

Yarns and Carpets

STARSS Conference
Loughborough University
18th September 2007
Day 2: 14:15 – 14:45

Peter van Reijen – Desso



Yarn & Carpet

- History
- Present
- Future
- Questions



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History



- Astroturf > full-synthetic
- 1965: 1st field in Astrodome (for Baseball!)
- Many fields for American Football



History

Olympic Games Montreal

Demand FIH >

Guaranteed match schedule

- hockey > on full-synthetic
- introduction artificial turf in Europe
 - Limburg, Germany
 - Utrecht, Holland



Montréal 1976



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History

- **Begin Eighties**

Cheaper version on full-synthetic

- sand filled

- Start of “hockey” - boom in Europe esp. in Holland
- Followed by tennis
- And Football mainly training



History

End nineties

Sand Rubber filled in long-pile

- opened market for Football
- Start of “football” boom in Europe and also in the rest of the world
- Followed by American Football
- And Rugby



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History

Yarn

- Apart from Nylon for full-synthetic
 - PP and later PE most important compound
- Fibrillated 6600 dtex of 3 fibres to 11.000 or even more in only one fibre
- Also introduction of 1st monofilaments



Present



Full-synthetic (knitted/tufted)



Sand filled (tufted)



Sand & Rubber filled (tufted)

Present/Future

Away from Fibrillated fibre

Further development monofilaments

Shape of Fibre

➤ V-shape 

➤ Diamond 

➤ Other... 



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Present

Infill

- important for performance of the system
 - SBR coated, uncoated
 - EPDM
 - TPE/TPV/TPS



Present

Standards

FIH

FIFA

CEN implemented in 2007

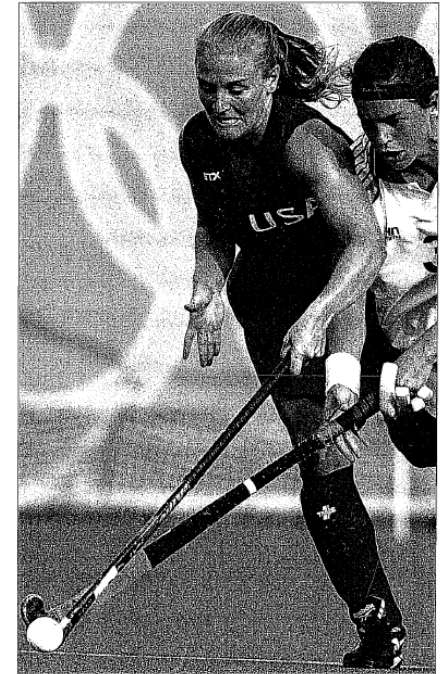
Focus on FIFA

1 *

2 **

SYNTHETIC HOCKEY PITCHES - OUTDOOR
HANDBOOK OF PERFORMANCE REQUIREMENTS

Incorporating test procedures



FEDERATION INTERNATIONALE DE HOCKEY
INTERNATIONAL HOCKEY FEDERATION

Present

Testing

FIFA/FIH/Others

Standard test methods



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Present

NO Field will comply at the end of its commercial lifetime the standards of FIFA* *



Present

Major Professional Clubs still are reserved to use artificial turf in their stadiums



Present / Future

Challenge

- Marketing wise
- Technical wise
 - Industry
 - test institutes
 - Universities



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Future

- Fibre
- Carpet
- Testmethods
- Infill
- Total construction
- Maintenance
- Evaluate samples



Future

Fibre

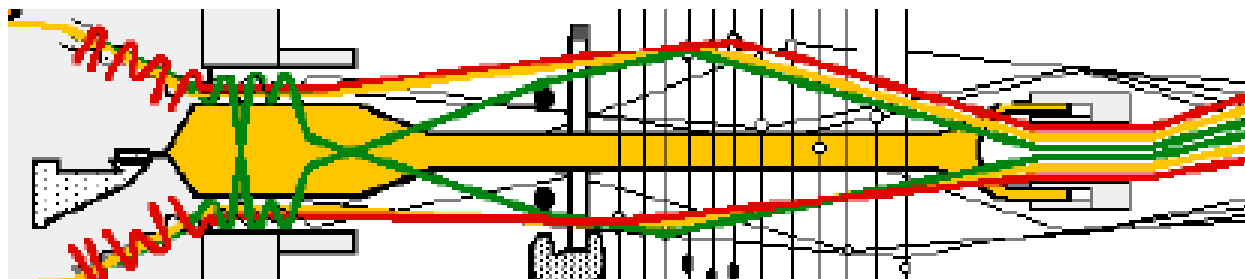
- Resilience
- Player friendliness
 - Shapes as already shown +??
 - Compounds: HDPE <-> vLLDPE + ??
 - Bicomponents/Co-extrusion
 - Surface treatment: nano <-> plasma + ??
 - Waterfree



Future

Carpet

- Traditional Tufting
- Weaving



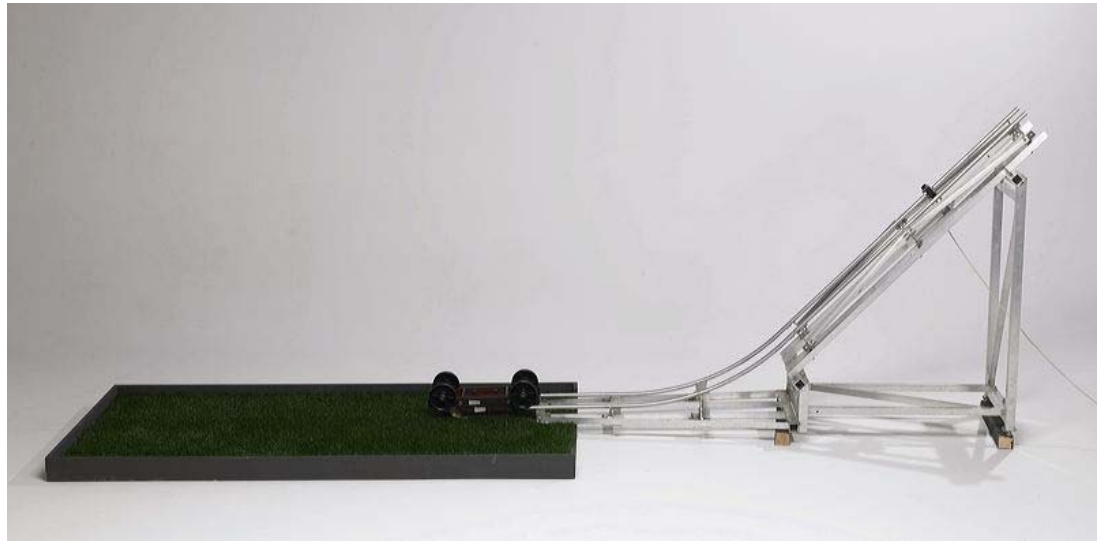
weaving principle of the Shaggy Rug eXplorer, SRX82



Future

Testmethods (1)

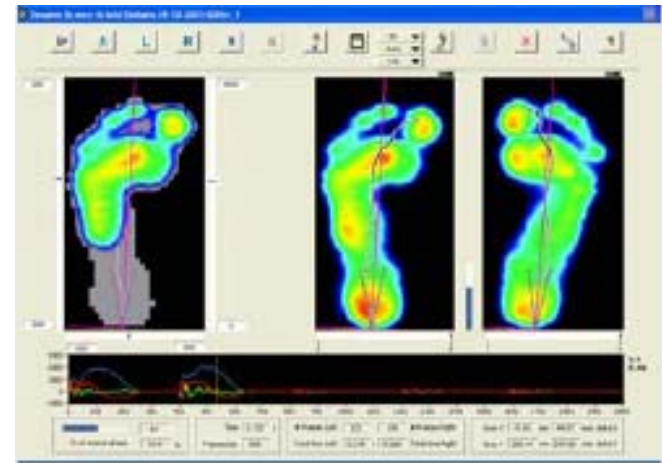
- More distinguishing
 - Sliding testing: realtime measuring temperature during sliding



Future

Testmethods (2)

- More relating to human body
 - Muscles
 - Joints, limbs
 - Tensions



Future

Infill

Enviromental friendly

- More support to
 - Sportfunctional characteristics
 - Human body

if we are using infill !!



Future

Total construction

- Systems other than traditional point elastic to area-elastic construction



Future

Maintenance

- Longer meeting the “initial” requirements
- Guidelines/training



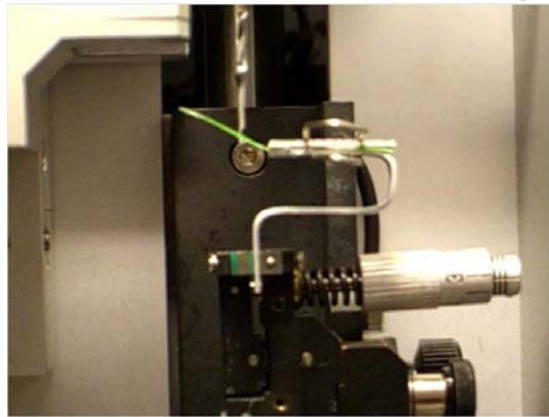
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Future

How to evaluate samples

- The earlier the better
 - F.i. device presented by Mr. Rambour



Future

Research

Co-operation:

- Associations
- Industry
- Knowledge centres
 - Universities
 - Test institutes
- Government
 - Sponsoring



Questions

Thank you for your kind attention

Questions?

