

# Our Challenge?

## To make the best even better

### Optimal sliding characteristics

In our continuing quest for better, more natural sliding characteristics, we also have further reduced the heat build-up caused by intense friction. Again, this is the result of advanced research and the development of a unique sliding tester.

**Sliding on DD Challenge Pro<sup>2</sup> comes closer to nature than ever.**

### Improved playability of the surface

Inferior quality artificial pitches soon lose their resilience and show fibre breakdown. Not only does this have a negative influence on the ball roll, but also on other crucial characteristics such as ball bounce, player-ball interaction, grip...

We score better in all these elements.

**DD Challenge Pro<sup>2</sup>, the new touchstone.**

### Lasting retention of all playing characteristics

Initially all artificial grass pitches may look magnificent, but the sign of a quality surface is how long the looks last and how long the surface maintains the desired playing characteristics. Since launching the first monofilament on the market in 1990, we have constantly improved our fibre, which has culminated in the most durable product available.

**DD Challenge Pro<sup>2</sup> gives the best return on investment.**

How did we do it? Look inside to find out!

# Some of the smart sports clubs that play on more than 45,000,000 m<sup>2</sup> of DD Sports surfaces!



ARSENAL FC  
EMIRATES STADIUM  
LONDON  
UK



FEYENOORD  
DE KUIP STADIUM  
ROTTERDAM  
THE NETHERLANDS



ALEMANNIA AACHEN  
AACHEN  
GERMANY



SK GJØVIK-LYN  
GJØVIK  
NORWAY



SPORTING CLUB DE PORTUGAL  
JOSÉ ALVALADE STADIUM  
LISBON - PORTUGAL  
EC 2004



DENVER BRONCOS  
INVESCO FIELD AT MILE HIGH  
DENVER  
USA



SV BRECKERFELD  
BRECKERFELD  
GERMANY



NAC  
FUJI FILM STADIUM  
& TRAINING CENTRE  
BREDA  
THE NETHERLANDS



INTERNATIONAL SCHOOL  
BRUSSELS  
BELGIUM



STADE JEAN LEZER  
MONTROUGE  
FRANCE



PHILADELPHIA EAGLES  
LINCOLN FINANCIAL FIELD STADIUM  
PHILADELPHIA  
USA



OKLAHOMA STATE UNIVERSITY  
OKLAHOMA  
USA



VALLHALL ARENA  
OSLO  
NORWAY



REAL MADRID  
TRAINING CENTRE  
MADRID  
SPAIN



LIVERPOOL FC  
ANFIELD  
LIVERPOOL  
UK



UMEÅ IK  
GAMMLIAVALLEN  
UMEÅ  
SWEDEN



BRITISH SCHOOL  
BRUSSELS  
BELGIUM



FC NÜRNBERG  
NÜRNBERG  
GERMANY

For a smart solution contact:



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# THE **NEW** DD CHALLENGE PRO<sup>2</sup>

Natural sliding • Optimal ball roll • Longer life

Powered by

**DDREFLEX+**

**DD** **DESSO DLW**  
**SPORTS SYSTEMS**



## THE NEW STANDARD IN FIBRE QUALITY: OPTIMAL BALL ROLL

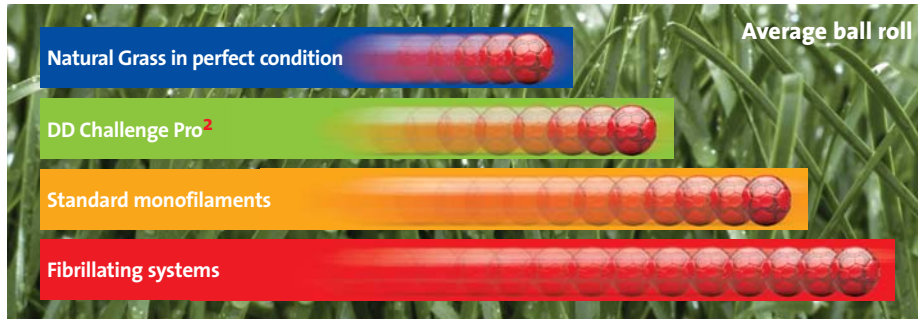
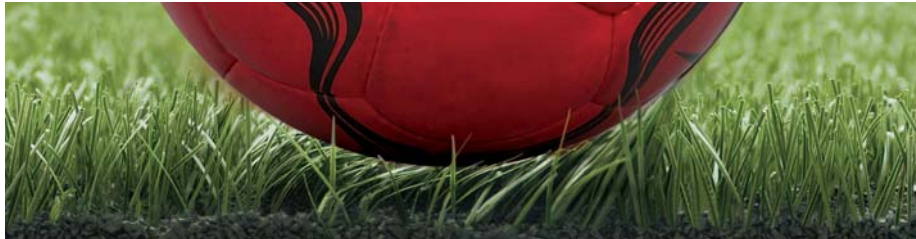
We have learned through experience and consultation with users: fibre resilience is critical for the overall quality of an artificial football pitch. It determines the look & feel and the playing characteristics during the whole lifespan. Does the fibre keep its vitality – or does it degrade? Resilience has been at the core of DD research since 1990. DD Reflex+ technology has already set the standard at many clubs that have played on DD Challenge Pro since 2004.

Due to collaborative advanced research with scientific experts, focusing on the latest polymer technology and state-of-the-art extrusion techniques, we have succeeded in upgrading the pile recovery at the core. Our intelligent DD Reflex+ fibre 'memorises' its initial shape and position and keeps coming back.... Again and again, year after year. **DD Challenge Pro<sup>2</sup> ensures an optimal ball roll, grip and ball bounce.**

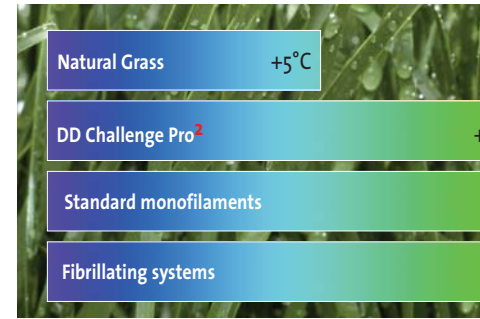
## NATURAL SLIDING

Tackles, sliding, goal celebrations, they give football real excitement. But they also put the pitch and the players under pressure. The sliding friction causes a temperature rise, thus increasing the risk of skin burn. Our challenge was to combine a more natural slide with minimal heat build-up. Together with leading scientists of the Ghent University, we've developed a new state-of-the-art sliding tester. It accurately measures the temperature increase, sliding distance and friction coefficient

Indicative graph, based on ball roll tests at the University of Ghent



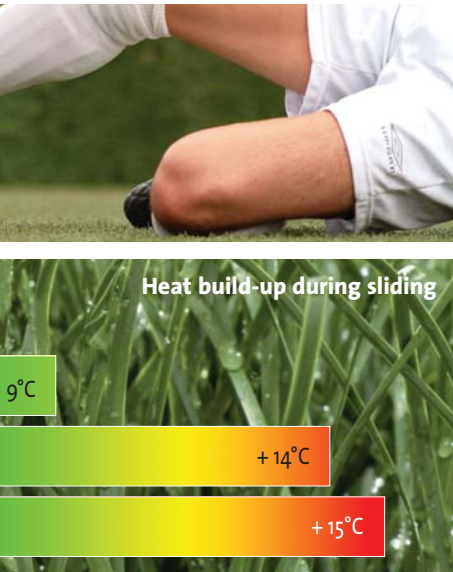
Improved sliding characteristics



## DD CHALLENGE PRO<sup>2</sup>

### CHARACTERISTICS

while simulating the sliding of close-to-nature skin on artificial grass. Assisted by this unique equipment, we have developed DD Challenge Pro<sup>2</sup>. The new milestone in reduced heat build-up and natural sliding. Furthermore, this testing method allows us to compare the sliding characteristics of different types of artificial grass and scientifically prove the difference. DD Challenge Pro<sup>2</sup> with its soft touch will make 'all the difference' for your players!



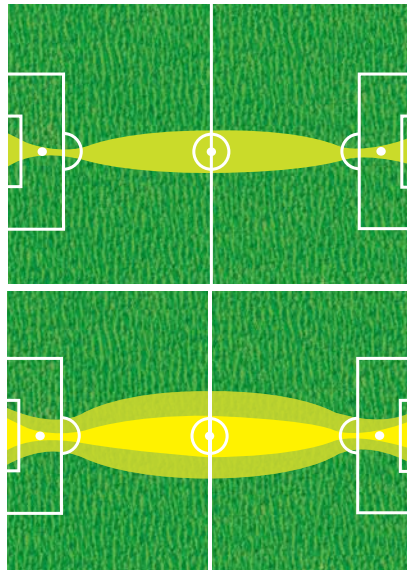
### THE NEW TOUCHSTONE IN ENDURING PLAYING CHARACTERISTICS

Where does an artificial pitch show its true quality? First of all, in the playing characteristics, such as natural sliding, ball roll and ball bounce, player-ball interaction, grip.... Not only in the first few years after installation, but certainly in the long term. An inferior quality pitch soon loses its fresh look and vital resilience., This is noticed first in the most intensively used zones. Next it starts to break down and show serious loss of quality, to the extent of becoming totally unfit for training and playing. Are you prepared to take that risk?...

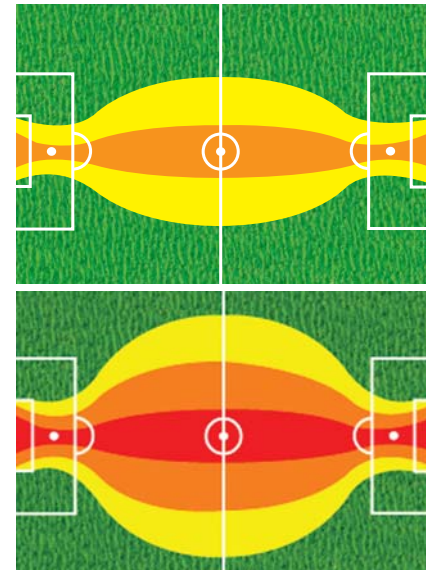
For Desso DLW Sports Systems, optimal playing characteristics have always been at the core of the research & development, with prolonging the durability being the No 1 target. With 25 years of know-how in advanced research, and a focused experience in monofilament technology since 1990, we can give you the unique assurances that DD Challenge Pro<sup>2</sup> will prove its superiority year after year and give the best return on investment, both in the short and the long term.

**More durable quality: we guarantee it!**

DD Challenge Pro<sup>2</sup> after 3 years



standard 3rd generation artificial pitch after 3 years



DD Challenge Pro<sup>2</sup> after 5 years

ORIGINAL PLAYING CHARACTERISTICS



PLAYING CHARACTERISTICS AFTER USE

Indicative graph based on average usage and regular maintenance

standard 3rd generation artificial pitch after 5 years

## DD CHALLENGE PRO<sup>2</sup>

### THE FIRST RESULT OF 3F, THE 'FIT FOR THE FUTURE' PROGRAM

#### Continuous investment in innovation

DD Challenge Pro<sup>2</sup> is the latest development in our quest for innovation and essential product improvement since 1980. Our target? To meet and exceed the requirements of investors and users worldwide, who rely on our dedication to sporting excellence. By 1990, we had already developed the first monofilament fibre, which was more resilient, player-friendly and durable than fibrillating yarns. Not satisfied with that, we have kept on improving it. Today, we are ready for the next step!



The DD 3F "Fit For the Future" program is based on a unique alliance between Desso DLW Sports Systems and leading experts from technological centres of excellence.

DD Challenge Pro<sup>2</sup> is the first result of this collaboration— and only the first of many DD innovations to come.

#### Total quality control

This continuous innovation is sustained by our total quality control. From the formulation and processing of the raw polymer material, the fibre extrusion on a new, high tech extrusion line and skilful tufting, to perfect installation, maintenance and advice by certified professional partners in more than 80 countries. From start to finish we keep the chain in our own hands. This enables us to deliver tailor-made solutions, including integrated lines, club logo's, special colours etc.

#### Extensive field experience since 1980

25 years of innovative development, driven by the daily field experiences of demanding users, do make a difference. Indeed, there are many big names in our portfolio, such as Real Madrid, Liverpool, Denver Broncos, Feyenoord and Lokomotiv Moscow. But the real engine that moves us forward, are the clubs and communities who experience their football pleasure on some of the 45,000,000 m<sup>2</sup> of our installed sports pitches.

# DD Innovative Systems, always Because experience makes th

**1985:** Start in-house production of yarn  
**Result:** Only supplier with own development & production of yarns.

**1981:** 1st sand filled hockey pitch  
**Result:** Affordable artificial hockey pitch (fibrillating fibre)

**1980:** Installation 1st artificial hockey pitch in Europe  
**Result:** Durable replacement for natural hockey pitches.



Developments Desso DLW Sports Systems

D DESSO DLW  
SPORTS SYSTEMS

Competition reaction

Competition

Fibrillating (slit fil

1980 - 1985

# a step ahead! the difference.

**1988:** 1st football system with sand-rubber DD Soccrilan developed in conjunction with Swedish partner Spentab  
**Result:** better player-surface interaction

**1988:** Development of maintenance machine for artificial grass  
**Result:** Enables customer to keep pitch in optimal condition

**1986:** 1st artificial pitch designed for football  
Curled fibrillating fibre  
**Result:** Durable replacement for natural football pitches

**1993:** 1st spinextrusion for artificial yarn HPF Crown fibre rib structure of natural grass fibre.  
**Result:** Increase durability of system  
More natural look

**1992:** 1st reinforced natural grass system for football DD GrassMaster  
**Result:** Increase # playing hours from 300 to 1000 h

**1990:** First HPF Soccrilan pitch  
**Result:** First pitch lasted 16 years (28.000 playing hours)

**1990:** 1st monofilament fibre tape extruded High Performance Fibre  
**Result:** Durability of pitch increases dramatically



**DESSO DLW SPORTS SYSTEMS**

**1999:** 1st monofilament system for football with rubber-sand infill DD SoccerGrass DD Crown fibre, curled monofilament, Tottenham Hotspur Training Academy, UK  
**Result:** Better shock-absorption and grip  
Better player-surface interaction (foot under ball)

**1998:** World Championship Hockey on nylon surface DD ActionTurf in Utrecht

**1997:** 1st knitted nylon pitch for top hockey DD Action Turf, HC Den Bosch The Netherlands  
**Result:** Fast hockey surface  
Ideal for technical players



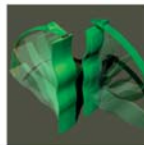
**DESSO DLW SPORTS SYSTEMS**

**2005:** Expansion of production for monofilament  
New custom-made high-tech extrusion line  
**Result:** Customers value the DD's monofilament experience

**2004:** Start up long artificial grass research program 3F: Fit for the Future.  
**Result:** Develop new football systems with playing characteristics of natural grass

**2004:** New, more resilient fibre for football. DD Challenge Pro with DD Reflex + technology  
**Result:** Better playing characteristics remain for longer period.

**2001:** 1st straight monofilament fibre DD Crown DD SoccerGrass TD series  
**Result:** Improved playing characteristics / look and feel of natural grass



**DESSO DLW SPORTS SYSTEMS**

## More DD innovations to come...

**2007:** Introduction new football system  
**Result:** With closer to natural and even greater durability of playing characteristics

**2006:** DD Challenge Pro<sup>2</sup>  
Upgrade of successful DD Challenge Pro system  
More resilient, reduced heat build up  
**Result:** Durable playing characteristics, better sliding, natural look & feel

**2006:** Development scientific testing method for sliding characteristics and resilience of artificial grass systems  
Part of the 3F research program.  
**Result:** Customers get proof of sliding and resilience performance of their artificial pitch



**DESSO DLW SPORTS SYSTEMS**

## Retention of playing characteristics

**HIGH RETENTION**

**MEDIUM RETENTION**

**LOW RETENTION**

n) systems: developed for hockey, now still promoted for football by competition →

1986 - 1989

1990 - 1995

1996 - 2000

2001 - 2005

2006 - ...