

The World Cup is a truly global affair. 32 teams from around the world will compete for possibly the most coveted title in sport, and millions of fans will be totally focused on Germany – and the players – for the duration of the tournament. This means that there is not only national pride at stake, there is a huge multi-billion marketing opportunity for soccer brands in a highly competitive field. Because the market for replica kits is enormous, the big brands are gambling on backing the winning team, and this has led to some truly innovative products appearing on the market in the run up to the competition, no where less than in the lucrative field of soccer boots.

Striking the right balance

The likes of adidas and Nike are the most high profile names on the soccer boot market. But, although some of the smaller brands do not have the marketing budgets of their more famous competitors, the under-dogs are certainly giving them a run for their money in terms of technical boots. As a result, "Football boots in 2006 will come under more scrutiny than ever before," says Simon Skirrow from Nomis, one of the smaller soccer boot brands.

It is a brave man these days that would dare to take on the already crowded multi-billion dollar soccer boot industry, but Skirrow is trying to do just that. Although he is more than aware of the financial opportunities that success in this field can bring, thanks to the influence that the large brands have had on the boot market and the increasing popularity of soccer around the globe – particularly in Asia – Skirrow says it is still the thrill of the challenge that drives him. "I have been involved in the creation of new sports shoes since I was 17 years old and I love it even more today as the development of new techniques and advanced materials gives you so many more opportunities to diversify and attract different consumers to your products," he states.

Having said that, he admits that he would be more than happy to be party to the rewards reaped from the 15-20% boost in the football boot industry because of the exposure received from the World Cup.

According to Skirrow, famous players have always played a very important role in influencing young players to be look-alikes of their heroes. This trend has never been so strong as it is today yet not all brands can afford the huge sums of

Only the biggest brands have the marketing budgets to attract superstar players like David Beckham.

 adidas

money that the better known players can command for their feet. Nomis, which is Skirrow's first name Simon spelled backwards, the latest brainchild of Skirrow, is one such company, but he hopes that Nomis' new technology will be its secret weapon...

The first step is the hardest

Skirrow says he was reluctant to use his idea at first, but warmed to it after speaking to members of the retail trade and other contacts in the industry, who believed that consumers like brands with personalities. He eventually came around to the idea that a David versus Goliath story could succeed against the bigger competitors if the brand built a rapport with its customers, and after three years of research and development, Skirrow launched the Nomis line.

This all sounds like a fairytale, but Nomis should in no way be confused with novice. A 27-year veteran of the sports shoe industry, spending most of that time at adidas, Skirrow was heavily involved in designing the original Predator boot. The Predator concept was a turning point for adidas in terms of competing with the almighty power of Nike, and created the springboard that catapulted the stagnant market into one that would grow 400% over the next 10 years. Skirrow knew almost everything there was to know about soccer boots. This was a huge advantage, as he also knew what wasn't right with the boots on the market, and spent three years trying to create a boot that was specifically designed to meet the needs of players.

"I wanted to solve some of the great problems that kids, players and coaches are battling with the world over and I felt that if I could do that I would be able to carve out a niche for my idea. At this stage you never know how long the project will take depending whether it's really a performance enhancement or not. I spent the first six months talking to as many people as possible to gauge how they really perceived the products they used.

"What became clear very quickly was that there was brand loyalty for the top brands, but somehow nobody was saying that the market for the best ideas had been cornered by the Big Two. It was the retailers' feedback that caught me by surprise, as they implied that nobody could enter the market today unless they had \$100 million to spend. So, the challenge was firmly set, and I had to take it so that I could at least say I had given it a go," says Skirrow.

Making its mark on the market

Three years on and Nomis was born and the brand has enjoyed some extraordinary successes already and appears to have won over the retailers. "The cycle of key brand dominance will only weaken if something new and hot comes along and maybe Nomis can be just that. The retailers have been very supportive so far and it's almost as though they are willing Nomis to succeed," he comments.



Nomis' philosophy for the design of all its shoes is that it fixes those problems that players and coaches face in conditions that can change by the minute, and tries to build the most comfortable shoes for footballers. It's as simple as that and it seems to work. Independent tests showed that Nomis Control Leather Technology on its boots gives up to 16 times more grip and control on the ball in the dry and eight times more grip and control when the leather gets wet.

The technology is based on two new coefficient of friction technologies, designed specifically for different playing conditions. Each treatment has been researched using simulated coefficient of friction testing in the laboratory before scale up trials for wear testing were completed.

The Wet Control technology is achieved through use of a polymer that is 'permanently' impregnated into the leather fibre structure during the tanning process, specifically designed to interact with moisture through the action of chemisorption, in turn providing a high gripping characteristic in wet or damp conditions. The textured surface provides a 'tread like' pattern preventing the possibility of micro-aquaplaning, thus enhancing the performance still further.

The Dry Control technology comprises of a synthetic polymer that is applied to the leather that achieves ultra high coefficients of friction in dry conditions through multiple microscopic 'van der waals' forces, similar to the principle of a gecko's foot.

Over the last few years, spending time talking to podiatrists, players and coaches about their shoe issues has really made Skirrow more aware of the importance of quality upper materials and although comfort is something that the market still seems to be prepared to compromise on, Nomis will not.

It seems that there are plenty of converts too as

Nomis Control Leather Technology provides its Glove and Spark soccer boots with improved grip in both wet and dry conditions.

 Nomis

Nomis boots and gloves are now distributed in the UK, USA, Ireland, Australia, New Zealand, and Germany.

Stepping out

The Glove and The Spark have proved the most popular shoe lines for 2006 and come with added extras to customise comfort and fit. Skirrow has also adapted the technology and has now launched a new rugby mitt and gloves for golf and football that all feature Wet Control technology. And Skirrow is not stopping there and will launch another new technology in March that in his words will "rival any other technology idea ever launched in the football boot industry". He says it is something so simple yet so effective that in five years every shoe should have this feature.

Although Nomis is not challenging the supremacy of the big brands yet, it will be selling its shoes in over 18 countries by the time the World Cup comes around, and the giants will have to sit up and take notice if they don't want to be taken unawares.

According to Skirrow, football boots have seen a dramatic change since the early leather sole boots of the 1940s and 50s. Adidas has always pioneered the development of new technology whether it be the first eight studded removable sole plate or a direct injected PU and rubber outsole for more comfort and the German company continues to innovate.

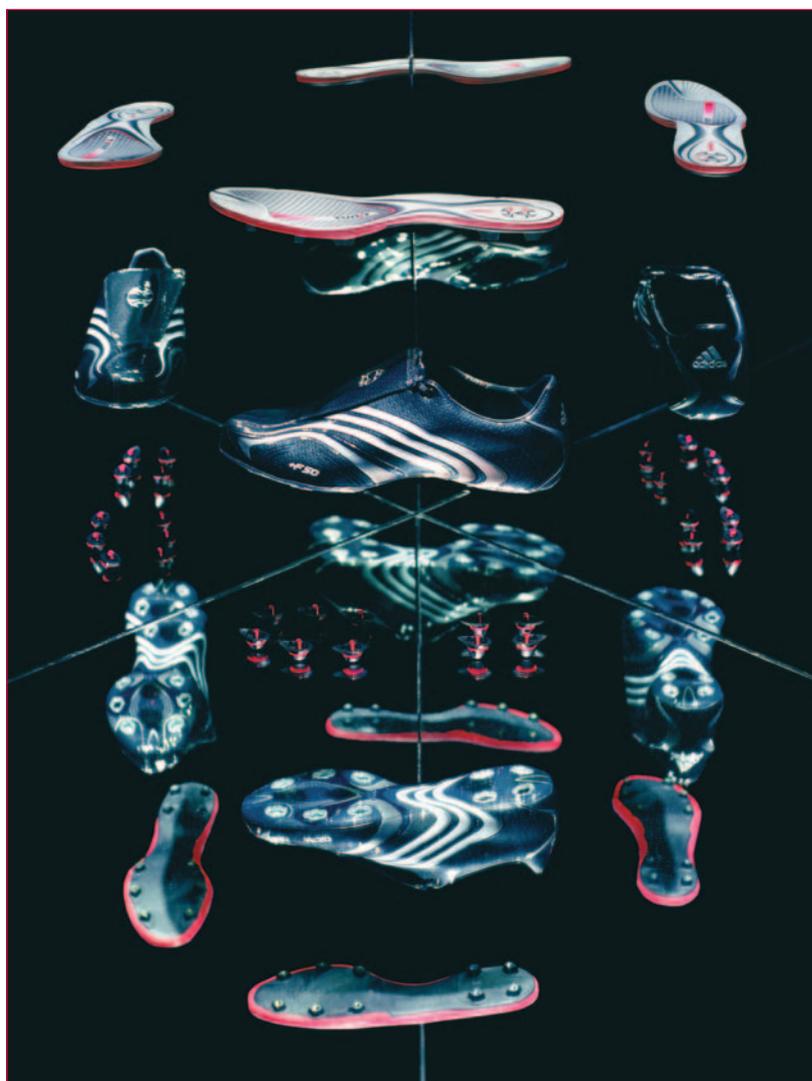
It has launched two new boots, the new +Predator Absolute and the Tunit (pronounced tune it) boot in the run up to the World Cup, both of which reassert the brand as a leader in technical innovation.

Maintaining the lion's share of the market

Carrying on the tradition started with the original Predator of re-inventing the dynamics of soccer boots the eighth edition, the +Predator Absolute – the lightest Predator ever developed – incorporates new PowerPulse technology which shifts the centre of gravity closer to the point of impact. It also comes with two different insoles to offer the player more power as required.

One insole offers a specially positioned 40g weight and one comes without. The weight, which has been moved from other areas of the boot, sits behind the foot at the point of impact to create maximum power transfer, allowing players to customise their boots to their needs.

Developed in collaboration with Calgary University it is said to offer "the sort of sweet spot science more usually found in golf clubs". It seems to work, too, as tests showed that the boots increase ball speed by 2% compared with other Predator boots and by 5% compared with a standard boot. This may seem like a small improvement, but this can have a massive impact at the level of sport that will be played in Germany in June and the players who will wear it – such as David Beckham, Michael Ballack, and



Zinedine Zidane – seem convinced.

"I've scored my best goals wearing Predators. The extra power of +Absolute can only help me and they are so accurate too," says England forward Frank Lampard.

Accuracy is also increased through the new re-engineered Predator technology (the rubber fins that create power and swerve) with improved fit.

In addition, the +Predator Absolute incorporates adidas' X-Traxion quick change stud system for maximum penetration and minimal stud pressure; a split outsole for lightweight stability-providing solid foot placement on different pitch surfaces; a minimalistic external heel counter-which is smaller, lighter and stronger reducing pressure on the Achilles tendon and increasing stability; and an A-symmetrical loop lacing with offset laces for a larger, cleaner kicking surface.

Real potential with synthetics

The +Predator Absolute is an exciting redesign of trusted 10-year-old technology, but adidas has also launched a totally new concept in soccer boots, the Tunit. In line with the slow, but ever increasing trend for customised footwear, the Tunit boot is said to be the world's first customisable soccer boot. The boot, however, is not designed from a purely fashion-driven

Tunit customisable boots are a new concept in soccer.

 adidas

perspective, it is made up of component parts that allow players to alter their boots to suit their game, the pitch and the climate.

Made up of three interchangeable components, the upper, chassis and studs, the range will eventually offer 52 different variations in building the boot – offering the choice between a warm boot, a cool boot, a lightweight boot, a cushioned boot, and a soft ground or hard ground boot.

At present two types of upper are available: adihex and ClimaCool. Adihex is the first synthetic to be endorsed by adidas. It is lightweight and durable making it a low maintenance, high performance upper. Adihex also improves with time becoming softer the longer it is worn. The ClimaCool version has an adihex mesh with ventilation, allowing for a 360° cooling effect.

The chassis is a triple density TPU sockliner. It holds the receptacles for the studs and stabilises the upper. It is produced in comfort, lightweight and orthotic versions, allowing the player to adapt the boot to match the playing conditions and their individual style.

Studs can also be altered to suit hard ground, firm ground or soft ground and can be chosen again to suit the player's style.

The boots are already being worn by adidas' sponsored players including Djibril Cisse, Ashley Cole, and Arjen Robben, and will be released on the market for amateur players in March.

Playing the Lotto

It is not only adidas that has come up with truly original concepts for the World Cup; one of the smaller, but much respected brands, Lotto, has solved one of the most long standing issues in soccerlaces. It has launched Zhero Gravity, the first football boot in the world without laces, described as "absolute sensitivity and lightness and innovative Italian design".

But this was no quick evolution, the Lotto Research and Development Centre was already at work, analysing and studying the matches and the players' behaviour on the pitch in order to make further improvements in football shoe performance at the end of the 2002 World Cup.

But how has Lotto solved a riddle that has baffled the most experienced designers? Thanks to the exclusive Pro-fit technology inserted in the upper, Zhero Gravity acts like a suction cup and adheres to the foot perfectly without letting any air in. The absence of laces means that the entire upper is in contact with the foot, ensuring the player has total feel of the ball and therefore more control.

Unlacing a mystery

Developers wanted to improve the players' game even further by improving precision and sensitivity of touch. This involved ergonomic studies of players' feet and body movements, laboratory tests of materials, structural resistance and torsion to produce a new unique boot. Lotto tested the structural resistance and elasticity of the



Getting into the 'sole' of the soccer boot

Many biomechanical tests have been carried out to determine the properties required in a soccer boot. As highly trained athletes, soccer players need optimum performance, but also need protection from injury – and the boots they wear play a vital role in terms of performance and protection. Following extensive testing, France's Centre Technique Cuir Chaussure Maroquinerie (CTC) – a world renowned leather and footwear testing centre – has defined the demands placed on soccer boots and the performance functions required of them.

According to the study, there is no such thing as a polyvalent boot. Among the factors that the boot has to cope with are:

- Distance. Players run over 10 kms in an average match at the top professional level.
- The length of training sessions and matches.
- Alternating phases of running, acceleration, dribbling, sliding, tackling, etc.

This already sounds quite demanding, but when you look at the figures, the relevance of well-designed boots becomes even clearer.

With every stride, the impact under the player's heel travels up the leg and through the joints. Depending on the surface, this can be up to twice the weight of the body. For a kick, it can be as high as 10 times the weight of the body on the leg that remains on the ground. This peak lasts for approximately 20 milliseconds and is not perceptible in real time, but the accumulation of these micro-traumas can lead to injury. A player weighing 75 kilos covering 10 kilometres during a match will have sustained the equivalent of 37.5 tons of pressure under each boot, plus the 750 kilos sustained every time he kicks the ball.

The angle of the leg when the player is about to kick is also an important factor. An angle of 30-45° combines an optimum speed between the player and ball. The average ball speed, when a player is static, is 80 km/h, which increases to 110 km/h when the player runs at a speed of between 5-8 km/h. The force of the kick is absorbed in the hip (up to 96 kg/kick), the knee (58 kg), and the ankle (33 kg).

All the movements required of a footballer (abrupt starts and stops, forced movements with flexed feet and back, etc.) all cause micro-traumas. For 1,000 hours of play a footballer suffers between one and 34 injuries, 70% are to the lower limbs. Consequently, the boot's first function is vital in terms of comfort, protection and durability.

upper, during which the shoe was stretched no fewer than 300,000 times, ending with a deformation of only 1mm from the original shape.

It also offers superior comfort as the boot wraps itself around the foot, providing the right amount of support and protection with external reinforcement in Pebax.

As with the +Predator Absolute, it is also available with two different insoles that adapt the shoe to different foot conformations. The regular, insole has a special Poron anti-shock insert for a standard fit, whilst the slim insole has a fuller Poron anti-shock insert for a closer fit.

The upper is made of a water-repellent, anti-abrasive micro-fibre which offers superior performance in any climate and on varying surfaces. It also incorporates Lotto's new Neo Switch sole that enables studs to be changed according to the state of the pitch. New studs have also been developed that are extremely light and can be put in and removed easily. The sole is made of a Pebax and TPU structure and has seven fixed lamellar studs to give excellent differentiated traction and four interchangeable conical studs for greater possible stability. If all that were not enough the Zhero Gravity boot even comes with a special key conceived to change studs easily and quickly, that can also be used as shoe-horn!

Furthermore – despite the fact that Lotto was recently acquired by an American entrepreneur – Zhero Gravity was totally designed and manufactured in Italy. So, it seems these developments are not only a move forward for soccer boots, they are also a positive story for the struggling Italian footwear industry. It is also positive news for Europe, the home of soccer, that European companies such as adidas and Lotto are still leaders in soccer boot development. But, as the World Cup is probably the one single event that can draw the attention of the whole world, and with companies as far as field as Australia adding to the new boots available, everyone is set to benefit from these advances as the end result will be even more exciting soccer. 



Lotto's laceless Zhero Gravity boot.

 Lotto

Comfort

Comfort is one of the key functions, with materials (leather or synthetic) and assembly both playing a major role. Unnecessary thickness and zones, which are likely to chafe, must be avoided, and the fitting properties must correspond as closely as possible to the player's foot. The lacing system must enable the boot to fit as snugly as possible (double, asymmetric, or anatomical lacing). And the shape of the toecap must correspond to the morphology of the player's foot (square, Egyptian, Greek, etc.)

Hygienic comfort is also essential with regards to wicking, breathability, etc. The uppers of many football boots are not sufficiently breathable and the sock is often ineffective.

Shock absorption is another major weakness. The sole must combine grip, stability and shock absorption, but the latter is often lacking claims CTC. The sole and studs actually absorb very little shock, and even the heel, which has shock-absorbing inserts in the sock, has nothing like the shock absorbing properties offered in a running shoe, despite the fact that a footballer spends 90% of his time running. These facts go some way to highlight the importance of choosing a boot that suits both the surface and the conditions of play, especially for youngsters who are still growing.

Protection

The protective aspects of soccer boots include:

- The tongue, which protects the instep from the laces.
- The stiffener/counter, which ensures the stability of the foot and improves the fit of the heel while protecting the Achilles tendon during tackling.
- The quarters which are padded to protect the base of the ankle. However, as the hard toecap is replaced by topstitching and a fine padded lining, this does not afford the required protection level for the toes.
- The studs provide support, security and grip. Whether there are 6,7,8 or more studs, they are all positioned precisely and their shape, composition and height are all important.

Resistance

In terms of resistance, the materials, components and structure are all important. It is essential for the uppers to be tested for tearing, abrasion, delamination, and other factors especially because of the wide variety of playing conditions (i.e. wet, soil, sun, synthetic playing surfaces, etc.).

Deformation of the upper is a problem, particularly for synthetic materials and in an attempt to solve this the vamp and toe sometimes have an anti-slip treatment to protect the boot from the effects of contact with the ball and to improve control.

There have been many innovations in soling materials (Pebax, PU, TPU, etc.) and in terms of inserts and reinforcements that provide flexibility, distribution of pressure and strength, resistance to torsion and flexion. Rivets placed at the edge of the sole also make for a good join with the upper.

The durability of moulded studs, and their resistance to shock, are important criteria in evaluating the boot's length of life.

The tongue, sock, and laces are all also tested for abrasion, traction, and wear as these affect the wear life of a boot too.

One boot does not fit all

As footballers play in different climates, weather conditions, and on different surfaces, several pairs of boots are necessary, depending on the type of play (match or training) and the surface. Removable studs are needed for wet or damp grass; fixed and/or elliptical studs are required for semi-wet or damp grass; textured/indented studs should be used for dry or frozen grass, and synthetic surfaces or soil; and flat soles for indoor pitches. 