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Ball Ramp – Ball Roll and Ball Rebound Instruction Booklet* For testing soccer, baseball, softball, cricket, and polo fields. - BALL-ROLL-01-M

Assembly Instructions: Unassembled Ball Roll and Ball Unfold top section and insert foot as Place bolt provided through holes in top section and foot and secure (do Rebound unit shown not over tighten) Insert bottom section of ball ramp Slide both sections together Loosen thumb screw on top section and extend ball bounce section. into top section as shown Align 2-meter ruler as shown. Tighten thumb screw



FIFA / Soccer / Football Testing

FIFA Field Test Positions

Unless otherwise specified, tests on site shall be made in the positions in the figure shown below. All field tests, when not otherwise specified, shall be undertaken in positions 1 - 6. The orientation of test positions shall be determined by the tester, however, return visits to the area should use the exact same test areas and test positions.



FIFA Wind Speed

Ball roll and ball rebound tests (unless the test area is screened from the wind) shall be made when the maximum prevailing wind speed is less than 4.5 mph / 2 meters per second. The wind speed at the time of test needs to be recorded using a wind meter.

FIFA Ball Specifications

Tests shall be made with a FIFA QUALITY PRO football. Immediately prior to any test, the pressure of the ball should be adjusted so the ball gives a rebound on concrete to the bottom of the ball, at the temperature the test will be made, of 1.35 ± 0.03 m, from a drop height of 2.0 + 0.01m. If the pressure adjustment is excessive and puts the ball pressure outside of the normal operating pressure, as defined by the ball manufacturer, the ball should be rejected.

FIFA Ball Roll Test

Determination of Ball Roll (FIFA Test Method 03)

• A ball is rolled down the ramp and allowed to roll across the surface until it comes to rest. The distance the ball has travelled across the surface is recorded.

The Test Apparatus Comprises:

- A ball roll ramp. The ball shall transfer from the ramp to the surface without jumping or bouncing.
- Method of measuring the distance the ball rolls to an accuracy of ±0.01m (e.g. steel tape, laser).
- FIFA QUALITY PRO football.
- \circ Means of measuring wind speed to an accuracy of 0.1 meters per second.

Test Procedure

- 1. Validate the vertical rebound of the test ball on concrete immediately before the testing.
- Adjust the ramp so that it is perpendicular to the surface and so the end of the guide rails are sitting on the top of the infill (in filled systems) or on the top of the pile of unfilled systems or on top of the turfgrass for natural grass fields so that the ball rolls smoothly from the ramp onto the surface without jumping or bouncing.



- 3. Place the ball on the ball roll ramp so the point below the center of the ball sitting on the ramp is 1000 ±5 mm above the test area.
- 4. Release the ball and allow it to roll down the ramp and across the test area until it comes to rest. Measure the distance from the point the ball first comes into contact with the test area (top of carpet pile or turfgrass) to the point below the center of the ball resting on the test area at the position the ball came to rest.

Expression of Results

Report the ball roll value to the nearest 0.1m (e.g., 6.9m) Quote the uncertainty of measurement as + 0.05m

FIFA Ball Roll Test Results:

Property	Test Method	Test conditions			Requirements	
		Preparation	Temperature	Condition	FIFA QUALITY PRO	FIFA QUALITY
Reduced Ball roll	FIFA 17 & FIFA 15	Pre-conditioning	23°C	Dry	4 – 8 m	4 – 10 m
		Simulated Wear – 3010 cycles		Dry	4 – 8 m	N/A
				Wet	4 – 8 m	N/A
		Simulated Wear – 6010 cycles		Dry	N/A	4 – 12 m
				Wet	N/A	4 – 12 m

FIFA Ball Rebound Test

Determination of ball rebound (FIFA Test Method 01)

• A ball is released from 2m and the height of its rebound from the surface is calculated.

Laboratory tests are also undertaken to assess the effects on this property of compaction through simulated use of the surface.

The Test Apparatus Involves:

- A ball roll ramp with ball height device.
- A fixed release point that allows the ball to fall vertically from 2.00 +0.01m (measured from the bottom of ball) without imparting any impulse or spin.
- Vertical scale to allow the drop height of the ball to be established.
- Timing device, ideally activated acoustically, capable of measuring to an accuracy of 1meter per second.
- FIFA QUALITY PRO football.
- Means of measuring wind speed to an accuracy of 0.1 meters per second.

Test Procedure

- 1. Validate the vertical rebound of the ball on concrete immediately before testing.
- Release the ball from the top of the ball rebound portion of the ball ramp, which is 2.00 ±0.01m from the bottom of ball to top, above the top of the pile of filled and unfilled systems of playing surface, or the top of the turf on a natural grass field, and record the time between the first and second impact in seconds.
 - Recoding the test with a video camera or cell phone with a running stopwatch in the recording frame will aid in interpreting the exact height and time between impacts.
 - You can also download an Acoustic Stopwatch app form the IOS or Android Store called "Phyphox" <u>https://phyphox.org/download/</u> that will allow you to use your phone as an Acoustic Stopwatch.



Calculation and Expression of Results

For each test calculate the rebound height using the formula: H = 1.23 (T - Δt)² x 100

Where: H = rebound height in cm T = the time between the first and second impact in seconds $\Delta t = 0.025s$ Report the value of ball rebound to the nearest 0.01m as an absolute value in meters (e.g. 0.79m).

Quote the uncertainty of measurement as + 0.03m.

Example: Time 1 = 0.827 seconds = T (The time between the first and second impact in seconds) H= 1.23 (0.827-0.025)² x100 H= 1.23 (0.6432)x100 H= 1.23 (0.6432)x100 H= 1.23 (64.32) H= 79.11 =cm H= 0.79 m

Ball Rebound Test Results:

Property	Test Method	Test conditions			Requirements	
		Preparation	Temperature	Condition	FIFA QUALITY PRO	FIFA QUALITY
Vertical ball rebound	FIFA 01 & FIFA /15	Pre-conditioning	23°C	Dry	0.60m - 0.85m	0.60m – 1.0m
				Wet		
		Simulated Wear – 3010 cycles		Dry	0.60m - 0.85m	N/A
		Simulated Wear – 6010 cycles		Dry	N/A	0.60m – 1.0m

*Portions of this instruction booklet come from FIFA Quality Programme for Football Turf Handbook of Test Methods October 2015 Edition and FIFA Quality Programme for Football Turf Handbook of Requirements October 2015 Edition. A copy of the original documents should be obtained from FIFA for comparison.

Baseball, Softball, Polo and Cricket Field Testing

Baseball, Softball, Polo and Cricket Ball Roll Test

The Ball Ramp – Ball Roll and Ball Rebound tool can also be used for testing baseball, softball, polo, and cricket ball roll and rebound in a similar manner as described above for testing for soccer balls. First, the ball rail ramps need to be moved into a closer position to accommodate the smaller size of a cricket, softball, polo, or baseball.







Move ramp supports to inward most	Do this for both support brackets	Reassemble the ball ramp screw	
holes and hand tighten bolts, so they remain loose	making sure both rails are in the innermost holes	and spacers as shown, making sure washers are between each metal part to allow folding up of tool. Do not overtighten	
Tighten all bolts on supports and	Tighten all bolts on supports and	Loosen thumb screw on top section	
top screw assembly	top screw assembly	and extend ball bounce section.	
		Align 2-meter ruler as shown.	
For baseball ball roll, position ball	Release ball from this position and	For ball rebound, align ball just	
allowing it to touch support	anow to foil until it stops	to drop	
anoming it to touon support			

Wind Speed

Ball roll and ball rebound tests (unless the test device is screened from the wind) shall be made when the maximum prevailing wind speed is less than 4.5 mph / 2 meters per second. The wind speed at the time of test also needs to be recorded using a wind meter.

Ball Specifications

Tests shall be made with a new, unused ball that is league or association approved and meets all required specifications.

Ball Roll Test

Determination of Ball Roll

• A ball is rolled down the ramp and allowed to roll across the surface until it comes to rest. The distance the ball has travelled across the surface is recorded.

The Test Apparatus Involves:

• A ball roll ramp. The ball shall transfer from the ramp to the surface without jumping or bouncing.



- Method of measuring the distance the ball rolls to an accuracy of ±0.01m (e.g., steel tape, Fiberglass Tapes, or laser).
- Approved league ball.
- Means of measuring wind speed to an accuracy of 0.1 meters per second.

Test Procedure

- 1. Validate the vertical rebound of the test ball on concrete immediately before the testing and record this result.
- 2. Adjust the ramp so that it is perpendicular to the surface and so the end of the guide rails are sitting on the top of the infill (in filled systems) or on the top of the pile of unfilled systems or on top of the turfgrass for natural grass fields so that the ball rolls smoothly from the ramp onto the surface without jumping or bouncing.
- 3. Place the ball on the ball roll ramp so the point below the center of the ball is resting against the top support as shown here.



4. Release the ball and allow it to roll down the ramp and across the test area until it comes to rest. Measure the distance from the point the ball first comes into contact with the test area (top of carpet pile or turfgrass) to the point below the center of the ball resting on the test area at the position the ball came to rest.

Specifications:

Size Folded: 50" x 13" x 8" inches (127 x 33 x 20 cm) Size open and rebound test arm extended: 66" x 20" x 79" inches (168 x 51 x 201 cm) Weight (unboxed): 11 lbs (5 kg) Construction: Solid aluminum construction Unfolds and is ready to use in under 10 seconds Folds up for transport in under 10 seconds <u>http://store.turf-tec.com/ball-roll.html</u>

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. ANY IMPLIED WARRANTIES SHALL BE LIMITED IN DURATION TO ONE YEAR FROM DATE OF PURCHASE. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING BUT NOT LIMITED TO LIABILITY FOR LOSS OF PROFITS) ARISING FROM THE SALE OR USE OF THIS PRODUCT. Hold Harmless Agreement

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.

