



FIFA®

FIFA TECHNICAL GUIDELINES FOR THE MAINTENANCE OF ARTIFICIAL - FOOTBALL TURF PITCHES

**STANDARDS TO MAINTAIN PITCH PERFORMANCE,
SAFETY AND LONG-TERM DURABILITY**

MARCH 2026 EDITION

CONTENTS

01.

INTRODUCTION	4
1.1 Objectives	6
1.2 Principles of good maintenance	7

02.

ROUTINE MAINTENANCE TOOLS AND MATERIALS – ESSENTIAL AND FREQUENT TASKS	8
2.1 Footwear guidance sign	9
2.2 Visual inspection	10
2.3 Tractor requirements for routine maintenance	11
2.4 Drag brush	12
2.5 Brushing patterns	13
2.6 Ground-driven rotating power brush	14
2.7 Infill level gauge	14
2.8 Ball roll ramp	15
2.9 Maintenance log system	17

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03.

ADVANCED MAINTENANCE TOOLS AND MATERIALS – PREVENTIVE AND SITUATIONAL TASKS (QUARTERLY OR AS NEEDED) 18

3.1 Tractor requirements for advanced maintenance	19
3.2 Infill decompactor	20
3.3 Oscillating brush system	21
3.4 Deep cleaning machine	22
3.5 Snow and ice removal tools	23
3.6 Chemical application sprayer	23

04.

ANCILLARY ITEMS 24

4.1 Boot scraper/entrance mat	25
4.2 Spare infill storage system	25
4.3 Goal transport wheels	26
4.4 Pitch condition tester	27
4.5 Rotational traction tester	28



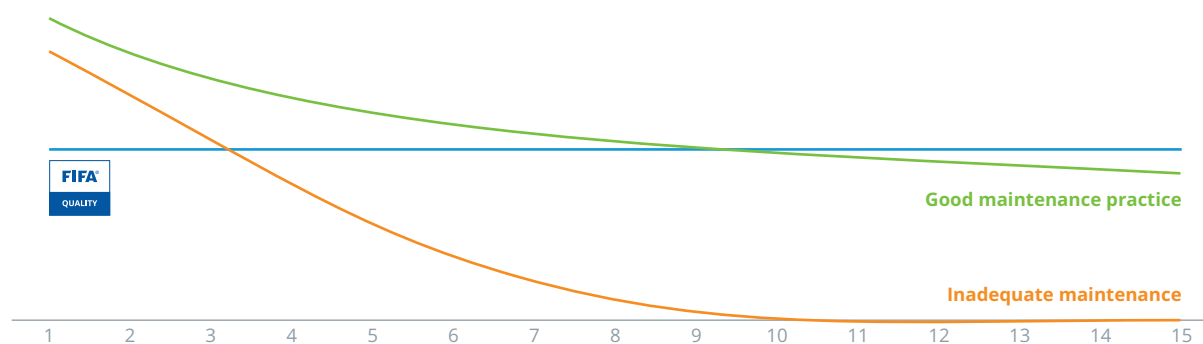
5

INTRODUCTION

Maintaining artificial football turf is critical for ensuring compliance with the FIFA Quality Programme for artificial Football Turf. Proper equipment use sustains performance metrics, ensures player safety, extends pitch longevity and preserves warranty coverage. This document outlines a comprehensive list of maintenance equipment/tools, materials and tasks required for FIFA-certified pitches, categorised by the level of maintenance (routine or advanced) and accompanied by use guidelines, performance specifications and best practice.

Regular maintenance:

- preserves player safety and comfort;
- upholds pitch performance and compliance;
- extends pitch longevity and protects warranties; and
- enhances aesthetic quality and facility value.



01. INTRODUCTION

1.1 OBJECTIVES

These guidelines have been drawn up with the aim of enabling facility/pitch managers to fulfil the following objectives:

- Preserve appearance and longevity – improper care accelerates degradation and reduces lifespan.
- Deliver peak performance – maintenance ensures a consistent ball roll and bounce, as well as safety.
- Address use- and environment-related impacts – varying use, weather and contamination levels require adaptive maintenance.
- Satisfy warranty requirements – most manufacturers link warranties to proper, documented maintenance.

1.2 PRINCIPLES OF GOOD MAINTENANCE

It is sometimes claimed that artificial surfaces are maintenance-free. This is not only a myth but a dangerous concept. Maintaining a artificial football-turf pitch is fundamental for aesthetic, safety, playing performance and longevity reasons.

- Aesthetics: Clean, well-groomed pitches attract and retain users.
- Safety: Neglected surfaces pose player injury risks.
- Performance: Unmaintained surfaces affect ball dynamics and players' footing.
- Longevity: Poor maintenance shortens the pitch's functional life.

General guidelines

- Do not undertake any action without prior authorisation from the pitch installer.
- Avoid unapproved chemicals – consult with the supplier before use.
- Refuel maintenance equipment away from the turf.
- Do not leave engines running while equipment is stationary on the turf surface – exhaust fumes may damage the fibres.
- Use only turf-approved tools and accessories.

Playing equipment guidelines

- Use portable goals with wheels (goals should never be dragged across the playing surface).
- The pitch use hours and rules (no smoking, chewing gum or littering on the pitch) should be clearly displayed.





ROUTINE MAINTENANCE TOOLS AND MATERIALS – ESSENTIAL AND FREQUENT TASKS

Task	Frequency	Key tools/materials
Visual inspection	Daily	Checklist
Brushing surface	Two to four times per month	Drag brush, rotating brush
Topping up infill	Weekly to monthly	Infill gauge, hand tools, spare infill
Cleaning surface	Weekly or post-event	Debris sweeper, vacuum
Logging and inspection	Weekly	Maintenance log, pitch monitor
Algae/weed treatment (if needed)	Every two months or as needed	Approved chemical sprayer

2.1 FOOTWEAR GUIDANCE SIGN

To protect the playing surface and ensure player safety, it is important that users wear the correct footwear when accessing an artificial pitch, as outlined in the below guidance sign.

PLAY SAFE – WEAR THE RIGHT BOOTS

Using the right footwear helps maintain the pitch quality and ensures safe footing for all players.

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Recommended
footwear:



Moulded or rubber studs
designed for artificial turf

Non-recommended
footwear:



Metal studs

Not allowed
on the pitch:



Flat-soled sports shoes or
everyday footwear
Any shoes with heels or hard edges

Please clean your boots before accessing the pitch—this helps maintain a safe, consistent playing surface for everyone.

Pitch Use Rules – Please Respect the Following:

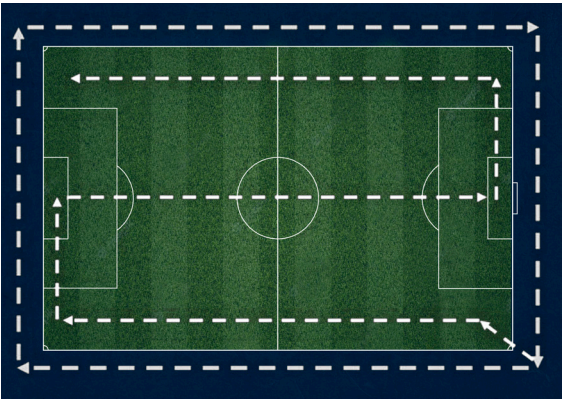
- No food, chewing gum, glass bottles or cans on the pitch
- No smoking or vaping in or around the pitch area
- Please dispose of litter in the bins provided
- Equipment must be carried or wheeled, not dragged across the surface



02. ROUTINE MAINTENANCE TOOLS AND MATERIALS

2.2 VISUAL INSPECTION

This inspection is based on FIFA Test Method 2024-09 (see the FIFA Quality Programme for Football Turf Test Manual I: Test Methods), which is aimed at FIFA-accredited technicians. The person in charge of the maintenance walks across the pitch, following a predetermined pattern. Any visual cases of non-compliance or deviations from the required standards are carefully observed and documented on a site plan. This method ensures that all visible issues or discrepancies on the pitch are accurately recorded for further assessment and the relevant corrective measures.



The key categories of defects to which attention should be paid are listed below, along with suggested codes to record them during the inspection.

Seams

- Gap in seam (SG)
- Seam failure (SF)

Fibres

- Adhesive on fibres (FA)
- Burnt fibres (FB)
- Loose fibres (FL)
- Worn fibres, i.e. high wear (FW)

Infill

- Excess infill, i.e. high amount (IH)
- Lack of infill, i.e. low amount (IL)

Other

- Debris on surface (DD)
- Wrinkles (DW)
- Other defect (DO)

2.3 TRACTOR REQUIREMENTS FOR ROUTINE MAINTENANCE

Power

The tractor must deliver a minimum of 10 horsepower (HP) per metre of working width. The working width is the effective operating width of the maintenance equipment, that is, the width of the artificial-turf area that the machine can maintain in one pass.

Example

1.4m working width → ≥14HP

2.0m working width → ≥20HP

Additional reserve power (approximately +10%) is recommended to maintain performance under heavy loads or on synthetic turf with high resistance.

Tyres/ground contact

The tractor must be equipped with turf tyres (low-profile, wide-contact design) to minimise ground pressure and prevent surface damage. Agricultural tyres or deep-lug profiles are not permitted, as they may harm the turf.

The tyre pressure should be as low as possible within the manufacturer's approved range, to ensure optimal traction with minimal surface compression.

Drive system

A hydrostatic transmission is required to enable smooth, stepless speed control and precise manoeuvring.

The drive system must allow the operator to adjust the forward speed independently of the power take-off speed, ensuring consistent implement performance.

The hydrostatic drive should support easy reversing and fine control for maintenance operations on sports turf surfaces.

02. ROUTINE MAINTENANCE TOOLS AND MATERIALS

2.4 DRAG BRUSH



A triangular or rectangular drag brush is a grooming tool with stiff, synthetic bristles, typically towed behind a utility vehicle or small tractor. It is designed to level infill, lift flattened turf fibres and prevent directional pile lean.

Regular brushing improves performance consistency and extends the life of the turf by maintaining fibres upright. It also helps to evenly redistribute infill, reducing wear in high-use zones.

Requirements

Attachment: trailer hitch connection (preferred); rope not acceptable

Brush width: minimum 1m for smaller pitches and 1.5m for full-size pitches

Weight on the surface: maximum 25kg per metre of working width*

Bristle material: ultraviolet (UV)-resistant nylon or polypropylene

Material of the frame: aluminium/steel (not wood or plastic)

Material of the body of the brush (where fibres are attached): plastic (not wood)

* The addition of weights on the frame is not recommended as it tends to lead to the overloading of the triangular brushes.

Recommendation

Foldable drag brush

2.5 BRUSHING PATTERNS

Regular brushing is a fundamental maintenance activity required to preserve the uniformity, appearance and performance of the artificial-turf surface. Brushing should be carried out following defined directional patterns, as illustrated below, in order to ensure even fibre orientation and the consistent redistribution of infill material across the entire pitch.

To avoid the formation of a grain or directional bias in the pile, the brushing direction should be varied periodically, alternating between the recommended patterns.

In cases where infill migration is observed, maintenance operations should commence with lateral brushing (pattern 3) before proceeding with the other brushing directions.

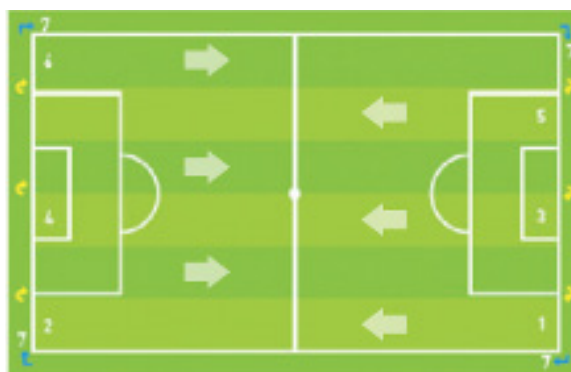
Pattern 1 – diagonal brushing

Brush the entire pitch diagonally from corner to corner. This helps to realign the fibres and redistribute the infill evenly across the surface.



Pattern 2 – longitudinal brushing

Brush along the length of the pitch, following the main direction of play. This direction is useful to maintain fibre alignment and surface appearance.



Pattern 3 – lateral brushing

Brush across the width of the pitch, perpendicular to the main direction of play. This direction is particularly effective to correct infill migration and should be used first when uneven infill levels are observed.



02. ROUTINE MAINTENANCE TOOLS AND MATERIALS

2.6 GROUND-DRIVEN ROTATING POWER BRUSH



This mechanically powered brush rotates either forwards or in reverse to agitate and lift flattened fibres while dislodging compacted debris. It is commonly mounted on the front or rear of a tractor unit. It derives its power from the motion of the equipment's wheels or movement across the ground (hence "ground-driven"), rather than using an external engine or motor.

Rotating brushes restore the playing characteristics of the turf by rejuvenating the pile and removing embedded dirt. They are especially effective in heavy-use parts of the pitch, such as the penalty areas and centre circle.

Requirements

Working depth: height-adjustable
 Debris and infill collectors: integrated into the rotating brush
 Adjustable sieves: serving to separate debris from the infill and redistribute the infill onto the pitch
 Brush diameter: minimum 250mm
 Bristle material: reinforced synthetic fibres (UV-resistant nylon or polypropylene)

2.7 INFILL LEVEL GAUGE



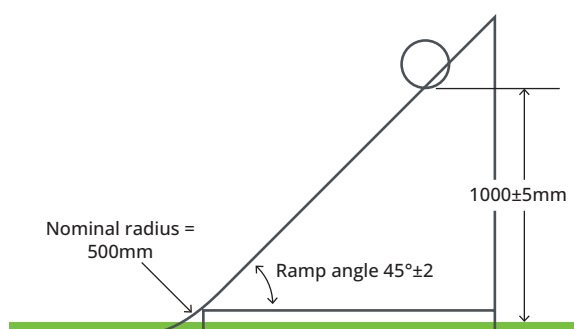
An infill level gauge is a precision tool, either manual or electronic, designed to measure the depth and consistency of the infill across the pitch. It provides repeatable measurements to monitor changes over time.

Maintaining correct infill levels ensures safe shock absorption and consistent ball behaviour. Regular monitoring prevents over-compaction or thinning, both of which degrade pitch performance and safety.

Requirements

Accuracy: $\pm 1\text{mm}$
 Depth range: 0-50mm
 Material: stainless steel, aluminium or durable composite

2.8 BALL ROLL RAMP



02. ROUTINE MAINTENANCE TOOLS AND MATERIALS



Standardised ramps are used to conduct ball roll tests in accordance with FIFA testing protocols. The ramp ensures a consistent launch speed and angle for evaluating the rolling behaviour of a football on artificial turf.

Roll testing enables operators to monitor surface consistency and ball behaviour over time, providing early warning signs of performance decline. It also supports pitch performance audits and preparation for FIFA certification or recertification.

Requirements

Ramp: as specified in the FIFA Quality Programme for Football Turf Test Manual I: Test Methods

Ball roll measurement: method accurate to $\pm 0.01\text{m}$ (e.g. steel tape or laser device)

Ball: as specified in the FIFA Quality Programme for Football Turf Test Manual I: Test Methods

2.9 MAINTENANCE LOG SYSTEM



A structured record-keeping system – whether digital or physical – should be used to document all maintenance activities, equipment use and pitch conditions. Some systems include scheduling and performance trend tracking.

Record-keeping enables warranty validation and supports transparent maintenance audits. It also helps to identify emerging issues early through consistent tracking and comparison.

Requirements

Digital format: cloud-enabled, mobile-compatible

Physical format: weatherproof binder with templates



**ADVANCED MAINTENANCE
TOOLS AND MATERIALS
– PREVENTIVE AND
SITUATIONAL TASKS
(QUARTERLY OR AS
NEEDED)**

The following issues, among others, should lead to heightened maintenance operations:

- Flattened or creased grass fibres
- Compacted or uneven infill
- Poor drainage or excess detritus
- Loose seams or unsafe pitch areas

3.1 TRACTOR REQUIREMENTS FOR ADVANCED MAINTENANCE

Power

The tractor must deliver a minimum of 15HP per metre of working width and be equipped with a power take-off (PTO). The working width is the effective operating width of the maintenance equipment, that is, the width of the artificial-turf area that the machine can maintain in one pass.

Example

1.5m working width → ≥22.5HP at PTO

1.8m working width → ≥27HP at PTO

Additional reserve power (approximately +10%) is recommended to maintain performance under heavy loads or on synthetic turf with high resistance.

The PTO output should match the implement's requirements (minimum: continuous 15HP per metre of working width).

The PTO must operate independently of the driving speed, allowing the stationary operation of attachments when needed.

Tyres/ground contact

The tractor must be equipped with turf tyres (low-profile, wide-contact design) to minimise ground pressure and prevent surface damage. Agricultural tyres or deep-lug profiles are not permitted, as they may harm the turf.

The tyre pressure should be as low as possible within the manufacturer's approved range, to ensure optimal traction with minimal surface compression.

Drive system

The tractor must have a switchable four-wheel-drive system to prevent rucking when turning.

A hydrostatic transmission is required to enable smooth, stepless speed control and precise manoeuvring.

The drive system must allow the operator to adjust the forward speed independently of the PTO speed, ensuring consistent implement performance.

The hydrostatic drive should support easy reversing and fine control for maintenance operations on sports turf surfaces.

03. ADVANCED MAINTENANCE TOOLS AND MATERIALS

3.2 INFILL DECOMPACTOR



This device features rotating (machine-powered or ground-driven) or stationary tines or loose spikes that penetrate the infill layer to relieve compaction and restore surface elasticity. It is often attached to a utility tractor, and its depth can be adjusted as needed.

Machine-powered rotating tines should be used by professional companies.

Decompaction enhances performance and restores surface softness, improving player comfort and reducing injury risk. It can also boost drainage by increasing surface permeability.

Requirements

Tine* depth: adjustable up to 50mm

Working width: minimum 1.2m

Mounting: compatible with utility tractors

Material of the frame: aluminium/steel (not wood or plastic)

Material of the tines: heat-treated spring steel (provides flexibility)

* Tines must be individually replaceable in case of breakages.

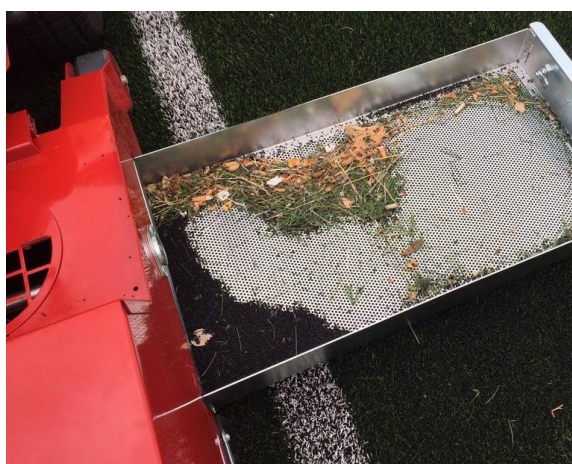
3.3 OSCILLATING BRUSH SYSTEM

An oscillating system features an advanced grooming brush that vibrates laterally or provides an orbital movement to redistribute infill and smooth out surface irregularities. It is typically used in conjunction with rotary brushes for deeper surface care.

Using such systems ensures even infill distribution, which helps to preserve pitch consistency and fibre integrity. They are especially suitable for post-decompaction grooming or moderate pitch rejuvenation.

Requirements

Working depth: height-adjustable
Bristle material: UV-resistant nylon or polypropylene
Oscillation range: 100-150mm (lateral)
Material of the body of the brush (where fibres are attached): plastic (not wood)



A deep cleaning machine is a specialised system combining mechanical brushing, suction and filtration to extract debris, microplastics and other contaminants that are unreachable with surface-level brushing and clean infill materials before returning them to the pitch. It is ideal for restoring pitch hygiene and drainage efficiency after heavy use.

3.4 DEEP CLEANING MACHINE



Requirements

Tractor-mounted model with an integrated infill return system featuring the following components:

- 1: Powered rotary brush to lift the fibre and collect debris, microplastics and infill
- 2: Adjustable or exchangeable sieve screens to adapt to the infill grain size
- 3: Extraction system with dust filters that comply with the standards for microplastic filtration: EN 60335-2-69 (dust class M) and EN 779 (F8 or F9)

Working depth: height-adjustable

Waste bin capacity: minimum 15L

Brush diameter: minimum 250mm

03. ADVANCED MAINTENANCE TOOLS AND MATERIALS

3.5 SNOW AND ICE REMOVAL TOOLS

These include rubber-tipped shovels and ploughs with protected blades to safely remove snow and light ice build-up from turf surfaces. When using snow blades, there is a risk that not only snow but also infill material is pushed outwards. Snow blowers may be a more effective alternative, as the working depth can be precisely adjusted. In the event of heavy snowfall, collect the snow directly into a second vehicle and remove it from the pitch.

Removing snow and ice maintains pitch availability during winter without damaging the turf and prevents ice-related surface damage. Care should be taken to avoid infill removal caused by improper snow handling.

Requirements

Height-adjustable snow blades
Plough edge: rubberised (non-metal) blade
Width: minimum 1m

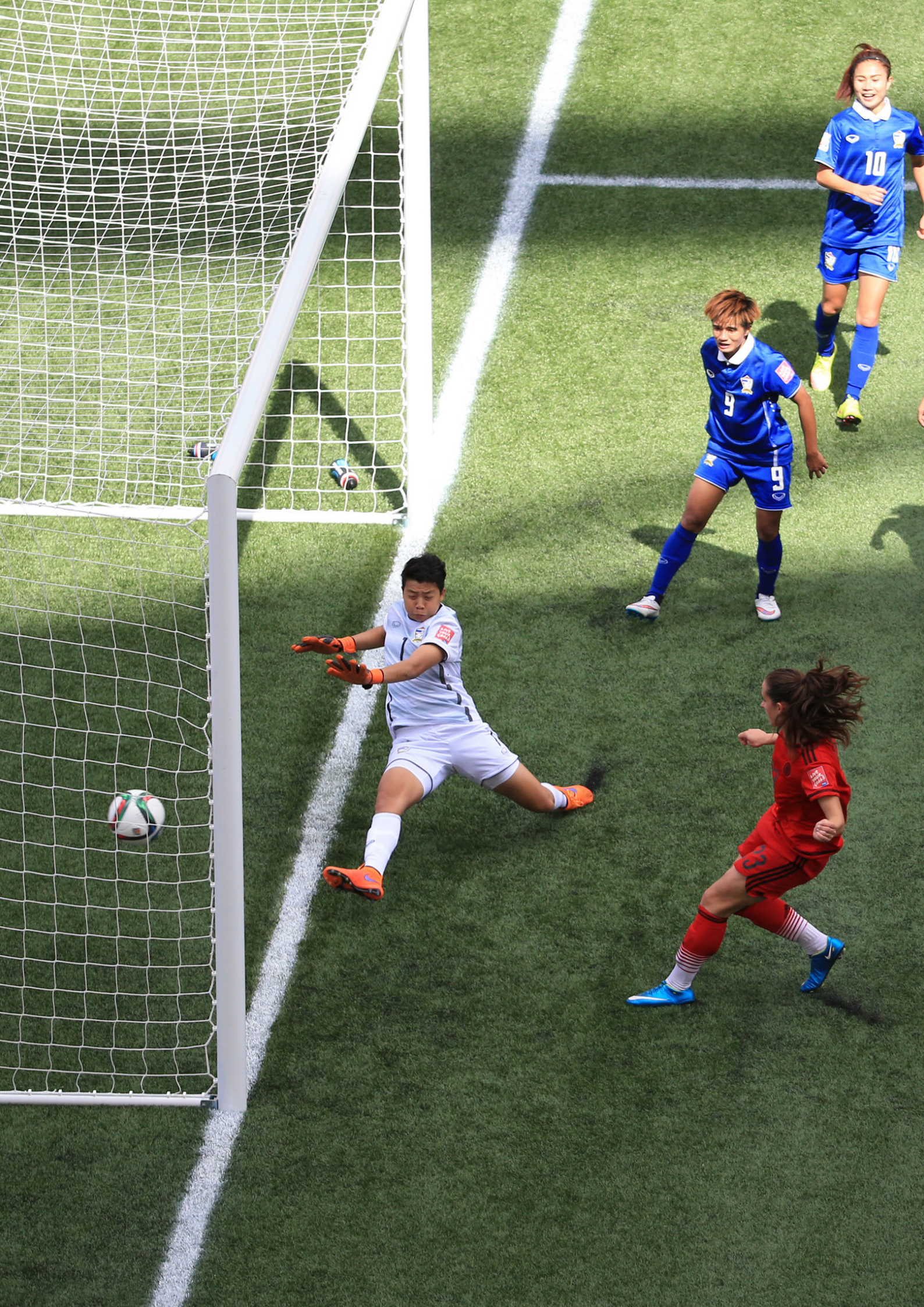
3.6 CHEMICAL APPLICATION SPRAYER

A sprayer system is used to apply approved chemicals (e.g. mossicides, algaecides and de-icers) to targeted areas of the pitch.

The application of chemicals can control biological growth in shaded or damp areas, preserving surface playability and aesthetics, as well as helping to manage winter safety concerns without harming the turf system.

Requirements

Nozzle type: anti-drift, fine mist
Tank capacity: minimum 25L
Tank material: corrosion-resistant polyethylene





ANCILLARY ITEMS

4.1 BOOT SCRAPER/ENTRANCE MAT

Fixed installations with brushes or mats should be provided at pitch entrances so that footwear can be cleaned before entry. This serves to reduce contamination and wear by limiting the soil and debris carried onto the pitch, which is essential for minimising unnecessary cleaning and improving hygiene.

Requirements

Brush material: UV-stabilised plastic
Base: non-slip rubber or steel frame
Size: minimum 1m x 0.6m

4.2 SPARE INFILL STORAGE SYSTEM

Weather-resistant containers for holding original infill material keep the infill dry, clean and effective. This ensures that pitch operators always have compatible infill on hand, allowing for quick and consistent top-ups during pitch checks and preventing delays in maintenance.

Requirements

Capacity: minimum 200kg
Cover: UV-resistant, waterproof lid

04. ANCILLARY ITEMS

4.3 GOAL TRANSPORT WHEELS



Wheeled mechanisms are designed to safely move portable goals without dragging them over the turf. They include locking systems for stability.

The use of such systems prevents turf damage caused by dragging, which can tear seams or flatten fibres, and also allows for repositioning to distribute wear evenly across the pitch.

Requirements

Wheel type: turf-safe (non-marking)

Load capacity: 150-300kg

Braking mechanism required for safety

4.4 PITCH CONDITION TESTER



A portable diagnostic device can be used to measure player-and-surface interactions (including hardness, peak shock absorption, peak deformation and energy returned) and store information to facilitate historical comparison. This enables performance benchmarking against FIFA standards and is useful for identifying areas that need intervention before recertification or repairs.

Requirements

Measurement accuracy: $\pm 5\%$

Features: data storage (memory)

Certification: calibrated to FIFA Quality Programme for Football Turf Test Manual I: Test Methods specifications

04. ANCILLARY ITEMS

4.5 ROTATIONAL TRACTION TESTER



This portable device serves to measure the rotational traction characteristics of an artificial-turf surface, simulating players' rotational movements. It provides peak rotational traction values to assess the surface's grip and release properties.

Areas with excessive grip or insufficient traction may increase injury risk, so identifying them can help to ensure player safety. This device assists in monitoring surface evolution over time, prioritising maintenance interventions and aligning with FIFA rotational traction ranges to foster consistent performance across the pitch.



Requirements

Measurement accuracy: $\pm 5\%$

Features: digital display of peak rotational traction, data storage (memory) for historical comparison

Certification: calibrated in accordance with the procedures and tolerances specified in the FIFA Quality Programme for Football Turf Test Manual I: Test Methods

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