until tool spikes or cleats are all the way into the synthetic fibers surface. ***Do not push the unit into the turf with the torque wrench on the unit as damage to the wrench calibration may occur.***
	**Step 3** After inserting the tool into the turf, place torque wrench into receptacle on top of Turf-Tec Synthetic Turf Shear Strength Tester as shown. **Make sure the follower needle is on zero and aligned with the direction of turn.
	**Step 4** **Do not apply any downward pressure on the device when taking a reading!** Using slow but steady pressure, turn the torque tool using both handles toward the follower needle. When the teeth or cleats start slipping and the needle drops, this is the highest number you will see on the follower needle.
	**Step 5** Read maximum reading on the follower needle and record this number.
	**Step 6** Remove torque wrench from tool. ***Do not lay the unit down with the torque wrench attached to the unit as damage to the precision calibration may occur.***

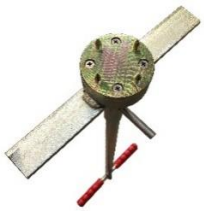
	**Step 7** After testing, remove the torque wrench and reset the follower needle to zero. Re-apply torque wrench before testing again.
	**Step 8** Repeat above procedure for each different area and if testing cleats, for each type of cleat to be tested.

Testing Synthetic Turf with Cleats

For testing synthetic turf fields, the Turf-Tec Synthetic Turf Shear Strength Tester can also give an indication of the proper length cleats to be worn as well as ensuring the playability and footing is the same across the entire playing surface. Just remove the Synthetic Turf Shear Strength Tester foot and insert four cleats into the holes in the base of the tool to test. Use the Turf-Tec Synthetic Turf Shear Strength to determine proper cleat length footing values and match those values with an infill depth gauge to also ensure the infill material is the same depth across the entire playing surface. Also testing hardness of the surface with a Clegg Impact Tester to find out gMax readings will also show hardness of the playing surface. By having the cleat shear strength reading, the gMax reading and the infill depth reading all in the same range across the entire playing surface will ensure playability and footing is consistent for synthetic turf safety.

For testing natural turf fields, the Turf-Tec Shear Strength Tester can be fitted with the optional replacement shear vane foot.

Switching from Synthetic Turf Shear Strength Tester Foot to Cleats

		
To switch from the Synthetic Turf Shear Strength Tester foot to testing cleats follow these steps…	Place phillips screwdriver in screws that attach the synthetic turf foot and remove four screws	Remove synthetic turf foot plate from unit
		
Synthetic turf foot plate removed and screws	Place cleats in holes provided	Tighten cleats (Do not overtighten)
		Turf-Tec International
Test as instructed above		

Turf-Tec Synthetic Turf Shear Strength Tester Uses

The Turf-Tec Synthetic Turf Shear Strength Tester for Synthetic Athletic Field Turf is not only useful in determining the shear value of synthetic turf, it is also useful in determining what types of cleats to wear before play or practice. Keep in mind that what you are looking for is consistency from sideline to sideline and endzone to endzone or goalmouth to goalmouth. Any areas of unlike shear strength should be notated and inspected further for things like proper infill depth and other factors that may be causing these changes in readings. Any areas of inconsistent readings are a potential area where footing can be different and player injury can occur.

New Fields

The Turf-Tec Synthetic Turf Shear Strength Tester for Synthetic Athletic Field Turf is also useful in testing newly installed fields to get a baseline of traction after installation. With these baseline numbers, you can set thresholds on when it is time to groom, clean or re-condition the fields in order to maintain their playability and life and to ensure safe footing.

Fields before and after grooming and cleaning

Synthetic Turf Fields should be tested with the Turf-Tec Synthetic Turf Shear Strength Tester for Synthetic Athletic Field Turf before and after grooming and cleaning to see the effectiveness of the process. This will also ensure the process has been effective in returning the fields footing back to original specifications.

Evaluating painted areas of synthetic fields

Using the Turf-Tec Synthetic Turf Shear Strength Tester for Synthetic Athletic Field Turf can allow you to evaluate painted areas like lines, logos, and other areas where paint has been applied to synthetic turf.

Differences and inconsistencies in shear strength can point out areas of a field where there is a potential where footing can be different and player injuries can occur.

For painted fields where paint removal is also performed, these areas should also be checked for differences in shear strength values. These areas where cleaners and solvents are applied if the paint or cleaners are improperly rinsed off can also have differences in shear strength values and the potential for player footing issues and concerns.

Evaluating inlaid areas of synthetic fields

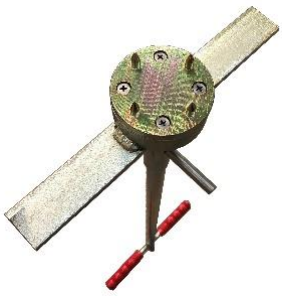
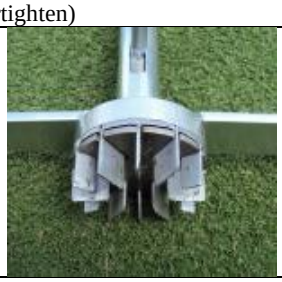
Using the Turf-Tec Synthetic Turf Shear Strength Tester for Synthetic Athletic Field Turf to check inlaid lines and inlaid logos is also useful as these areas can sometimes have different fiber length and fiber types, causing differences in shear strength values and also footing characteristics. As mentioned previously, the most important thing is consistency in the playing surface.

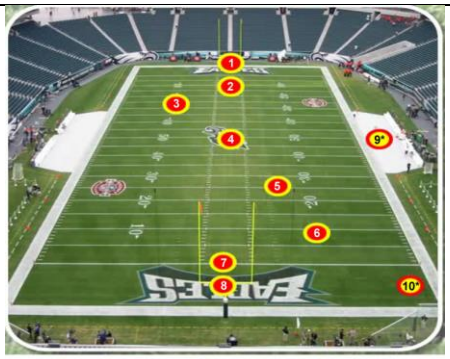
Testing Qualifications

The Turf-Tec Synthetic Turf Shear Strength Tester for Synthetic Athletic Field Turf is designed to give an indication of what the playability of an athletic field will be like. Turf-Tec does not guarantee cleat selection will be the best for athletes, as the ultimate cleat selection depends on skill and ability of each player.

Optional - TSHEAR2-FOOT
Replacement Foot for Natural Grass

For testing natural grass fields, the Turf-Tec Synthetic Turf Shear Strength Tester for Synthetic Athletic Field Turf can be fitted with the optional shear vane (Part # TSHEAR2-FOOT) replacement foot for natural grass as shown below AND use the 0-30 nm wrench (TSHEAR2-Raw Wrench-0-30nm) for shear vane testing on natural grass. DO NOT USE 0-9 nm wrench for this testing as damage to calibration of the 0-9 nm wrench can result.

		
The Turf-Tec Synthetic Turf Shear Strength Test Synthetic Turf can be fitted with the shear vane foot for natural turf	Turn unit upside down	Unscrew four screws that hold the Synthetic Turf Shear Strength Tester foot in place
		
Remove Synthetic Turf Shear Strength Tester Foot	Position shear vane foot over four existing holes	Tighten screws securely (do not overtighten)
		
Push center ejector mechanism down and into position	Attach ejector foot with Phillips's screw in center hole and tighten screw securely (do not overtighten)	Use 0-30 nm wrench to test shear vane strength on natural grass. DO NOT USE 0-9 nm wrench for this testing as damage to calibration can result



Penn State's Center for Sports Surface Research

10 Suggested Test Areas for Shear Strength and Clegg Impact Testing

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