



Leading in Artificial Grass Systems



The best alternative to nature! Edel Grass

Edel Grass has over thirty years' experience in the market for artificial turf pitches and sports fields. As a seasoned player from the very outset, we provide high quality systems for both sports and leisure purposes. Our artificial turf surfaces for field hockey, tennis and football meet the most rigorous play specifications. In cooperation with our partners, we provide innovative and sustainable system solutions, creating an environment tailored for top performance and recreation where budding talent can grow and flourish!

www.edelgrass.com



Materials that make a difference Powered by TenCate

TenCate Grass develops and produces synthetic turf fibres and components, and designs systems for sport, recreation and landscape applications. Together with partner Edel Grass, TenCate Grass aims to achieve a system approach, which will ensure that users have confidence in the playing characteristics and lifespan. TenCate Grass is technology-driven and occupies a leading market position globally.

www.tencategrass.com





Partners in high-quality sport systems

Quality standards on artificial turf football pitches are becoming increasingly stringent. And rightly so! They involve huge investments, and major sporting and commercial interests are at stake. Football pitches should be in perfect condition all year round. Year after year. This makes innovation and quality key concepts in the artificial turf market. For us as an artificial turf supplier, but of course it applies to our partners as well. That is why Edel Grass always choose reliable partners. Together, we are constantly working to develop artificial turf sport systems to supply the market with sustainable, high-quality facilities!



FIFA stands for quality in the market

FIFA, the world football's governing body, want to develop football all around the world. The improvement of football equipment and in special pitches in good condition play a crucial role for this mission. The objective of the new FIFA Preferred Producer initiative for Football Turf, which went into effect in 2009, is to harmonize international standards for artificial turf football pitches and to protect the end user.

The key issues that this policy boils down to are the quality of the pitches, accurate information and communication regarding the specification of pitches, and clear test procedures and FIFA certification. All of this is achieved by means of a thorough installation process, a high-quality superstructure and substructure and the right maintenance program.

Edel Grass qualified as a FIFA Preferred Producer for Football Turf

FIFA grants licenses to artificial turf producers throughout the world. In this system, there are two different levels of licensees, 'standard license holders' and 'Preferred Producers'. Edel Grass is qualified as a Preferred Producer for Football Turf. This premium status will allow Edel Grass to continue to make its contribution to improving artificial turf quality into the future as well. Over the years, Edel Grass has demonstrated its expertise in civil engineering, project management and maintenance. FIFA deems this combination of criteria to be vital for successful implementation of and quality assurance for Football Turf projects throughout the world. Edel Grass also pursues this end and shares in the responsibility for quality assurance.

What makes a Preferred Producer so unique?

- The Preferred Producer takes responsibility for the substructure, the maintenance and the product information and communication, thus vouching for the quality of the pitch.
- Pitch quality is actively monitored by FIFA.
- Additional information, support and advise can be requested by the field owner from FIFA.
- Innovation: FIFA Preferred Producers participate in a platform in which producers and FIFA collaborate to improve pitch quality and develop new solutions. This means a Preferred Producer has influence over the development of artificial turf in the football market.
- FIFA prefers Preferred Producers for international projects.

That is why the FIFA Preferred Producer label is the premium quality seal and guarantee for high quality Football Turf pitches.

FIFA Preferred Producer for Football Turf

With the 'FIFA Preferred Producer' initiative, FIFA hopes to enforce consistent quality standards for artificial football pitches around the world. Edel Grass also pursues this end and shares in the responsibility for quality assurance. As a Preferred Producer, Edel Grass is expected to demonstrate its expertise in civil engineering, project management and maintenance.





FIFA* & FIFA**

The FIFA* and FIFA** quality marks were introduced worldwide in 2004. These quality marks are applicable to the entire Football Turf system after a successful laboratory and field test. The use of complementary components creates systems with optimal, long-lasting performance features. January 2010, FIFA introduced the new handbook of requirements for Football Turf. The table below shows the various performance requirements for the FIFA quality marks.

| FIFA requirements | Lisport Test | Ball bounce | Ball roll | Shock-absorption | Vertical distortion |
|-------------------|---------------------------|--------------|-----------|------------------|---------------------|
| FIFA** norm | 5,200 Cycli ¹⁾ | 0.6 - 0.85 m | 4 - 8 m | 60-70% | 4 - 8 mm |
| FIFA* norm | 20,200 Cycli | 0.6 - 1 m | 4 - 10 m | 55-70% | 4 - 9 mm |

¹⁾ Add 20,200 cycli as a possibility to the FIFA**

In principle, FIFA* pitches are intended for recreational use. These pitches are subject to intensive use (20,200-cycle Lisport Test). A FIFA* certification is valid for 4 years.

In principle, FIFA** pitches are intended for top-class sport and football stadiums. A FIFA** certification is valid for 1 year.

It is possible to have a FIFA** system tested for FIFA* as well. Among other things, this entails extending the Lisport durability test up to 20,200 cycles. These pitches receive a FIFA** certificate for 1 year, which then becomes a further 3-year FIFA* certificate.

Edel Grass and its partners believe that amateur associations should also be able to enjoy football pitches with the best available playing characteristics. That is why Edel Grass and its partners have had all FIFA** systems tested and certified at 20,200 cycles. The result is sustainable pitches with perfect performance features!

¹⁾ National associations can set further pitch requirements in addition to those of FIFA.



The Edel Grass system philosophy

For Edel Grass, an artificial turf pitch is more than just the top layer of artificial turf. Along with our partners, we are working on artificial turf systems in which a combination of the artificial turf top layer and the sub base provide the correct performance features.

The playing characteristics of the pitch have improved over the years thanks to the application of innovative yarns and engineered sub bases. Improvements in frictional resistance, ball roll and especially sliding-friendliness have resulted in optimal performance features. Developments in infill materials were also a major contributing factor. Furthermore, high-quality technical products are now used in the sub base, which has brought additional advances in playing characteristics (shock absorption, rebound, deformation and energy restitution) and a better sustainable performance level.

Working from this system philosophy, Edel Grass has developed numerous innovative artificial turf football systems over the years. The technology is getting so advanced that we feel emboldened enough to say that our systems rival or even surpass the properties of natural turf. And that the whole year through!

What makes the combination of Edel Grass and its partners so unique?

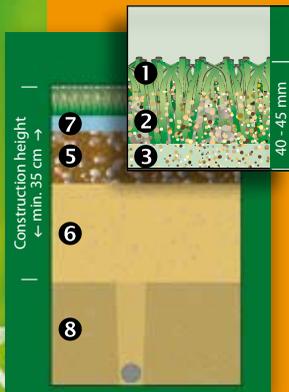
Worldwide, the partners of Edel Grass pair their years of knowledge and expertise in the artificial turf sector with the high-quality products supplied by Edel Grass. Due to this partnerships, Edel Grass can guarantee the following benefits:

- **Double assurance:** Our partners are renowned player in the market and must meet the quality requirements in place. But these quality requirements are double-tested because, as a Preferred Producer, Edel Grass must meet the quality requirements set by FIFA.
- **The bundled knowledge of the entire chain:** TenCate Grass (yarns and backing), Edel Grass (artificial grass production and in-house design and build capacity) and our global selected partners for the contracting, installation and maintenance.
- **An in-house R&D center** with the latest in testing equipment, where products can be custom developed.



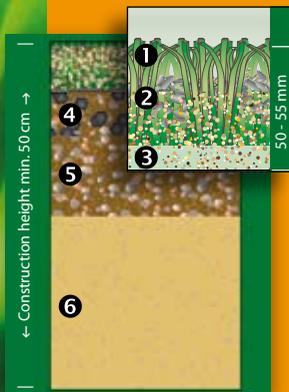
Athletic performance:

SUB BASE



Engineered artificial turf system (Foam Pad / E-layer)

Frost-free, firm underlay with a recyclable Sports Layer on top. On top of this construction, we lay a 40 - 45 mm artificial turf top layer, filled with sand and thermoplastic infill (TPE). The playing characteristics are derived from the combination of the artificial turf and the sport layer.



Traditional artificial turf system (Stone Base)

A frost-free, firm underlay (50 cm or more) in combination with a 55 - 60 mm artificial turf top layer. In this system, filled with sand and SBR, the playing characteristics are derived almost entirely from the artificial turf top layer.

Explanation of numbers:

- 1 Artificial turf
- 2 Infill material (SBR or TPE)
- 3 Stabilization sand
- 4 Lava with rubber
- 5 Lava
- 6 Sand substrate
- 7 Sports Layer (Foam Pad)
- 8 Drainage/natural underlay

Infill

For infill, there is a selection between SBR (recycled rubber), coated SBR (recycled rubber) or TPE (Thermoplastic Elastomer). SBR is a cheaper material than TPE.

Environmentally friendly

Despite the fact that FIFA and many national sport associations approve of the use of rubber, careful consideration is in fact given to environmentally friendly sport constructions. In the top layer, this is addressed by using TPE. If we apply a 'Sports Layer' (a closed cell foam) in the sub base, then it will no longer be necessary to use rubber here either.

SUPERSTRUCTURE

Edel Soccer Future^{DS}

(20,200-cycle Lisport Test)

This superstructure is equipped with a TenCate fibre with 'Double Spine' technology. This bilateral reinforcement provides superb resilience. Even after a period of intensive use. Add to that its outstanding slide-friendliness and flawless playing characteristics and you have a pitch with sustainable performance. This superstructure is UV-stable and can be used in different constructions.



Edel Soccer ViaGrass Pro

(20,200-cycle Lisport Test)

This superstructure is equipped with a supple, bi-colour, monofilament TenCate fibre. The fibre enhances slide-friendliness and stays upright better by the reinforced core. Thanks to its high quality and wear-resistance, the pitch retains its perfect playing characteristics throughout its service life. That makes this fibre excellently suited for pitches subject to intensive use. This superstructure is UV-stable and can be used in different constructions.



Edel Soccer Superblade Duo

(20,200-cycle Lisport Test)

The superstructure is equipped with a triangular monofilament TenCate fibre. This fibre has an excellent pile recovery, which enables a controlled ball roll. It is a sustainable fibre which retains its shape throughout its service life. The bi-colour design gives the fibre a natural appearance. This superstructure is UV-stable and can be used in different constructions.



Edel Soccer XP™ Pro

(20,200-cycle Lisport Test)

This superstructure has proven quality in football and is equipped with the only fibrillated TenCate tape fibre. The special material composition, along with the producing method, gives this fibre its unparalleled sustainability. This creates a pitch that is excellently suited for intensive use. This superstructure is UV-stable and can be used in different constructions.



Maintenance & Sustainability

Quality counts!

Simply installing a high quality pitch is not enough. Today's artificial turf pitches are used intensively and must endure intensive use all year round. Maintenance is a must in order to keep your artificial turf sport pitches in top shape with optimal performance.

We distinguish between two kinds of maintenance:

- Daily maintenance: maintenance that can be performed by individuals within the association.
- Specialized maintenance: maintenance performed twice a year by a specialized company.

Ensuring that both types of maintenance are carried out in an accurate and structured manner will have a positive effect on your pitch's performance and lifespan. FIFA supports this vision and is introducing a maintenance concept as well, as part of the FIFA Quality Concept. Because: maintenance = preservation!

The following measures contribute to quality assurance:

- Edel Grass and its partners provide the association with training for daily maintenance.
- The association receives maintenance supplies in order to carry out this maintenance.
- The association must then use a logbook to keep track of the maintenance it performs.
- A specialist company performs scheduled maintenance twice a year.
- ATC Surface Cleaner: special designed maintenance equipment for artificial turf, additional to the standard equipment.





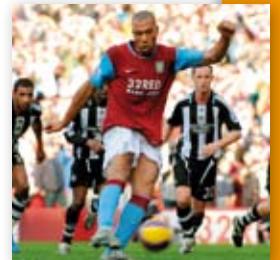
Warranty and environmental aspects

Warranty

Edel Grass and its partners provide multi-year warranties on their sport pitches. Given the intensity of use for today's artificial turf pitches, this is not possible without the maintenance activities described above. An artificial turf football pitch is a considerable investment and the user should expect it to exhibit optimum performance over the long term. For this reason, Edel Grass and its partners build their pitches using high quality components, both in terms of the environment and the sport. We stand behind our systems, which is why we offer systems with an extended warranty. If desired, we can also offer an extended performance warranty. This warranty is provided in collaboration with TenCate Grass and insurance provider Allianz.

Sustainability

Edel Grass and its partners feel very strongly about sustainable development. We strive to produce sustainable systems. We have already made several advances in this area in recent years. Our ultimate goal is to produce systems in which all components can be recycled or broken down in an environmentally friendly manner. We will continue to work with our partners towards achieving this goal!





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