

WORLD FOOTWEAR

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THE MAGAZINE FOR THE GLOBAL SHOE INDUSTRY



Aokang opts for high-tech over cheap

African project is the pride of Pikolinos

Rubber soles: new ideas keep appearing

Fresh possibilities for mixing PU





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**Front cover**

Shoes and matching handbag from the spring-summer 2015 collection of German brand Peter Kaiser.

Image: Peter Kaiser

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**World Trades Publishing 2014.**

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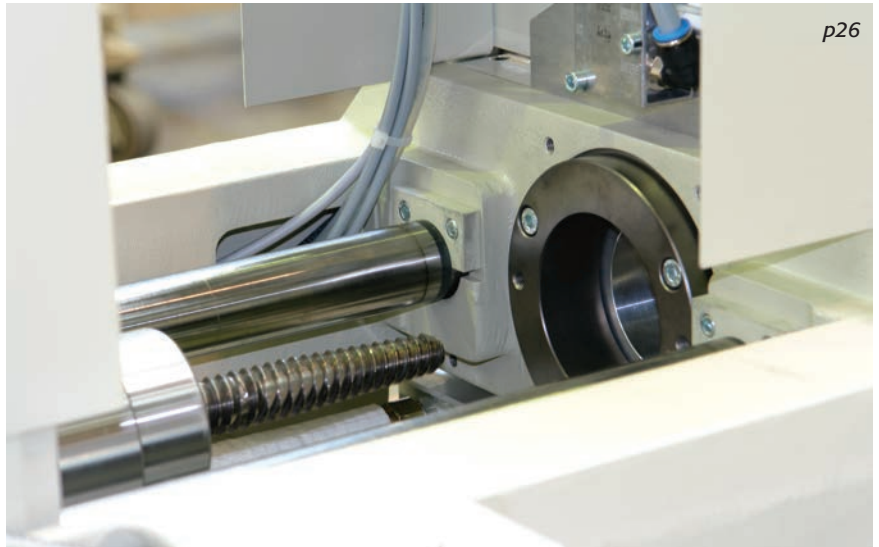
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News

TURKEY Turkey's leather-sector exports for the first half of 2014 have registered year-on-year growth of 2.8%, reaching \$740 million for the six-month period. Exports of leather footwear contributed more than half of the total value and showed an increase of 16%. Tanners and manufacturers are to hold a conference in the coming months with increasing footwear production a priority.

FRANCE In 2013, French consumers bought 4.7 million pairs of specialist footwear for hiking, 17.5% more even than Germany, even though Germany's population is 20% bigger. This would indicate that France has a strong tradition of outdoor activity, with hiking particularly popular.

SPAIN Spain's footwear industry boosted its exports by 8.8% in volume and by 10.3% in value in the first five months of 2014 compared to the same period in 2013. Between January and May this year, Spanish footwear brands exported 68.2 million pairs of shoes, bringing in €1.1 billion in export revenues. France, Italy, Germany, Portugal and the UK were the biggest markets.

● More than 25 footwear factories in Aragón in northern Spain have been badly affected by flooding in the region following unusually heavy rain. The authorities said emergency loans will be provided to companies that need assistance, with the manufacturers paying the money back when insurance payments come through.

ITALY More than 100 footwear and components makers went out of business in Italy during the first three quarters of this year as the economy continues to drag down domestic spending. Assocal, the footwear manufacturers association, reported 105 businesses had closed and 1,370 lost their jobs.

SOUTH AFRICA South African footwear manufacturing unions have accepted an 8% wage increase offer from employers, ending a two-week strike, said the Southern African Clothing & Textile Workers' Union. Thousands of members went on strike at the start of June, seeking a 10% wage increase.

ETHIOPIA After visiting India earlier in the summer to gain experience of footwear courses, Ethiopia's Leather Industries Development Institute (LIDI) has developed a footwear engineering degree in Addis Ababa, with students able to enrol in September. Developed in partnership with India's Central Leather Research institute and Footwear Design & Development Institute, the course will be made up of two years of theoretical study and three years of practical training.

KENYA Kenya's minister for industrialisation has petitioned for the country's military boots to be made domestically in a bid to boost the country's leather sector. Adan Mohamed said his ministry will analyse the specifications from the Kenya Defence Forces and the National Police Service and give them to local manufacturers. The military imports 30,000 pairs of leather boots every year.

● After downgrading the leather on its 737-700 aircraft to a synthetic alternative, US carrier Southwest Airlines is upcycling the 43 acres of leather shoes, bags and balls. In Nairobi, the project's pilot location, SOS Children's Villages Kenya along with Alive & Kicking, Masai Treads and Life Beads Kenya, will use the leather to produce goods for local community groups.

CHINA Nike and adidas supplier Yue Yuen has warned its first half revenues will be lower than forecast because it is raising contributions to its employee benefit payments scheme for all its Chinese factories. Owned by Taiwanese conglomerate Pou Chen, Yue Yuen cited staff retention and recruitment as the main reasons, "so as to ensure the group's normal business operation under the increasingly competitive labour market conditions in China". It estimates a provision of \$53 million will be made to the scheme.

BANGLADESH Leather-sector exports from Bangladesh increased by more than 30% in the last financial year, which ended on June 30. Exports of leather shoes increased by more than 30% to \$550 million.

MYANMAR Pou Chen Group is preparing to build a footwear factory in Myanmar's former capital, Yangon, with production scheduled to begin by the end of 2015. The factory will have the capacity to produce more than nine million pairs of shoes per year by 2019 and will involve an investment of \$100 million.

UNITED STATES Sales of athletic footwear in the US in the year to the end of April fell by 4%, according to research firm NPD Group, with basketball shoes making up a quarter of sales. Sales of basketball performance footwear grew by 12% to \$1.63 billion while "basketball-inspired footwear" grew by 9% to \$1.45 billion.

PAKISTAN Pakistan's footwear exports increased substantially in the 2013-2014 financial year, which ended on June 30. Pakistan's footwear manufacturers exported a total of 15.3 million pairs – 17% more than the year prior – with a value of \$118.7 million. Leather shoes contributed more than 80% of the value.

VIETNAM The Vietnam Leather and Footwear Association (Lefaso) has said the country is on track to meet its goal of \$12 billion this year. Results for the first half of the year indicate the value of footwear exports rose by 14%. Up to 70% of the leather needed for footwear and handbag production – \$4.2 billion – was imported.

● A government official has said a set of controls imposed by Vietnam was needed to better control imported materials and products in the country. About 150,000 tonnes of leather is imported annually by the footwear industry but there are only a small number of leather testing centres. "As a result, footwear firms have to test their materials themselves to meet importers' requirements or send samples overseas," said Lefaso, adding to costs.

COLOMBIA Colombian footwear manufacturers recorded an increase in production of 2.6% in the first quarter of 2014. Commentators said anti-dumping measures the government put in place in January 2013 have helped. The measures apply to imports of footwear from all countries with which Colombia has no free-trade agreement. Imports fell from 19.8 million pairs in the first quarter of 2013 to 9.6 million pairs in the same quarter in 2014.

ARGENTINA Economic difficulties in Argentina have resulted in a reduction in footwear sales there. Figures from consultancy IES show a year-on-year decline of 6.7% in the first five months, with each citizen buying an average of 3.3 pairs. Between January and May, footwear firms sold 55.8 million pairs.

BRAZIL Heitor Klein, president of footwear association Abicalçados, has said the industry is showing signs of being "in crisis". An increase in the value of the dollar against the Brazilian real ought to have helped exports. "The fact it hasn't is symptomatic of a sector in crisis," he said. Brazilian footwear manufacturers shipped 71.9 million pairs (worth \$608.7 million) in the first seven months of 2014, a decline of 3.1% year on year.



Footprints



GANDYS BROTHERS HONOURED AS YOUNG LEADERS

The brothers behind Gandys flip flop brand were invited to Buckingham Palace for the launch of the Queen's Young Leaders Programme.

Orphaned by the 2004 Boxing Day tsunami while in Sri Lanka with their family, **Rob and Paul Forkan** (pictured, left) have gone on to build a social enterprise that helps orphans around the globe.

A tenth of all their profits go to the Gandys Foundation, Gandys' registered charity which supports children in need of basic essentials such as shelter, nutrition, medication and education. They call this the 'Orphans for Orphans' mission which is currently funding children's homes in India and Sri Lanka.

The Queen's Young Leader's Programme will search for 240 award winners aged 18 to 29 from all 53 countries of the Commonwealth who are to be celebrated, rewarded and supported for their achievements.

STONEFLY CO-FOUNDER WILL LEND A HAND

Entrepreneur **Adriano Sartor** will help Italian footwear manufacturers association, Assocalzaturifici, prepare for the Micam while its search for a managing director continues.

Fabio Aromatici left the position on July 1 to take up a new role with the company that runs the Milan exhibition centre, Fiera Milano. Mr Aromatici has worked at the Italian footwear manufacturers association, formerly called ANCI, for more than six years.

The organisation's training and special projects manager, Eugenia Girotti, has become interim managing director of Assocalzaturifici while the recruitment process continues.

Assocalzaturifici has decided to appoint Mr Sartor to run its services division on a temporary basis, partly because the timings for Micam are different this year, with the event moving forward in the calendar to run from August 31-September 3.

Adriano Sartor co-founded the Stonefly footwear brand, which has won recognition for incorporating technology from athletic footwear such as gel pads into dress shoes.

TWO TEN FOUNDATION DONATES \$800,000

The Two Ten Footwear Foundation, a charity linked to the US footwear industry, has awarded \$800,000 in scholarships to 322 students for the coming academic year.

The scholarships, provided yearly to eligible footwear employees and their families through donations from members, have helped make university and professional development opportunities more affordable for students since the programme's inception in 1969.

Neal Newman, president of Two Ten, said: "The more we grow our unique array of college and professional education scholarships, the more our footwear community thrives."

INCONTRI ADMIRES THE "ITALIANNES" OF TOD'S

Luxury footwear group Tod's has named Milan-based designer **Andrea Incontri** as the new creative director for its men's collections.

Mr Incontri said the values he admired most about Tod's were its quality, its modernity and its "Italianness". He added: "My aim is to develop Tod's further, while bearing in mind at all times the importance of the roots of a brand that is rich in history and in craftsmanship."

NEW STRUCTURE FOR TEVA

Footwear group Deckers Outdoor has changed the structure for its Teva teams in Europe, the Middle East and Africa and has centralised the organisation in a new headquarters in Rotterdam.

Rob van der Vis, who was previously the managing director for Benelux for UGG Australia, Teva and Sanuk, has been appointed managing director, EMEA, for Teva.

"To get the opportunity to lead a free-spirited global active lifestyle brand that will change the world of footwear is amazing. Teva will be positioned in a way that you've never seen before with our iconic silhouette in the centre in all we do," said Mr van der Vis.

Deckers also owns the UGG Australia, Sanuk, Tsubo, Ahnu, Mozo, and Hoka One One brands and sells footwear in more than 50 countries

CTC CONFIRMS BOARD

Jean-Pierre Gualino, who has been the chairman of French leather testing house CTC since 2008, has been unanimously re-elected as president for another three years.

At a recent meeting of 26 members of the board, **Emmanuel Mathieu**, a director at **Louis Vuitton**, was re-elected to first vice-president, while four other VPs were named as **Paul Batigne** (National Council of Leather), **Franck Boehly** (National Council of Leather), **Jean-Pierre Renaudin** (European Confederation of Footwear) and **Bertrand Sauve** (French Tannery Association).

ARTISAN FIRMS SHOULD NOT IGNORE ONLINE SALES

Gilberto Ballin, president of Assocalzaturifici, has called on small- and medium-sized artisanal business in the Italian shoe industry to do more to embrace e-commerce.

At its annual meeting, the group heard about some of the developments that have taken place in e-commerce in recent years, with a variety of expert speakers making it clear that successful online sellers do much more than “allow themselves to be found” on the internet. Instead, they build a deep understanding of who their online customers are and of the best ways to engage with them using tools such as video and social networking.

Speakers also emphasised the importance of presenting online shoppers with the whole story behind brands and products, including details of the communities they come from, the materials they use and so on.

“This is not an easy challenge for our businesses, especially for small artisan companies,” Mr Ballin said afterwards, “but we can no longer ignore this development; we must study it and use it to our advantage.”

UK PRIME MINISTER POPS INTO PENTLAND HQ

UK prime minister, **David Cameron**, and deputy prime minister, **Nick Clegg**, paid a visit to Pentland Brands global headquarters in London to discuss with employees and management the performance domestically and internationally of brands such as Berghaus, Canterbury, Speedo, Ellesse, Mitre and Boxfresh.

They were also shown 3D modelling technology used in the development of a new swimming product, the Fastskin Speedo Elite goggle.

Pentland chief executive, **Andy Rubin**, said: “As a third-generation family company, our advantage is that we take a long-term approach to investing in talent, innovation and growing our business globally.”

CROCS PARACHUTES IN FORMER REEBOK EXEC

Crocs has appointed the former vice-president of US retail for Reebok and Rockport to the same role, after reporting a wide ranging restructuring plan to boost income at the company.

Claire Fahie-Conley will be responsible for overseeing all aspects of the retail footprint in North America, based in Boston, and will report directly to **Greg Sullivan**, general manager for the Americas.

Over the past five years, **Ms Fahie-Conley** helped lead the development of the new Reebok FitHub store concept launched earlier this year.

The company last month announced it will close between 75 and 100 stores as part of a restructuring.

JAMES FERRAGAMO WILL TAKE OVER “IF IT IS RIGHT”

The current chairman of the Salvatore Ferragamo luxury brand, **Ferruccio**

Ferragamo, has said he would like his son, James, to succeed him in years ahead, but only if it is “right for the company”.

He added that he would prefer James to be “a rich shareholder [in the company] than a poor chairman”.

The comments came in an interview with the *Financial Times* in which the chairman, who is approaching his seventies, paid tribute to the inventiveness of his father, Salvatore, in founding the brand, registering as many as 350 footwear patents and leaving an archive of 14,000 shoe designs.

James Ferragamo is currently head of women’s leathersgoods for the brand. 



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Products & Services

BAYER PROMISES "NEW GENERATION" OF PU-COATED FABRICS

Polymer producer Bayer MaterialScience has launched a new polyurethane-coated fabric production process called Insqin, saying it will help companies produce a "new generation" of fabrics coated with polyurethane (PU) and mark "a new chapter in the footwear and apparel sector".

The range offers brands "an integrated package of pure waterborne PU technology, material co-development and a certified manufacturer partner programme for PU-coated fabrics".

Bayer suggests seven billion pairs of shoes, two billion bags and one billion garments containing PU-coated fabric are made each year.

"Today is a pivotal day for all textile-consuming industries, as we look ahead to an innovative and sustainable way of producing coated fabrics with Insqin," said Nicholas Smith, global head of textile coating at the company. "Not only are we now able to join efforts with brand owners to shape a more productive innovation process, we are also contributing to a practical solution that addresses the ongoing battle between sustainability and scalability."

Bayer said Insqin would enable the manufacture of "all kinds of coated fabric" to be carried out without solvent. "Worker exposure to solvents needs to be addressed," it continued, "and pollution risks need to be minimised."

The company has said the new system will reduce water consumption by up to 95% and energy consumption by up to 50% in the coating process.

FDRA PUBLISHES MANUFACTURERS' CODE

US trade association the Footwear Distributors & Retailers of America (FDRA) has published a Footwear Production Code of Conduct with the aim of "driving uniformity".

Andy Polk, FDRA's vice-president, told *World Footwear* that he introduced it to factories in Putian and it "generated great interest".



SYMPATEX RECEIVES INNOVATION AWARD

Waterproof membrane maker Sympatex Technologies has been named among the top 100 innovative companies in Germany at the Deutscher Mittelstands-Summit (Summit of German Medium-Sized Companies).

Sympatex CEO Michael Kamm (pictured left) said: "We are very excited about getting the 'Top 100' certificate and consider it proof for our continuous innovation power as a 'solution provider'. Our credo is to anticipate market needs, to use inter-divisional development synergies and to provide customer-oriented, innovative solutions."

The Institute for Entrepreneurship and Innovation at the Vienna University of Economy and Business vetted applications from 247 companies.

From working hours and overtime to structural safety and transparency, the guide ensures that any factories that adhere to its standards are compliant with industry expectations.

Greg Tunney, chairman of FDRA, said: "This code will help all footwear companies, large and small, establish uniform standards for all of their suppliers, all around the world."

FDRA worked with the Factory Enhancement and Sourcing Committee, a group of sourcing executives, to produce the guidelines.

SPAIN: INNOVATION IN MATERIALS RECYCLING

Organisations in Spanish provinces Valladolid and La Rioja, including El Centro Tecnológico Cartif de Valladolid and El Centro Tecnológico del Calzado de La Rioja, have developed a new way of chemically recycling PU foam from soles for use in new foam products.

Recycled foam is obtained through a chemical process called glycolysis, which consists of using a solvent, glycol, to break down the polymer chains; this is Cartif's idea. This allows the manufacturers to obtain polyol, the key component for new PU foam.

In general, complexity and cost have made chemical recycling less popular than mechanical methods. Creating new PU foam with a high level of performance needs wider access to glycol, which raises the production price. For use in industrial footwear, the new foam also requires dyes and other additives. La Rioja-based Centro Tecnológico del Calzado experimented with a way round this and manufactured a recycled PU foam with the same high-performance in traction and tear-resistance. However, this method used high quantities of isocyanate, making it no better value.

Cartif worked on developing a modified polyol. This gave a slightly lower-performance recycled PU foam, but has proved better from an environmental and economic point of view. Cartif has now patented its technique and is making it available for footwear manufacturers to use.

A&E LAUNCHES SUSTAINABILITY REPORT

Thread manufacturer American & Efird (A&E) has published its Sustainability Report for 2013-2014, showing progress in the reduction of greenhouse gas emissions, as well as in water and energy conservation.

The company has reduced its greenhouse gas emissions by 17% since 2006 and its water consumption by 32%. In terms of energy, it has calculated a reduction in its consumption of 99 million kilowatt-hours since 2006.

"We pursue rigorous sustainability standards to ensure we meet, if not exceed, the expectations of our customers," said chief executive officer, Fred Jackson.

A&E has set all of its manufacturing facilities around the world a goal of achieving zero waste to landfill, which its factory in Sri Lanka has already done.

The company's global humanitarian efforts include donating waste thread to local artists and businesses who repair clothing in Costa Rica, initiating training in the Dominican Republic to reduce violence against women, and participating in blood drives, school fundraisers and other educational, health and eco-friendly community initiatives in the US.

\$10 MILLION FOR 'LAB-GROWN LEATHER' COMPANY

Hong Kong-based Horizons Ventures has invested \$10 million in Modern Meadow, a biomaterials company that claims it can produce "leather materials" with advantages in performance, without using animals.

The US company will use the investment to accelerate R&D and product development as well as to open an expanded research headquarters in New York City.

CEO Andras Forgacs said: "Our goal is to develop cultured leather materials with advantages in performance, sustainability and animal welfare."

REEF INCORPORATES TRI-LAYER TECHNOLOGY

Surf-inspired brand Reef is to unveil a new footwear technology called Swellular in a new collection.

Swellular is built around three layers of material: a soft, contoured foam deck for comfort, a medium-density midsole for support, and a high-density rubber outsole featuring "an ocean-inspired aesthetic" for protection and durability.

The technology will feature in the brand's Rover Collection, which includes closed-toe shoes and sandals for men and women.

ARCHROMA OFFERS ZDHC-COMPLIANT CHEMICALS

Chemicals group Archroma has published its first formulation list of ZDHC-compliant colorants and chemicals for textiles and apparel.

The ZDHC (Zero Discharge of

Hazardous Chemicals) Group - which includes Nike, adidas and Jack Wolfskin - released its Manufacturers Restricted Substance List in June, setting concentration limits for the chemical groups banned under the roadmap.

Archroma has compiled a list of textile colorants that are qualified to support the objective and has established a network of labs that monitor product flow.

HUNTSMAN TO SHOW OFF TPU DEVELOPMENTS

Huntsman has announced that its thermoplastic polyurethanes (TPU) business will be taking part in and

sponsoring the third Global Footwear Sustainability Summit in Shanghai at the end of August.

Huntsman TPU experts will contribute to discussions about the sustainability challenges facing footwear manufacturers around the world.

Attendees will explore how leading footwear companies are making their manufacturing processes more efficient and sustainable.

Delegates will also examine the sourcing of raw materials, such as TPUs, that can be turned into fully recyclable components for shoes, boots and sandals.🔗



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Backtrack

World Footwear's publishing cycle and limitations on space make it impossible for us to run more than a carefully selected sample of news from across the industry.

However, we publish hundreds more stories on **www.footwearbiz.com**. The site is updated every day with news from every continent and every part of the industry, making footwearbiz.com one of the most

comprehensive archives of news anywhere on the web for the global footwear industry.

We list below just a few of the headlines that have appeared on the site in recent weeks — **www.footwearbiz.com** allows you to read those you have missed.

13/08/2014

Anta Sports bounces back

12/08/2014

First-half dip in sales for Tod's
Good growth for expanding Church's

11/08/2014

Huidong produces 460 million pairs of shoes

08/08/2014

Anta makes earthquake relief donation

07/08/2014

Airline CEO mixes John Lobb shoes with unusual shirts

06/08/2014

New UK shoe brand wants to source close to home

'Difficult' quarter for Steve Madden

Organisers say visitor decline was 'expected' at new-format GDS

'Landmark' global trade deal collapses
Increased automation on the cards for fast-growing Skechers

04/08/2014

Vietnam proves an able rival to China as it takes market share

01/08/2014

Footwear drags Puma's results down
Italian footwear industry wins support for showing in Las Vegas

31/07/2014

Rapid growth at Deckers Outdoor Corporation

30/07/2014

Adidas' Speedfactory project aims to move manufacturing to next level
US footwear executives lobby for trade breaks

28/07/2014

Italian artisan businesses "can no longer ignore" online sales
Under Armour to expand its footwear offering

25/07/2014

London department store Fenwick's opens shoe department

24/07/2014

German investment group acquires Scholl footwear

23/07/2014

Korean encouragement for Spanish brands

Crocs to close up to 100 stores as part of new plan

Lefaso lays down targets

22/07/2014

Second-quarter growth for VF Corporation

18/07/2014

Saucony working on first Made in America athletic shoe

Patagonia walks away from shoes

16/07/2014

Stride Rite store closures to follow record Q2 revenues for Wolverine
FDRA publishes code of conduct for global footwear manufacturers
OutDoor ends on a high

15/07/2014

Vietnam prepares for leather and footwear show

Nike gets in on the act

14/07/2014

Maturing outdoor industry poised for global growth

New hiking boot from Hi-Tec

European Sales Channel

US-based global footwear component company is seeking to expand sales in the European region. The company has experienced nearly 4X growth in the last 2 years. With its patented products and its upcoming new product launch, the company will be providing a system solution for all types of footwear. The company's products offer significant differentiators in the footwear market.

The company is seeking a business arrangement with a successful sales agent/sales agency to act as its sales force and grow their European market. Only qualified and interested parties need to respond.

Send inquiries, along with company literature for consideration to:

us.footwearcomponent@gmail.com



New York-based model and actress
Olivia Palermo with Maasai
community leader William Kikanae.

ALL CREDITS: PIKOLINOS

A chance encounter between a Maasai tribal leader and the founder of a Spanish aid agency led to footwear brand Pikolinos embarking on an inspiring corporate social responsibility project.

Maasai Project is the pride of Pikolinos

In April 2014, Elche-based footwear brand Pikolinos launched a new collection of sandals and bags with strong links to Africa. Part of an initiative called simply the Maasai Project, it involves shipping cut pieces of leather from Spain to Kenya and Tanzania and employing more than 1,000 Maasai women to decorate the material with beads, using traditional artisan skills. Pikolinos collects the decorated pieces of leather and ships them back to Spain to make up the finished products. Eight sandal styles and one bag are available in the latest collection. Pikolinos has been working with Maasai communities for five years, now, in partnership with a Spanish aid organisation called the Association for Development, Alternative Commerce and Microfinancing (ADCAM).

Special ambassador

Something that may make it slightly easier for the company to manage this complicated flow of materials is that it has its own leather finishing company, Pies Cuadrados (the name means 'Square-Feet'), with the tannery located in Aspe, only 25 kilometres from the shoe factory. The launch of this latest Maasai collection took place much further away, however, at a special event in Shanghai, with actress and model Olivia Palermo presenting the project in her capacity as its special ambassador. "This project gives Maasai women an opportunity to earn a regular salary," Pikolinos has said. "But the most important thing of all is that the work allows them to maintain their culture and their lifestyle. Thanks to the money their work brings in, more than 1,000 Maasai families now have better access to education, food and medicine."

Chance encounter

Shoes from the first collections from the Maasai Project appeared in 2009, but the idea goes back much further. The Maasai tribal lifestyle is one of the most threatened in the world, according to the United Nations, and William Kikanae Ole Pere, a Maasai tribal leader from southern Kenya, reached the conclusion while still a young man that his people's way of life would be easier to preserve if ways could be found for children to have better access to education and for women to earn a salary without leaving their villages. He had, for about ten years, regularly travelled north to the national capital, Nairobi, to petition businesses, institutions and even tourists to help Maasai communities, and especially Maasai women and children. When he came into contact with Pikolinos, he received the response he had been searching for.



Pieces of leather from Pikolinos's own tannery, Pies Cuadrados, are shipped to Africa from Spain for decoration at the hands of the Maasai, and then shipped back to be made into shoes.

What happened was that an encounter with ADCAM, whose founder Rosa Escandell is from Pikolinos's home province, Alicante, led to an introduction between William Kikanae and the shoe brand. He presented samples of the traditional handcraft embroidery work Maasai women can produce and Pikolinos envisaged a way of incorporating the decorative beadwork into its collections and the Maasai Project was born.

Ms Escandell is an important figure in all of this. She has worked in developing communities all over the world. She has also collaborated with Professor Muhammad Yunus of the



Pikolinos founder, Juan Perán, discusses leather decoration with Maasai women.



Work on the Pikolinos Maasai Project allows women to earn a wage without leaving their communities.

University of Chittagong in Bangladesh who, in 2006, won the Nobel Peace Prize for his development of microfinance organisation the Grameen Bank. "I've seen and lived in extreme poverty," the ADCAM founder says, "and I've seen women from various continents achieve emancipation from that poverty using their own hands, using locally sourced materials to weave or make things using artisanal methods with nothing more than a little microfinancing."

When she heard William Kikanae speak about his dreams for his community, she thought the principle could apply to his people, too, and she appealed to Pikolinos for help. "I'll never forget the first time I went to meet the women of the community," she recalls. "I talked to them about production processes, about quality control and about the differences between the summer and winter [fashion] seasons. I walked out of that first meeting and told myself that what I was trying to do was absurd but, a short time later, they had understood things very well."

"Rosa is like a bridge," says Mr Kikanae, "and we appreciate very much what she and Pikolinos have done, because this is the first project that is really helping the Maasai women."

Falling in love

Juan Manuel Perán, who serves as Pikolinos's executive vice-president, describes the connection that quickly built up between the company and the Maasai as "a falling in love,

on both sides". He goes on to say: "We had a firm belief that the project we were embarking on represented an opportunity to do something huge with a community that was in need."

Pikolinos promotes its Maasai collections as fair-trade footwear precisely because it promotes the sustainable development of the Maasai community Mr Kikanae represents, not only by paying the women in the community a salary for the work they do, but also because the sale of every pair of shoes and every bag from the collection generates a donation to the project, supporting ADCAM's work. In November 2013, for example, a community library opened.

Always singing

Founder and president of the group, Juan Perán, says that what the Maasai project taught him is that "with really very little, we can live and be happy". He continues: "The Maasai people are always singing, dancing, jumping into the air [a reference to a traditional dance called 'adumu'] celebrating their culture. You can see that they are happy, at peace, suffering no stress. They're such a happy people, so positive about the future and they wake up happy every day, and that's why I'm taking part in this project." He confesses to having become emotional and even to have wept at the thought of what life has given him, what he calls "the greatness of it all", and to have been able to give something back. 🌱

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Congressman Mike Michaud, who campaigned for the change in the Berry Amendment, takes a tour around a New Balance factory.

CREDIT: MIKE MICHAUD / FLICKR

Stealing a march

The Berry Amendment states that clothing and equipment used by the US military must be manufactured in the country rather than imported, where possible. While combat boots and dress shoes are covered by the ruling, in 2002 athletic footwear was removed from the remit, with recruits able to use a voucher to purchase the shoes of their choice regardless of origin. In many cases, the money ended up in the pockets of US-owned brands, such as Nike, which makes the majority of its shoes in Vietnam, Cambodia and China. But a recent change, similar to the 'yarn forward' trade debate within the textile industry, has suggested the whole shoe might soon have to be manufactured on US soil.

"Though at present no footwear manufacturer sells Berry Amendment-compliant athletic shoes in the commercial marketplace, I have been made aware that footwear companies do have the capability to manufacture them in the near future," wrote the chairman of the joint chiefs of staff. "With the potential for compliant shoes to enter the market, the Department of Defence (DOD) has an interest in having our

Potential changes to the Berry Amendment, which could lead to the US military buying 100% domestically made athletic shoes, have been touted as a "big win" for certain footwear manufacturers. Could it be the "rebirth of an era of athletic shoe production" in the US?

recruits purchase domestically manufactured athletic shoes to the maximum extent practicable."

"This is a big win," says Matt Le Breton, a spokesman for New Balance, which has been campaigning for the change since 2007. "It certainly means jobs. This is a good thing for the domestic footwear industry and our supply chain in the United States."

New Balance, which manufactures a quarter of its shoes in the country (with a small percentage in the UK and the

remainder in Vietnam and China), will be one of the major benefactors. The company employs roughly 900 people at factories in Skowhegan, Norridgewock and Norway and two facilities in Massachusetts. As part of a campaign strategy that included lobbying and organising tours of its factories for senators, the company delivered a personalised prototype of a Berry-compliant shoe to President Barack Obama.

New Balance's CEO Rob DeMartini is the vice-president of the American Apparel and Footwear Association (AAFA) and estimates that policy will impact 4,000 jobs. "We started making noise about the Berry legislation and we used the AAFA to make that drum beat louder and louder," he says.

'Righting a wrong'

AAFA describes the change as "correcting a mistake made 10 years ago". It was very active in terms of campaigning in Washington and "works hard to defend Berry against legislative proposals, amendments and regulations that attempt to dilute or weaken the law".

"We believe that it should have never been changed," says Nate Herman, AAFA's vice-president of international trade, on the 2002 revision. "Their argument was they didn't think there was enough of an industry left to find what they needed, and we strongly disagreed with that."

He stresses that while New Balance was an active campaigner, it will not be the only company to benefit, and estimates a dozen finished goods manufacturers and more component suppliers will gain.

"Any company that is able to manufacture Berry-compliant footwear is included, so it's not one contract going to one company. The playing field is open to anybody that wants to participate and soldiers still have the flexibility to purchase whatever they like with their own money," he adds.

Supply chains

Wolverine Worldwide Group is the other big player in the field. It has been working with the DOD through its Bates brand since World War One. The company makes Berry-compliant workboots and dress shoes at its facility in Big Rapids, Michigan, with the majority sold to the US Army, but it also supplies boots to 60 countries' military and, depending on specification, makes some of those in Asia.

"As a group, we were not campaigning for a change in the language of the Berry amendment," explains Andrew Fowler, director of operations for Bates. "The amendment clearly states that certain categories of products are to be provided against that threshold of Made in the USA 100%. What we've demonstrated is that the US, from an industrial footwear-making perspective, is fully capable of producing Berry-compliant athletic shoes."

The company is now working on compliant shoes in consultation with the various branches of the DOD, "because they all have their own budgets and their own nuances in terms of their route to market" – with an estimated time frame of producing compliant Saucony shoes by the end of this calendar year.

"One of the fundamental differences between making shoes for the military and making shoes on a commercial basis is we have to follow to the letter the specifications that they're setting forth in terms of materials or performance, durability to some degree – so we're very much in partnership with the military and developing products for them compared to the commercial companies, which are comparatively speaking in a vacuum."

The group has the advantage of a long history of working with the DOD and US component suppliers, such as thread-makers. However, the supply chain for athletic shoes – such as the mesh uppers and the TPU overlay materials – is limited in the US, and one which will have to be established. "We have our raw materials partners, and Vibram Quabaug is investing in new machinery to develop the mid-sole/outsole package," adds Mr Fowler.

Component makers

Quabaug, a North Brookfield-based manufacturer of Vibram soling, is a major supplier to the army, and celebrated the ruling with a gala event attended by congressmen and senators. While Vibram is an Italian company, Quabaug qualifies as the soles are manufactured in North America. It is ploughing \$1.2 million into innovation and technology at the plant, where it makes 99% of soling destined for the army, in anticipation of larger contracts with New Balance and Saucony.

"This is a rebirth of an era of athletic shoe production in New England that ended over 30 years ago," claims Quabaug CEO Mike Gionfriddo.



The type of Saucony shoe that will soon be produced in Wolverine's Big Rapids factory using US-made components.

CREDIT: WOLVERINE

The company recently donated \$125,000 to a scholarship fund for military veterans in the footwear industry. The fund, established through the Two Ten Footwear Foundation, was boosted with personal donations from Quabaug chairman Kevin Donahue; New Balance and Rocky Brands have also contributed.

The component makers that can tailor their products to the market also have reason to celebrate. Rogers, a manufacturer of foam for insulation and packaging, supplies to New Balance for use in tongues, while lining and spacer material supplier Faytex supplies for DOD boots.

Free choice?

While on the face of it, the announcement sounds like good news for US manufacturing, there will be winners and losers. Some brands' former suppliers might lose business as contracts move to US counterparts while those with overseas manufacturing will be ruled out.

The Footwear Retailers and Distributors of America (FDRA), which says it is "pro consumer choice and pro free trade", questions whether the deal is as "American" as it seems.

"We're supportive of Made in America as it fits into the overall global competitiveness of companies, but we don't believe in the continuation of tariffs or any special treatment to encourage the domestic production of footwear," says FDRA president Matt Priest. "We think if it's produced here it should be based on market reasons and economic reasons not on special protection that could ultimately hurt American consumers."

The association represents 200 brands and has members on both sides and so generally stayed out of the Berry debate. "We have members who make footwear here and welcome the opportunity to have a contract with the US government and provide athletic footwear to men and women in military here, and we have those on the other side who believe in the free choice of men and women to select shoes that fit the needs that they have athletically."

It views trade deals such as the Trans-Pacific Partnership (TPP) as a bigger objective, with the US importing 99% of its footwear needs – \$2.3 billion pairs per year. "There are lot more pairs at stake and a lot more duty," he explains.

"For New Balance the Berry Amendment is an important issue, obviously, and they've positioned themselves in the marketplace as Made in America even though the majority of their footwear's imported. They've almost cornered that market – more power to them, that's great. I'm all about ensuring the military is well-equipped, but I'm also a runner and have particular athletic shoe needs – limiting these for our men and women in uniform sounds a little bit counter-American to me, but it's not a huge issue for us."

Step forward

The change will also be affected by the volume of shoes. The US is currently weighing defence cuts that could see a decline in military personnel from 520,000 to between 440,000 and 450,000 – which could result in a net loss to some brands or component suppliers, such as Wolverine, whose compliant offering is the widest.

The AAFA cautions that the complex wording of the amendment could be open to interpretation. "It depends on how the army decides to implement the programme," says Michael McDonald, its manager of government relations. "They

WHERE ARE THE COMPONENTS FROM?

NEW BALANCE'S COMPLIANT TRAINERS:

Thread – Hendersonville & Marion, NC

Textile spacer mesh – Pine Grove, PA

TPU – Newburyport, MA

Insert – Wadsworth, OH

Lace – Pawtucket, RI

Tongue – Spartanburg, SC

Synthetic – New Haven, CT,

Collar foam – Jessup, MD

EVA foam – Coldwater, MI

Lining – Haverhill, MA

Reflective – Brownwood, TX

Rubber outsole – North Brookfield, MA

Thermoplastic boxtoe – Newburyport, MA

EVA midsole – Brighton, MA

EVA pellets – Charlotte, NC

Sole adhesive – Nashua, NH

Medial post – Sullivan, MO

Thermoplastic counter – Newburyport, MA

are given a lot of flexibility in terms of determining what type of footwear is readily available, and we think a lot more is available than maybe they're saying already.

"If you read the letter from the DOD, it wasn't saying 'as of today, we will start requiring incoming trainees to use only US-made shoes under the Berry Amendment', there were a lot of caveats, so we have to see how this is rolled out," he adds. "The devil is always in the detail, but we think it's a great step forward." 

President Barack Obama was given compliant shoes as part of the campaign. CREDIT: NEW BALANCE



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Major Chinese footwear brand Aokang is stepping back from pursuing cheap labour across China and beyond. It has decided that it will be easier for it to achieve its growth targets by investing in a state-of-the-art supply chain with high levels of technology instead.

Aokang opts for technology as labour costs continue to rise

Technology provider Lectra announced in July that one of China's biggest footwear manufacturers, Aokang, has adopted its Fashion PLM product lifecycle management software to streamline the way it produces its shoes.

Founded in 1988, Aokang now has four main brands, Aokang, Kanglong, Redess and MeiRie's (it also produces shoes for the Chinese market under licence from Italian brand Valleverde), three research and development centres, three manufacturing centres and more than 5,000 sales outlets across China; and it has ambitious plans for further growth.

Its investment in high-end technology such as Lectra's PLM software is motivated by a desire to streamline its supply chain and reduce the time it takes to bring the shoe collections it manufactures to market. Aokang president, Wang Zhen, says the group needs to innovate in the face of rising costs and "fierce competition" from rivals. "We have to strengthen our merchandise planning capabilities and streamline the flow of goods to retail," he explains. He insists that the new supply chain software will allow Aokang to overhaul the processes it has in place for planning new collections, from research and development, to design, manufacture and marketing. "Fashion PLM will allow us to have visibility and control over the supply chain," he says.

All about value

At present, Aokang designs and develops 50% of its shoes in-house, with the design of the other 50% in the hands of external consultancy partners; it manufactures the entire range itself. It now wants to increase in-house design activities and take control of up to 70% of all design by 2015. Mr Wang describes this as an important change to "a core component of our customer value proposition and a core part of our strategy".





Founded in 1988, Aokang now runs four main brands. It has three production centres and more than 5,000 sales outlets across China. CREDIT: AOKANG

This is not the first example we have seen in recent times of major manufacturing companies in China responding to increases in production costs and the other challenges in the market at the moment by investing in best-in-class technology. From what he has been able to observe of the changes taking place in China, Lectra chief executive, Daniel Harari, says this shift has split the country in two, in the sense that companies are now either continuing to pursue low-cost production by almost any means possible or they are moving themselves instead towards competing on value rather than price.

Why keep moving?

For Mr Harari, any company that insists on competing on price alone is going to have to keep moving to locations where labour is cheapest, locations that allow them to avoid investing in sophisticated technology. "There are two ways for Chinese companies to think now," he continues. "If it's all about being cheap, they are having to face up to the fact that soon it will no longer be possible for them to manufacture in China. Others, though, want to remain in China and find a new way of doing business. This means that China's premium segment is going to increase and it's here that Lectra is focusing its technology and consultancy offering in that market."

Domestic success

The increasing importance of the domestic market in China is at the heart of this change. Six or seven years ago, according to Mr. Harari, 75% of manufacturers in China were focused on export markets, but now 75% of what they produce is for the domestic market. "This is complex," the Lectra chief executive says, "but one way to look at it is to say there is a hybrid business model in China now. Chinese brands can still have a relationship with overseas customers as a sub-contractor while developing their own brands and their own business in the domestic market at the same time. Some things a company in this situation does must be common to both parts of the business, but others must be drastically different."

Companies headed by genuine entrepreneurs are the ones he thinks are in the best position to make this move. Entrepreneurs take risks and, in China, lots of them have the ability to invest because they have made money from working as outsource manufacturing partners to customers in North America and Europe. And it's in their interests. "The days of making money as a low-cost sub-contractor are gone," Daniel Harari says. "Businesses need to move to the hybrid model instead."



Lectra chief executive, Daniel Harari, says providing technology to help Chinese manufacturers move away from concentrating only on cost to a focus on value is the biggest opportunity his company has seen in, perhaps, 20 years. CREDIT: LECTRA



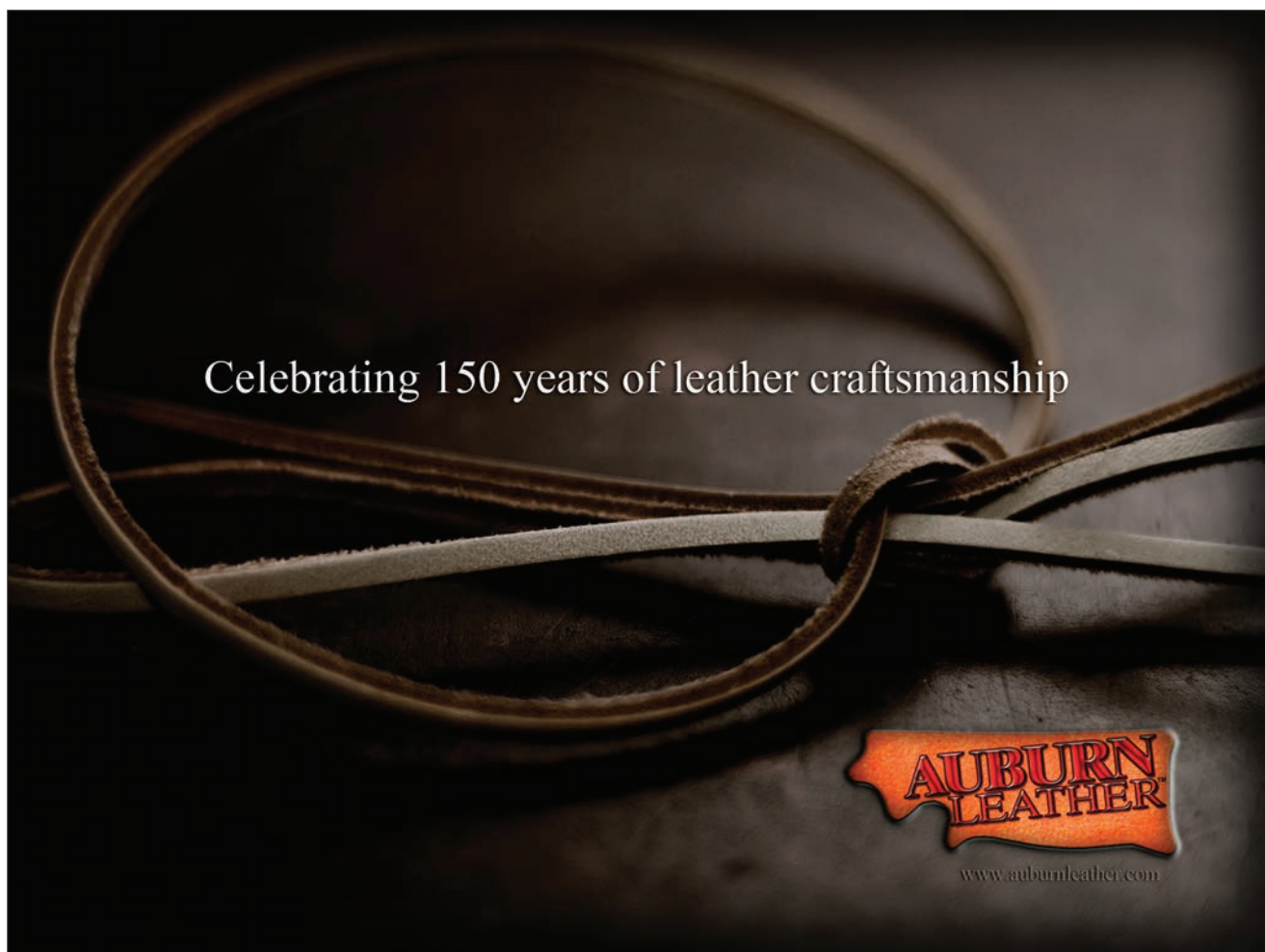
An Aokang event at the All China Leather Exhibition in 2013. Clever manufacturers in China are working hard to build their own brands. CREDIT: ALL CHINA LEATHER EXHIBITION

Most visitors to China from Europe or North America have seen little beyond the big cities, where big, international fashion names command the attention of local consumers and tourists. Go to smaller cities, Mr Harari suggests, and Chinese brands have a dominant position in most shopping areas, and across consumer spending as a whole in China, domestic brands are winning market share. With such a large domestic market to go after, this makes perfect sense to him.

More to the market than luxury

"Chinese people love fashion," he continues. "They love showing their personality in the way they dress. But it's going to be a country dominated by Chinese fashion companies; they will have a 75% or 80% market share. China is a big enough market for that. Swedish companies, for example, cannot only focus on Sweden because the market is too small. But a company can be big and successful and be in China only." He suggests that a focus on value, not cost, will be the key. Companies still focused completely on being cheap outsource manufacturing partners are being forced to reduce costs all the time, but this is no way, in his opinion, to create a brand, create brand loyalty, a real brand image or a back-story.

All of these elements are important, but it's no surprise to hear the Lectra chief executive state that good technology has to be the backbone of the strategy. He describes the move among clever Chinese companies away from focusing on cost to focusing on value as the biggest opportunity his own company has seen in, perhaps, 20 years. This doesn't mean he thinks companies like Aokang will transform themselves into luxury brands; a premium brand in China does not have to measure itself against or compete with the tiny number of elite brands that are genuine players in the global luxury market. "It takes 100 years to create a luxury brand," he says. "You cannot create a Vuitton in five minutes. But that's all right because the market isn't only about luxury." 🌐



HOW TO BE A HYBRID

Companies are realising that there is power in having control over as much of the value chain as possible. This means retailers are getting into branding and manufacturing, brands are getting into retail and manufacturing, and manufacturing is getting into branding and retail—the result being the emergence of a hybrid business model.

Increased control accompanies expansion into the value chain, giving companies an immediate advantage. But this expansion comes with a caveat: companies can no longer be content to stay with their traditional area of expertise—they must now master the entire end-to-end process. For example, manufacturers must develop an understanding of design innovation and fit if they wish to move closer to the consumer while retailers and brands must learn to manage production and even raw materials in order to guarantee product exclusivity.

To transition to a hybrid model, companies must look for ways to build on their existing strengths. This includes using innovative technology within a smart process to increase competitive advantage and offer something genuinely interesting to consumers. The resulting balance of style, quality and cost is key to delivering products with the price for value and newness demanded by consumers.

Brands are often recognised by their logos, but they're remembered for the stories they tell and the relationships they build with consumers. Brands craft value through these experiences, which they transmit through their products. Many people are passionate about the brands they love.

A retailer's typical role is to sell products. As masters of margin and human behaviour, they determine which products will sell best where, at what price, and to whom. While brands are concerned with creativity and relevance, retailers must ensure perfect timing, product presentation and turnover.

Manufacturing is where product ideas take physical form, and cost and time to market pressure become a reality. The manufacturer's main concerns are controlling cost and assuring quality, minimising downtime and managing a complex array of lead times.



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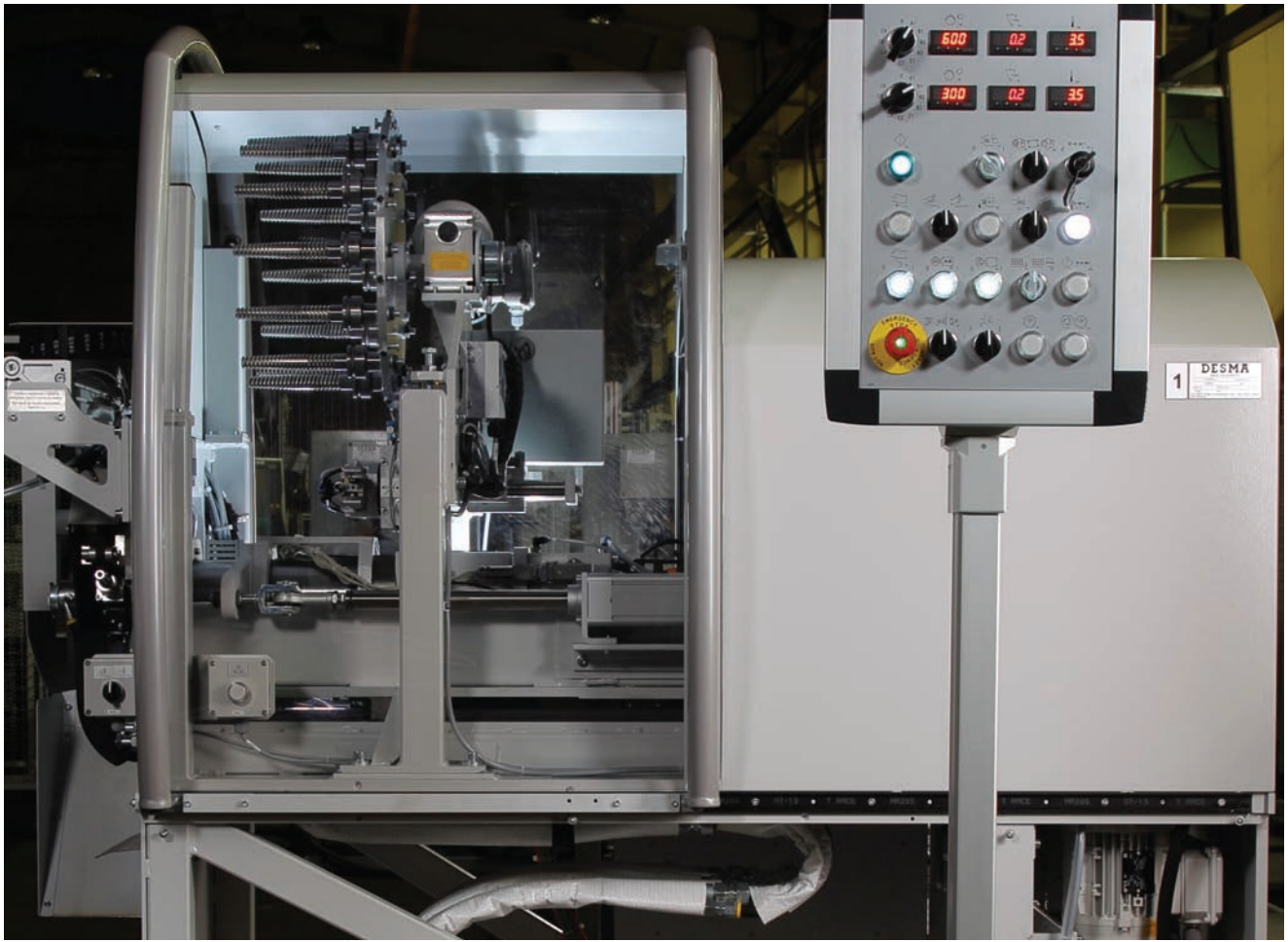
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The RGE 4011 mixing and injection unit.

ALL CREDITS: DESMA

Low pressure mixing of PU

Although there have not been any major developments in footwear soling systems announced recently (there are several ongoing but not yet ready for publication), this does not mean there have been no advances in specific areas. As far as polyurethane soling is concerned, the key aspect has always been the accurate mixing of polyol and isocyanate to produce the chemical reaction that creates the finished sole.

At the UTECH Conference held at Charlotte, North Carolina, in June, Bjoern Dormann manager of the technical department at DESMA, presented a paper outlining advances the company has recently made in this respect. The new RGE 4011 mixing and injection that was the subject of the

paper should be of considerable interest to all footwear manufacturers using polyurethane as their chosen soling material.

One of the most important factors in the production of PU soling is the stability of the processing conditions. Desma's new-generation mixing and injection unit appears to fulfil this demand both rapidly and extremely accurately. The processing technology that has been developed to do this uses a combination of highly accurate gear pumps, a newly structured automatic screw changer, a sophisticated cleaning device and a brand new graphic user interface that enables manufacturers to achieve even greater product accuracy and consistency than ever before.

The new gear pumps in particular

open up fresh possibilities. Throughput capacity has been increased by approximately 35% and it is now no longer necessary to change the gear pumps when a product change is called for. This, in turn, means that a wider product range can be produced on one moulding machine. One of the most exciting elements of the new unit, however, is the user-friendly graphical interface, which provides the user with an enhanced overview of processing conditions as well as a new algorithm for calculating the most precise mixing ratio, including extremely accurate additive dosing.

RGE 4011

The new reaction injection unit shown in the title image is capable of processing all main polyurethane

systems within a temperature range of 25°C up to 60°C. The viscosity of the liquids involved can run from 800 to 3,000 mPas in the standard configuration. It will mechanically combine the polyol and isocyanate components to create the most homogenous mix possible in order to maximise the subsequent chemical reaction and achieve high quality foaming. It is designed rather like a toolbox kit, where many different valve configurations are possible. These start at two component valves, one for polyol and one for isocyanate. This base configuration can then be expanded through the use of four component valves and four further additive valves (*Figure 1*).

The unit employs low pressure mixing technology, where an auger is used to mix the polyol and isocyanate. As a result, all variations of material can be processed whether ether- or ester-based as well as additional solid fillers even when they comprise a large proportion of the formula. The technology involved is in fact able to handle such a huge variety of different polyurethane components that it could be considered to have set a new benchmark for efficiency and versatility.

One of the main advantages of the new mixing technology is the consistency it can achieve. This means that the user does not have to worry about the mixing ratio as the machine is equipped with patented controlled component valves that ensure that they open simultaneously and so guarantee exactly the same mixing ratio all the time. This is particularly important where a footwear manufacturer is required to deliver products of a totally consistent quality to its customers. Desma says that no other existing low pressure mixing technology can really compare to the RGE 4011 in this respect as the alternatives employ two independent actuators for opening the component valves which can result in less precise valve actions and a possible loss of quality.

If the gel time of the material to be moulded exceeds the cycle time, the mixing chamber has to be cleaned. This is done by a special self-cleaning system. The mixing screw is designed in several different geometries based on the type of material to be processed. Furthermore, the combination of three component valves and four additive valves while appearing to be complicated is in fact totally practical in operation. For instance, the four-component mixing head can handle two different polyurethanes with total different chemical configurations while the three-component head is able to handle two different polyols and one isocyanate.

FLEXIBILITY AND PRECISION

The technology also has the ability to change the complete mixing ratio as well as moulding parameters such as throughput and component combinations from shot to shot without interrupting the production cycle. The use of precise gear pumps enables the shot weight to be kept stable every single time, regulated by the control database where data on every moulding is stored.

All liquids are delivered to the mixing unit by high precision gear pumps which are in turn driven by servos to ensure a precise and constant flow of the various individual components. All materials are kept circulating inside the feeder hoses again to ensure consistent processing conditions. The liquids are distributed into the mixing

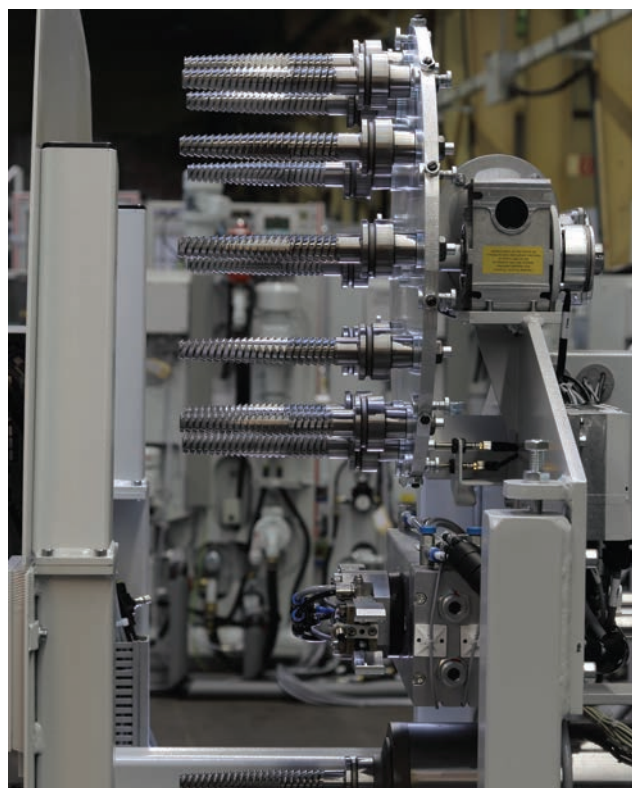


Figure 1 - The multi-valve mixing head is able to handle a variety of different chemical configurations.

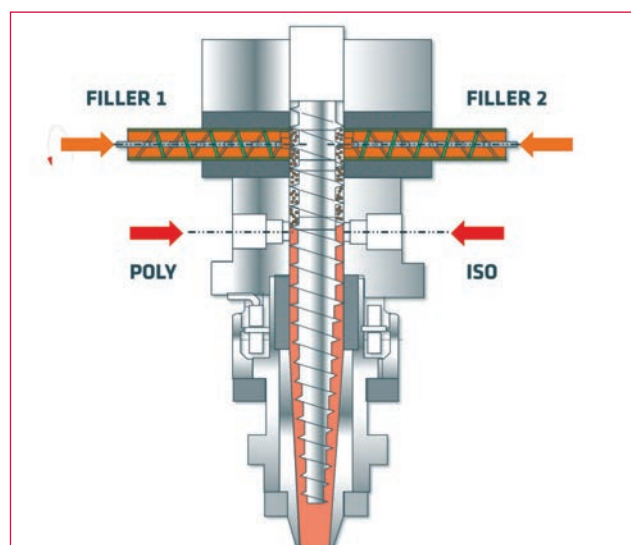


Figure 2 - The specially designed mixing auger ensures a highly homogeneous mix.

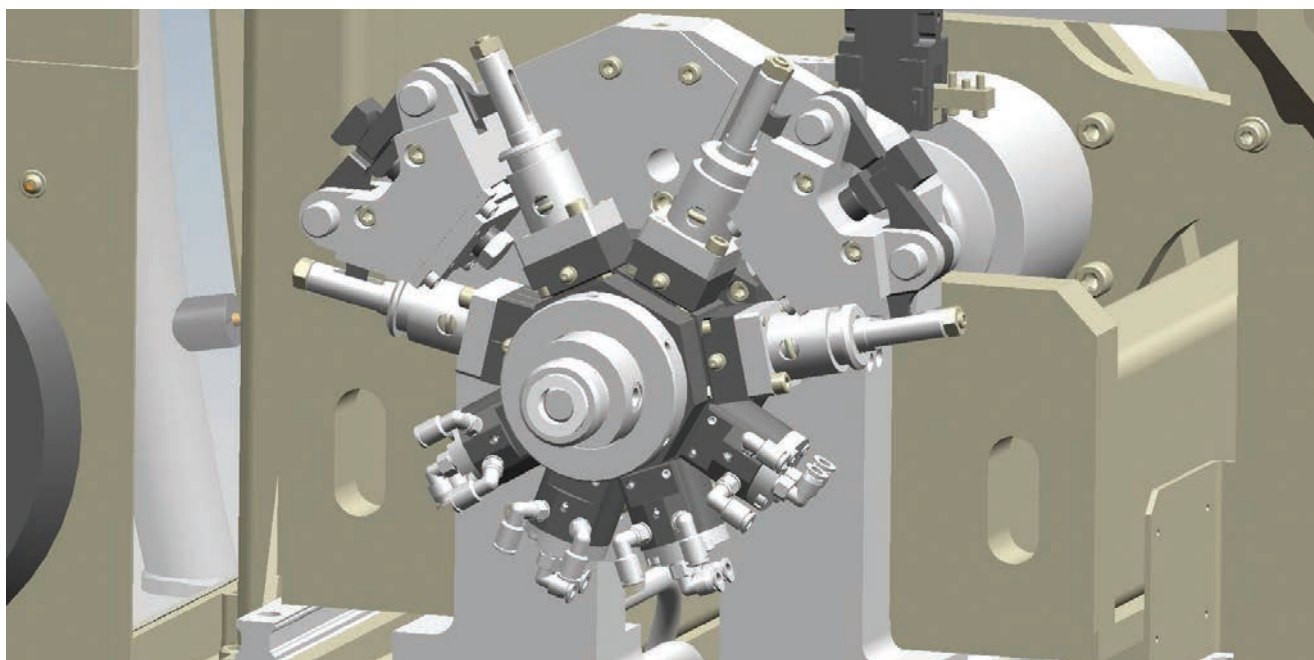


Figure 3 – Self-cleaning mixing head with up to eight component/additive valves.

chamber via an auger which is capable of revolving at up to 18,000 rpm (*Figure 2*). This auger then combines the polyol and isocyanate components to form a highly homogeneous mix, deliver it to the mouthpiece and then force it out into the mould cavity.

The exact design of the selected auger is a major factor in achieving a successful mix. Once the correct auger is chosen, the optimum mixing speed can then be determined. This can be varied from zero to 18,000 rpm continuously. The equipment is designed to be used in a continuous or discontinuous production cycle and is able to deliver a throughput of 60 grams per second with standard polyurethane systems.

The self cleaning mixing head (*Figure 3*) is able to handle up to eight valves based on a minimum configuration using the component valves for polyol and isocyanate. Final configuration depends on the specific nature of the product to be produced and whether there is a need to add any colours, catalysts, stabilisers or water. To achieve the desired final result, the additives are added as required and then mixed by the auger.

As a general rule, precise dosing is an essential requirement for producing a high quality polyurethane moulding. If exact dosing cannot be guaranteed, there is no possibility of this always being achieved. It was for this reason that Desma says it chose precise gear

pumps fed by gear metering pumps to ensure the weight of each moulding can be maintained at exactly the same level for every single shot. A further advantage is that maintenance work is kept very low, thus saving on downtime and maximising throughput.

GRANULATE FILLER

It can be quite a difficult task to handle a solid filler if there is no solid filler dosing system available. In these circumstances, the filler must be premixed into the polyol before being transferred into the material tanks. Unfortunately, there is always a potential risk of processing issues arising that could have an immediate impact on the quality of the final product.

For instance, if the product calls for a high loading of solid filler, the filler itself can either settle on the bottom of the tank or remain 'swimming' on the surface of the polyol depending on the relative densities. A truly homogeneous final mix requires the filler to be thoroughly mixed all the way through the polyol and this can never be fully guaranteed. A further disadvantage lies in the fact that if more than one level of filler needs to be added to the polyol, there is no possibility of varying the filler content during actual production.

Desma says it has been able to solve these negative aspects directly with a new filler dosing system. This can handle a large variety of fillers, starting

from very thin powders up to fillers with a diameter of approximately 5mm. A second auger is used to introduce the filler into the mixing chamber. This auger is driven by a servo motor, which enables the user to vary the content of filler inside the product from 0% up to 100% during production without causing any down time.

The addition of powdered or granulated PU or other materials can also be used to produce specific physical properties or appearances. For example, special additives can be used to reduce flammability or increase acoustic damping. Special effects are possible by the use of fluorescent powders or other additives for visibility on safety footwear or as a specific design feature.

The addition of powders has often led to problems in the feeding equipment as the pumps normally used for liquid processing with dosing in exact values are very sensitive to the use of abrasive additives or granules in the liquid phase. The wear and tear on parts increases enormously and the process becomes less stable. This now appears to have been overcome by enabling the dosing of hard components to be carried out in a precise manner directly into the mixing chamber. The RGE 4011 would therefore seem to offer a significant step forward in the manufacture of more consistent quality footwear. 

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We are all living longer and while this is a welcome development it has, like all things, come at a price, part of which is steadily increasing cost pressures on our healthcare systems caused by an ageing population coupled with a falling number of people paying contributions. One facet of this is a growing need for medical aids such as bandages, orthoses, shoe inlays, footbeds and custom-made orthopaedic footwear.

Germany is one country that has been particularly affected by a rapidly ageing population and the Federal Government has funded the Test and Research Institute Pirmasens (PFI) to

look into ways to reduce costs as regards orthopaedic footwear without sacrificing quality of care. PFI therefore decided to concentrate on the material properties of orthopaedic footbeds to see what might be done as these are so often needed to treat various medical conditions experienced by elderly people.

A well-designed footbed helps to redistribute plantar pressure. This can be optimised by using an appropriate combination of materials of different hardnesses. Hitherto, footbeds and inlays have been produced on an empirical basis, the subjective experience of the orthopaedic shoemaker dictating his choice of

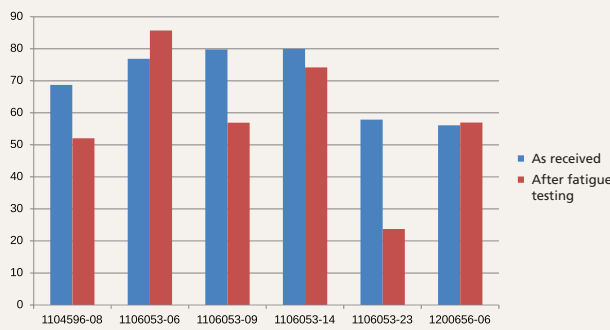
materials and the way in which he combines them in various thicknesses. The sole available criterion for identifying material properties has up to now been the Shore hardness even though the material's structure and other parameters are also of critical importance.

Recent years have seen a substantial increase in the range of materials used. Whereas inlays and footbeds were formerly made mainly of cork and leather, increasing use is now made of synthetic materials whose properties are specifically adapted to the needs of orthopaedic footwear technology. Unfortunately, there is at present a distinct lack of precise definitions of



CREDIT: SHUTTERSTOCK / ROBERT KNESCHKE

Figure 1 – Absorption ratio of 6mm EVA materials as received and after fatigue testing.



properties other than firmer, harder or softer consistencies. Whether a single material or a combination, the optimum choice for a specific application is still very much a subjective interpretation.

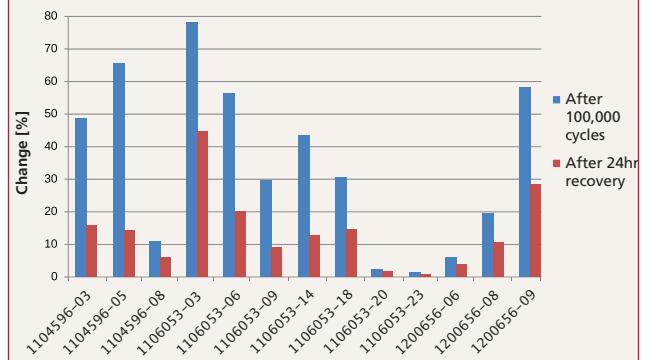
Hygienic aspects such as the behaviour of various materials and products on colonisation by micro-organisms, micro-organism counts, species present and the consequences thereof have also not been addressed. In particular, the increasing incidence of infectious pathogens has considerable practical implications. These micro-organisms not only damage materials and reduce the useful life of orthopaedic aids but can also lead to constant re-infection of the wearer and hence to a major health problem.

PHYSICAL TESTS

As part of its brief, PFI was given the task of developing suitable methods for physical and microbiological tests which would facilitate targeted design of orthopaedic footbeds. More than 70 different materials in various thicknesses were available for testing and of these, 39 cushioning materials were actually tested, including five composites. First of all, the thickness, density, and Shore hardness A and C were measured in order to improve descriptions of the material's properties.

Shock absorption – this test simulates the impact of a heel on the footbed and can also be used in analysing the behaviour of materials on impact of the foot in the ball and toe region and, above all, their damping properties. This test was performed on the material as received and after

Figure 2 – Thickness changes after dynamic fatigue testing of 6mm EVA materials.



testing for dynamic fatigue, the result indicating how much energy the material can absorb (Figure 1).

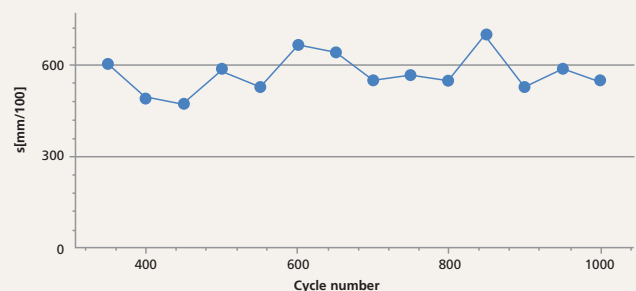
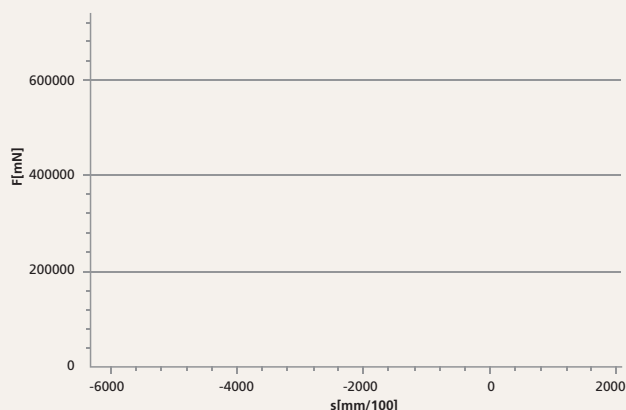
Efficiency of shock absorption was also calculated as this provides additional information about whether a material is suitable as a damping material or for energy storage. Materials having a thickness of less than five millimetres will always break. The thickness of some materials was reduced to such an extent after dynamic fatigue testing that they also broke.

Dynamic fatigue – this test measures whether the material can withstand 100,000 load cycles or not. Prior to testing, the starting thickness of the material was measured, again after 100,000 load cycles and, finally, once more after 24 hours' recovery. The percentage change calculated from the three thickness measurements and the mean value from the individual values of the test pieces was then used for further evaluation (Figure 2).

Recovery behaviour – for long-term patient care it is important that the desired effect on the foot is attained during each individual step, particularly as regards damping. This requires the footbed to maintain its specified thickness at the start of every step. The cushioning materials used must therefore return to their original geometry after being compressed when a step is taken, faster than it takes to complete the next step.

Studies on the behaviour of the materials during dynamic fatigue testing showed that material thickness already changed within a comparatively short time. Another experiment was therefore performed to see which material

Figure 3 & 4 – Recovery behaviour of material (lab ref) 1200656-09-00-01_3 prior to dynamic fatigue test.



thickness is actually available for each step. The speed with which the materials return to their original thickness after compression and the forces acting in the recovery process were determined (Figure 3). A supplementary measuring device was added to the dynamic test instrument which recorded this thickness on each contact (next step) and plotted the value at predetermined intervals (Figure 4).

This experimental set-up did not in fact offer any additional information beyond that obtained in the dynamic fatigue test. The materials do indeed recover and the decisive factor is the general alteration of the materials in terms of the reduction of their thickness induced by the loading cycles.

Compression tests – these were performed on a tensile testing machine fitted with a compression die corresponding to that used in dynamic fatigue testing. A force displacement curve was plotted until the test specimen had been compressed to such an extent that the force asymptotically (a line whose distance to a given curve tends to zero) approached an infinite value. The necessary force was measured shortly before this point was reached. On conversion to weight, this value provides an indication of the human body weight up to which the materials can be used in the tested thickness.

Appropriate testing does permit a far better description of material properties to be made. Above all, the dynamic fatigue test shows the properties of the materials relevant to the changes they undergo during walking. Additional important information concerning damping behaviour materials can be obtained by shock absorption testing. Testing recovery behaviour, however, does not yield any important information.

CONCLUSIONS

Materials whose thickness changes during dynamic fatigue testing are particularly suitable for use when adaptation to the shape of the foot is required. Those whose thickness changes only slightly or not at all are particularly suitable for damping. The materials investigated possessed sufficient recovery behaviour provided their thickness changed only slightly or

not at all. The compressive deformation properties of individual materials were revealed by their behaviour in combinations.

In combinations, those materials showing the greatest resistance to deformation appear to dominate the behaviour of the overall combination regardless of which layer they constitute. A large total thickness or number of layers does not necessarily lead to greater resistance to either weight or deformation. Furthermore, Shore hardness A does not in fact provide reliable information as to how materials will perform.

A manufacturer's recommendation regarding use of materials or their combinations for given body weights does indeed seem reasonable, since the materials can behave in very different ways. Experiments performed in connection with this project show the effort involved to have been justified. However, shoes and footbeds do interact with each other, so the former must be included in any consideration of foot care.

MICROBIOLOGY AND HYGIENE

Owing to the long periods for which orthopaedic aids are worn and additional complicating factors such as contamination with infectious wound secretions, knowing the hygienic properties of materials and their combinations is of cardinal importance. Yet these factors have hitherto received little attention. There is a high risk of contamination of orthopaedic aids with micro-organisms such as bacteria and yeasts, the possible consequences of which include damage to the material and constant re-infection of the wearer.

Various frequently used materials and combinations thereof were evaluated in order to obtain specific information about their microbiological and hygienic properties, and to characterise their behaviour towards bacteria and micro-fungi including yeasts, skin fungi and nail fungi. Two things became apparent. First, a rapid microbial colonisation of the tested medical aid components which remained persistently high even in the absence of nutrients over a period of weeks. Second, problems associated

with the application of microbial reduction methods which often led to extensive material damage. Finding answers to these problems is likely to prove difficult.

In the meantime, it is essential to consider hygienic properties in the choice of materials and in the design of orthopaedic aids, especially with regard to inhibition zones, use of antimicrobial finishes, and—in view of the high survival rates of microbes—the applicability of hygienisation measures.

On the basis of its findings, PFI suggests the following test guidelines for hygiene parameters and design. These will serve to improve product quality, minimise the risk of infection and enhance of the quality of life for patients. Tests should cover gram-positive and gram-negative bacteria and also *Candida albicans* as a representative of micro-fungi, dermatophytes where appropriate and should include these parameters:

- Wettability – as well as water uptake and water release where appropriate
- Agar diffusion according to DIN EN ISO 20645 mod. to detect possible leaching substances affecting the skin flora.
- Antimicrobial efficacy of materials for which corresponding claims have been made in challenge tests according to ASTM E 2149 mod. or DIN EN ISO 16187.
- Applicability of hygienisation procedures, especially UV irradiation at 254 nm for surface microbial reduction.
- Multiple washability (at 40°C and 60°C).
- In addition, studies of microbial colonisation should also be performed in individual cases.

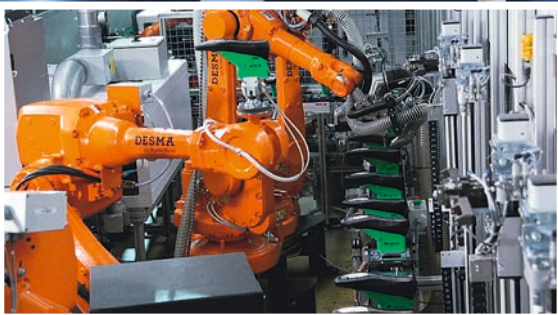
While this investigation and the resulting recommendations by PFI were primarily aimed at footbeds for orthopaedic use, there is also a huge market for their use in everyday footwear both as original equipment and after-sales additions. Details given here should therefore be of value to the industry in general and, while there are some excellent products already available, there is always room for improvement in taking care of peoples' feet. 🦶

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Rubber has so much to offer



Multi contrast soling from Anthony Miles.

CREDIT: WALK THIS WAY

The use of rubber for footwear has come a long way both technically and aesthetically since South American Indians dipped their feet in latex from the *Hevea Braziliensis* tree and then smoke cured the resulting shell to produce a reusable foot covering. Unfortunately, rubber in this natural form (NR), it is not very stable and inclined to become sticky in hot conditions and stiff and brittle if too cold. Its first commercial application for footwear was in the USA in the 1820s and took the form of crude overshoes imported from Brazil under the name 'Fabricas'.

Despite the aforementioned limitations, natural rubber does have some remarkable properties. French company Reltex produces soles from rubber in its most natural form, lactea hevea. They are made by adding a number of special ingredients to pure hevea milk, which is then poured into a mould and left for around seven days to coagulate and dry. The water is removed by thousands of tiny ducts to leave a natural microstructure comprising millions of air cushions that act as tiny shock absorbers.

Tests carried out by French technology centre CTC have shown that these soles

absorb up to 50% of impact shock when the heel strikes the ground. They also showed excellent distribution of plantar pressure, resulting in 70% restitution of the energy expended by the wearer. The soles will therefore help to avoid joint damage while also providing a high degree of comfort, all from pure natural rubber. While the soles are naturally expensive, top-end comfort footwear producers like being able to market extreme suppleness and comfort combined with a totally natural product.

VULCANISED RUBBER

The real breakthrough for rubber in every sense came in the early 1850s with the discovery of the vulcanising process by Charles Goodyear in the US and Thomas Hancock in the UK. They found that heating natural rubber with a small amount of sulphur and a few other ingredients (vulcanisation) changed its properties to a remarkable extent.

Unvulcanised rubber consists primarily of long polymer chains entangled like a mass of elastic fibres which, when stretched, disentangle, slip over each other and tend to straighten out. The traditional method of vulcanisation using heat and sulphur forms cross-links between the polymer

chains which greatly decreases the amount of slippage. As well as making the rubber far more dimensionally stable and heat resistant, it also improves and stabilises its physical properties.

Rubber technology gradually developed over the next 50 years assisted by rapid expansion in the chemical industry. 1853 saw a vulcanised rubber sole with a fused leather edge which was stitched to a leather upper to produce the first rubber-soled work boot. In 1858, a machine for sewing shoe soles to uppers appeared and, ten years later, a sole/heel unit with embedded nails for direct attachment to leather uppers.

An early item of footwear that exploited the waterproof and hard wearing properties of vulcanised rubber was the wellington boot. Its reputation as a practical boot for adverse conditions was made in the trenches of World War One when more than 1.1 million pairs were produced. This brought it to the notice of the general public and by the mid-1920s it had become the accepted wet weather footwear. Since then, it has acquired steel toe-caps for workers' safety, synthetic rubber soles for oil and chemical resistance, neoprene linings

for comfort, as well as fancy colours and is made and sold all over the world. In the UK, the Hunter 'green wellie' has even become a status symbol and style icon.

The combination of a fabric or leather upper with a rubber sole spawned a number of footwear products by the early 1900s including two that can be considered to be as globally influential as the wellington boot. The first of these was the 'Bean Boot' first produced in 1912 by L.L. Bean. As the promotional literature stated, 'Heavy wet boots were a hunter's only option'. So, the Maine Hunting Shoe design was pure inspiration; a waterproof rubber galosh sewn to a leather top and a concept still widely used as an alternative to wellies.

The second one led directly to the sports shoe phenomenon we know today. This was the plimsoll, first introduced in the late 1800s and later developed into the famous US 'Keds' mass-produced sports shoe in 1917. The concept was basic, a flexible rubber sole bonded to a simple canvas upper. The name 'sneakers' allegedly came about as they were so quiet compared to leather soles that you could sneak up on someone without them knowing. They were also cheap, comfortable and, due to the tough rubber sole, extremely hard wearing.

The concept has since been adapted to specific sporting applications but all with the same simple basic construction. Possibly the most famous of these is the Converse All Star introduced in 1921 as a boot for basket ball players. By the 1960s it had become a favourite item of footwear for generations of Americans. A stage on from the original plimsoll, it nevertheless combined the same virtues of comfort, practicability and value for money—an all time style icon that is still going strong.

TECHNICAL VERSATILITY

So far, we have only considered the use of vulcanised rubber as a basic material on basic products even though these still comprise the major proportion of the global market. It can however be engineered to produce highly sophisticated rubbers offering varying combinations of grip, resistance to slippage and abrasion as well as playing an important part in the overall design package. Creating the modern sole is therefore often a complex process involving many stages before it finally enters the market. The result however, is a sole that can in many respects be superior to almost any other.

Vibram was founded in Italy by Vitale Bramani in 1937 to produce a climbing boot sole with better grip after losing close friends in climbing accidents. The result was the famous Carrarmato sole which had wedge-shaped lugs with a wide base and narrower tread surface. This prevented them from becoming clogged by snow and losing their grip. It not only established the company's reputation but remains a best seller even today.

A major reason for this—besides the fundamental soundness of the original design—is that the company has been able to exploit the flexibility of vulcanised rubber in terms of compound mix. Soles can be made to be firm or soft, rigid or flexible and with a wide range of other physical properties. The Carrarmato has been kept up to date by changing the compounds used so that its range of applications has spread to include climbing, industrial,



Hunter boot.
CREDIT: HUNTER BOOT.



Inspirational Bean Boot.
CREDIT: LL BEAN



Converse All Star, an American icon.
CREDIT: CONVERSE



Carrarmato sole.
CREDIT: VIBRAM



Geox breathable outsole system.

CREDIT: GEOX

casual and even luxury footwear. Today, Vibram is the world's principal producer of high performance soles for every application imaginable and all because of the technical flexibility of vulcanised rubber.

Another Italian company to use vulcanised rubber in a highly sophisticated way is Geox with its breathable sole technology. The concept is, like most successful ideas, in fact quite simple. The sole is moulded with a series of small holes through the bottom corresponding to the highest concentration of sweat glands under the plantar surfaces of the feet. Covering the inside is a section of protective breathable membrane similar to that found in outdoor walking boots.

When founder Mario Polegato first came up with the idea in the early 1990s, his aim was not to increase water resistance but to improve sweat dispersion on conventional everyday footwear. Nobody believed a sole with holes in it could possibly work as it defied all logic. The simple fact is that it works extremely well helped by the dimensional stability of vulcanised rubber and the company has become a

highly successful global brand that uses its clever rubber soles to produce a huge range of comfortable and extremely stylish footwear for everyday wear.

DESIGN POTENTIAL

Vulcanised rubber soles have traditionally been black or various shades of brown and almost always just the single colour. Modern chemical dyes have changed all that and now almost anything is possible from clear and fairly transparent to shades all through the colour spectrum. This has given rubber a fresh lease of life as far as design potential is concerned and led to footwear ranges where startling sole treatments are the main focus of the styling package.

A good example comes from UK company Walk This Way Limited, which makes its Anthony Miles brand in its own factory in China. Here, vibrant colours and multi-part mouldings are combined with clever in-mould mixing during the actual vulcanising process to produce truly startling results as witnessed by the title and closing images of this article.

The sole in the title image is made of two separate mouldings which have locating lugs so that the two parts can be accurately bonded together before being attached to the lasted shoe bottom in the conventional way. Any colour combination is possible plus this clever treatment in the translucent main moulding which has small coloured balls imbedded in it. This is done by sprinkling granules of a much denser

rubber on top of the main biscuit of semi-cured rubber before the mould is closed. Being heavier than the main compound, they sink and disperse as the process of vulcanisation takes place.

The sole on the second image is made by using a mix of small lumps of compound in varying colours instead of a single biscuit. The separate lumps then fuse together as vulcanising takes place. Combined with traditional upper cuts and materials the soles create an exciting new look. Despite being made in China, the cost of the extra moulds and labour involved still makes these soles expensive. According to Walk This Way this has not however proved to be a problem for the style conscious young men who are buying ever bigger quantities since the brand was launched last year.

We can see from all this that not only does rubber as a soling material have a strong heritage but that it possesses a remarkable combination of physical properties that still allow it to be developed further. It also has another big plus in its favour; it is widely perceived by the consumer as being a 'natural' product in the same way that leather is. As a result, it is also regarded as being of superior quality to any other non-leather soling. While this is not always strictly true, it is nevertheless a good cachet to have and one that also means it can command a higher price point at retail. Rubber can look forward to a bright future as, even after all these years, it still has so much to offer. 🍷



Multi-colour sole made by in-mould mixing during the vulcanising process.

CREDIT: WALK THIS WAY



CREDIT: MICAM

Avoiding heel failures

Solid and securely attached heels are of vital importance on ladies dress shoes and, the higher the heel, the more difficult this becomes due to the small size of both the top-piece and the seat of the heel. The former creates balance problems for the wearer, while the latter makes the heel more difficult to attach securely. Furthermore, failure of the attachment in wear can lead to serious injury and potential legal action for damages. This might seem to be stating the obvious, but people new to the industry may not be fully aware of what can be done to prevent this from happening.

The foremost thing to understand about heel attaching is that it does not just hold the heel on but also affects the structural integrity of the entire backpart of the shoe. It must also be able to withstand unexpected blows from such hazards as kerbs and metal gratings as well as the normal mechanical rigours of walking. Several key aspects can ensure good

heel attachment. These involve the choice of materials, design and construction of the backpart and quality of the attaching process itself.

HEELS

The first thing is to ensure the nail-holding properties of the heel plastic are adequate, especially if the design of the heel restricts the length of nail that can be inserted into it. The market is dominated by PS (polystyrene) which is adequate for most applications. HIPS (high impact polystyrene) is stronger and suitable for most of the more extreme heels or to provide an extra margin of safety on normal heels. It is produced by adding either BR (butadiene rubber) or SBS (styrene-butadiene-styrene rubber) to the moulding compound. Strongest of all is ABS (acrylonitrile-butadiene-styrene) which can be used on most extreme heels.

PP (polypropylene) would also be a suitable material for the production of heels, especially the high-performance

metallocene catalysed grades, but for one major problem. It is very difficult to achieve an adequate bond with either paint when spray finished or adhesive when covering. Other



Extreme heels should be made from ABS with an additional central reinforcing pin.

materials, such as nylon and polyacrylates, have also been evaluated but have not found any significant usage.

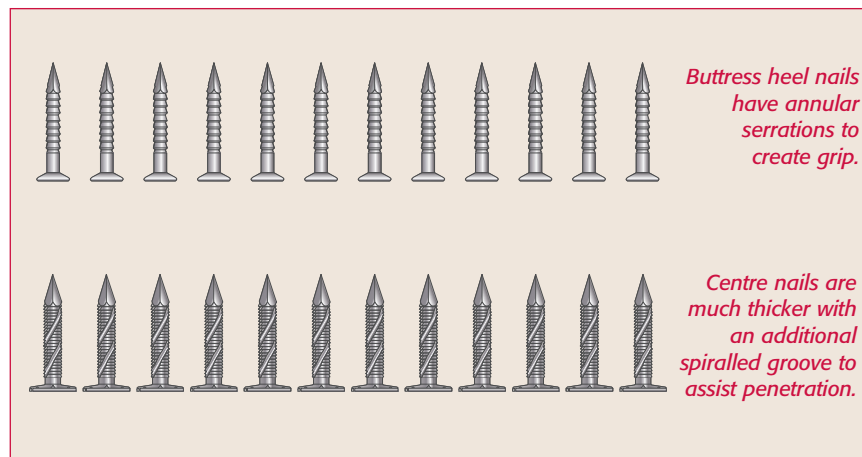
While this short article is principally concerned with the essentials of good heel attaching, it is worth pointing out that in the case of extremely high/slim heels the heel itself can fail unless adequately reinforced. While this is primarily the heel makers concern, a serious failure in wear and any subsequent litigation can also cause adverse publicity for the shoe brand itself.

Heels of this type need to incorporate a steel reinforcing pin. This usually consists of a rolled steel tube running virtually the full height of the heel, from the top piece to just short of the heel seat surface. The bottom of the tube is flush with the tip to which the top piece is attached. Even though a good heel supplier will take quality and performance very seriously, it is nevertheless prudent to have the heel independently tested in the case of a new supplier.

INSOLES

The insole is the foundation of a ladies dress shoe and its performance is as important to secure heel attaching as the plastic used in the heel itself. It must be rigid enough to support the foot on a high heeled shoe and, at the same time, strong enough to hold the heads of the nails securely to prevent them being pulled through under load. The solution is to use an insole that combines a 2mm flexible cellulose board laminated to a high quality 2.0 or 2.5mm shank board reinforcement at the waist and heel with a strong fluted steel shank held between the two and secured by rivets at each end. For the most extreme heels, a second 0.8 or 1.0mm layer of shankboard can be bonded simultaneously to the top surface of the cellulose board. It is a simple case of the greater the thickness combination, the greater the final strength and rigidity.

Shank boards are hard and strong fibre boards which can withstand the tremendous loads which occur in the waist and heel areas of high-heeled shoes. Made from a mixture of recycled paper and vegetable resins, they are designed to provide longitudinal stiffness and torsional



stability to withstand the twisting forces that occur during walking as well as mechanical strength to prevent heel attaching nails from pulling through the insole.

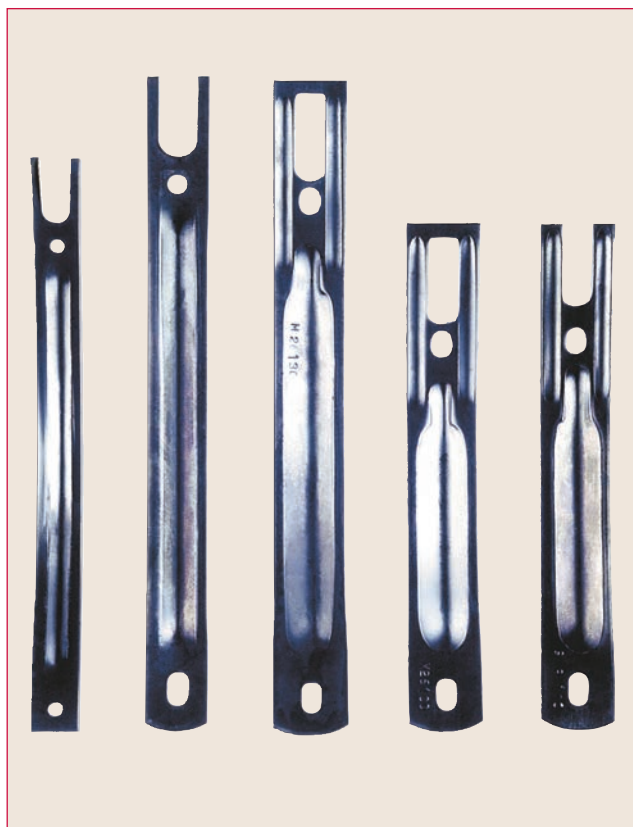
HEEL NAILS

Despite all the other developments that have taken place in footwear technology, attaching a heel still relies on driving a number of nails into the top of the heel simultaneously at high speed. This is despite constant problems in ensuring they are inserted without bending or deviating from their intended line and damaging the insole by pushing the nail heads too far into the insole. Alternative methods have been tried including adhesive systems and precision engineering components but proved to be either inadequate or too expensive.

Driving a pattern of nails through the insole and into the heel from inside the shoe after the last has been removed does in fact offer a very secure attachment provided the type of nail is carefully matched to the material used to produce the heel. For plastic heels, the buttress nail where a series of annular serrations allows it to penetrate easily but then become all but immovable is the one to use. Length depends on a combination of factors including thickness of insole and upper, heel height and shape as, with a sharply tapered heel, there can be a risk of the nails penetrating the external surface. Head size should be sufficient to provide a good grip on the surface of the insole and the nails not driven in too far.

The choice of nail pattern is important; a minimum of five nails is the norm for ladies heels and their spacing usually something of a





Shanks for centre nail heel attachment.

CREDIT: IVI METALLICS



Tensile testers provide simple and effective quality control.

CREDIT: SATRA

compromise. It should be as wide as possible at the insole/heel interface in order to maximise the consolidation of the backpart. In the heel itself, the spacing needs to be narrow enough to prevent nails emerging through the sides of the heel. Their position with respect to the shank and heel breast is also a critical factor in achieving a strong backpart which will not deform under load. The shank must be positioned to give maximum strength at the heel breast where the stresses are highest.

CENTRE NAILING

Where a heel is particularly narrow, conventional inside attaching cannot always be used as the nailing pattern would be too tight. The alternative is centre nailing, where a single large diameter nail is driven into the centre of the heel. The increased diameter of these nails offers nearly the same gripping surface area as five standard nails, while the large head offers secure anchorage to the insole. They again have annular serrations but can also include a spiral to assist penetration of tougher plastics such as ABS.

Centre nailing while effective, does

however create a problem as far as shanks are concerned. If the insole is the foundation of a shoe, the shank is its backbone. It reinforces the waist area, provides overall stability and is a key part of the overall structure. To achieve this fully, the rear of the shank should ideally be 10-20mm in from the back of the insole. In the case of centre nailing, the shank needs a large hole in it through which the nail can pass. This reduces the length of the fluting and, unless a wider shank with extra flutes either side of the hole is used, creates a potential weakness.

MONITORING

Even if the design and construction of the shoe backpart is correct in every way, quality must be maintained in manufacturing. Some faults are obvious, such as nails missing or over-driven into the insole. Others are less so, such as the quality of the serrations on the nails, a change in quality of the heel plastic or a problem with positioning of the nails in respect of the shank. The operation needs to be constantly monitored, both visually and by periodic testing of shoes taken from the production line.

Attachment strength can easily be assessed with a heel pull-off test using one of the simple tensile testers that can be obtained from testing houses such as Satra. This can be used both to confirm that materials, design and construction are satisfactory and as an in-factory test to monitor quality. The principle of the test is quite straightforward. The forepart of the shoe and the heel are gripped in the jaws and simply pulled apart. The force needed to do this is a measure of the strength of the heel attachment. This simple approach is ideal for everyday quality control.

A heel pull-off test can also reveal much more about the suitability and construction of the shoe backpart, and how the strengths of the various components interrelate. By observing the way in which the backpart deforms during the test, Satra is able to identify any potential weaknesses and advise manufacturers on ways to overcome them. It therefore also constitutes a useful tool in product development and maintaining overall quality of the final product. Poor heel attaching can prove to be an expensive error and it is a foolish manufacturer who tries to cut corners. 🚫

Thought by many commentators at the start of the century to be a one-season wonder, Crocs now claims to be the eighth biggest footwear brand in the world and is still growing. It wants to keep finding new styles of shoe in which it can use its proprietary Croslite cell-based resin material and develop itself beyond its iconic clog into a brand for all seasons.

Who needs product diversity?

Crocs currently offers more than 300 different footwear styles and says the familiar clog-style sandal now accounts for less than half its sales. Its range now includes flat shoes, slippers, sneakers and even an award-winning golf shoe. Nevertheless, the word Crocs still conjures up the plastic clog, which is available in all the colours of the rainbow. It was this product that made the brand's name.

The classic Croc, or at least the concept of it, was born on a boat, European managing director, Vince Gunn, fondly recalled while taking part in a recent BBC radio programme on companies that are best known for a single product. Three friends had gone fishing and began discussing how good it would be to have shoes that didn't slip on deck, smell or fall off. They created the Croc and, soon afterwards, sold 1,000 pairs at a boat show in Fort Lauderdale, Florida. This gave them confidence to set up a company, in Colorado in 2002, which grew fast enough to have, in February 2006, an extremely successful launch on the NASDAQ stock exchange, still the largest ever initial public offering of stock in a footwear company, Mr Gunn insists.

Common denominator

He joined the brand's European operation in the autumn of 2011, having previously held a senior role at Ecco. His entire career has been in retail, which



seems only natural as he spent much of his childhood helping out in his family's fruit shop in Glasgow. He likes to talk about the diversity of styles available now in the 623 retail locations it operates in more than 90 countries, but he also likes to point out that something all the shoes have in common is that they are made from the brand's proprietary cell-based resin material, Croslite. "This is what makes our shoes different," the European MD says. "They are lightweight, they fit the foot and they are incredibly comfortable."

He acknowledges that having one iconic product is an asset (everyone knows it), but in other ways it presents a challenge. "In some ways, it's critical to stick to what you know and look after the customers who put you where you are, but at the same time we want to be a four-seasons brand and offer the comfort of the clog in other products," he says.

He believes there must be more Crocs can do with Croslite. It sold 54 million pairs last year, 12 million of them in Europe. In 2012, it became a \$1 billion brand and last year achieved sales of \$1.2 billion. Mr Gunn says this makes the company the eighth biggest footwear brand in the world now, but it still has only a small share of the entire global market and still has lots of scope for growth.

Further building of the brand

Vince Gunn says the investment that came into the company when Blackstone Private Equity took a 13% stake in January 2014 has provided money it can use for brand-building. And, as many brands have found, he recognises that "a different set of skills" will, possibly, help it "achieve an extra billion" more quickly than it might have done with the talent it already had in-house. The three-men-in-a-boat founders had skills that were required to get the Crocs business moving, but the skills to make it a \$2 billion company (either organically or through acquisition, with all the challenges of business integration that come with that) are different, he explains.

Beyond footwear altogether, thinking of new types of products that Crocs could make and sell through its existing network of stores is "a huge temptation", Mr Gunn continues: it has the retail outlets, it has the design and management teams, so what's stopping it from bringing to market lightweight jackets or other apparel, for example? "I think it's important to look at previous mistakes, and to look at other brands and how they have evolved," he says carefully. "When your brand is exploding, as Crocs was in the early days, there is a feeling that you can do absolutely anything. But you have to build up credibility."

This credibility is the key ingredient you have to have in place, he feels, before customers will buy a product just because it has your label on it. Someone deciding to buy a pair of clogs or shoes in any of the company's 300 other styles is pledging trust in the brand, Mr Gunn says, adding: "To sustain and build a brand you need people to keep doing that."

CROCS BY NUMBERS

Crocs launch	2002
Number of styles	300-plus
Employees	more than 4,000
Retail outlets	623 at March 31, 2014
Countries	90
Revenue last year	\$1.19 billion
Shoes sold last year	54 million pairs
Shoes sold since launch	200 million pairs
Colours available	more than 20

Pairs of Crocs given away more than 3 million pairs to various charities since 2007.

Never say never

This is not to say Crocs will never move into apparel or other products, but it will take time for it to embark on new adventures of that kind, not least because distributing more than 50 million pairs of shoes a year in 90 countries is complex and hard work. "We're still growing and we're still a relatively young company," the European managing director points out again. "We want to become a four-seasons shoe brand first and then look at where else we can go. We are definitely not lacking in ambition. In fact, I feel we are on a mission. We became a \$1 billion company in ten years and now we want to find out how quickly we can get to the next billion." 📞

When Crocs has established itself as a four-season footwear brand it may turn its attentions to clothing and other products.

ALL CREDITS: CROCS



Footwear designer Kobi Levi is famous for quirky shoe designs that often appear to have more in keeping with surrealism than with shopping, but he is in the process of preparing a new collection that outsource manufacturing partners will be able to make on a production line, making the shoes accessible to a wider public.

Kobi Levi to launch “factory-friendly” collection

He's famous for designing shoes that look like swans, toucans, violins, bananas and coffee pouring from a pot, but Israeli designer Kobi Levi has confirmed a more “factory-friendly” collection is on the way.

Within the next year, an easier-to-manufacture Kobi Levi collection could go into production. They will be artisan-made and will be far from cheap, but they will be easier for the public to buy, the designer says. Mr Levi insists the move is not about making his shoes more commercial and that the shoes in the new collection will be no less creative and no less fun than his previous work. “But they will have to work on a production line,” he says, “so they have to be technically less challenging. Two factories have been testing the ideas, one in Portugal and one in Spain. Lots of footwear producers looked at my shoes on the website and were scared off, but these two were not, so it's been interesting.”

Even a brief look around an exhibition of Mr Levi's work, which ran at the Northampton Museum & Art Gallery this summer, would have given some indication of what these manufacturers were scared of, with unusual animal, bird and fruit shapes immediately catching the eye among the exhibits, and the overall experience certainly living up to the title, ‘Kobi and the Playful World of Shoes’. Probing more deeply, though, you see quickly that it's about much more than play.

Kobi Levi describes shoes as “a piece of art you can live with and make part of your surroundings”. His firm belief is that people's shoes make more of a statement about them than their clothes do, for the simple reason that the shoes have their own shape (although he thinks it's important for them to look good on the foot, too, otherwise there is little point in taking them further than design and making them for real). “You can cheat with a photo; you can modify it,” he explains, “but to make a shoe means to put the real product in front of potential buyers' eyes, allowing them to see every detail close up, and that's really important.”

Understand the process

He studied shoe design formally in his native Israel but decided it would be best if he taught himself to construct the shoes in his sketchbook. “I knew footwear companies would not let an intern make shoes like the ones I wanted to make,” he recalls. “You have to understand the shoe-making process



Kobi Levi banana shoes. Whoopi Goldberg is a fan, and a wearer.

ALL CREDITS: KOBİ LEVİ



Kobi Levi turned heads with a pop-up store in Selfridges at the time of London 2012, but shoppers were unsure if the shoes were really for sale (they were).



The man himself at the opening of the 'Kobi and the Playful World of Shoes' exhibition in Northampton in the summer of 2014.

very well before you can take it in your own direction." So, starting in 1997, he set about learning the hard way.

Kobi Levi was pleased, if slightly surprised, by the reaction to some of his early ideas, such as a shoe that resembles a red shopping trolley. He reasons that people could relate to the idea because a shopping trolley is an everyday object. He started to design and make shoes because he likes shoes, but another surprise was feeling excitement when people began to order and wear his creations.

Wider circle

These days, with A-list celebrity clients including Whoopi Goldberg and Lady Gaga, he commands a much wider circle of interest, but he still goes about things in the same way. He chooses a theme, sketches to see if he likes what his ideas look like, makes one pair of shoes in each style, photographs them carefully and creatively, uploads them onto his website and waits to see if orders come in before making more. "I don't court press attention," he says. "I just make shoes, take photos and put them online." This is how Whoopi Goldberg and Lady Gaga became clients: the actress, a famous lover of shoes, saw some images and sent an email to place an order, adding a note to assure Mr Levi that it really was her. She wears his banana shoes relatively often and another famous style that has a heel that makes it look as if the wearer has stepped in bubble gum that has become stuck to the sole of her shoe was on Ms Goldberg's feet when she appeared on a television programme with President Obama. When Lady Gaga wore Kobi Levi boots for one of her videos, there was no direct contact with the designer, but she did confirm her choice on her Facebook page. "It's not that people will buy what she wears," the designer says, "but it was great promotion and helps attract attention to other shoes in the collection.

Dressed, but not to kill

His styles usually have high heels, usually to a maximum of ten centimetres ("ten centimetres is completely wearable; I don't want to kill people's feet"), but he says this is not because he has anything against flats and rather because he feels obliged to follow "whatever the design idea demands". He admits to being "too obsessed" ever to give up on any idea he starts to work on.

For sale, for real

Interest doesn't always lead to sales. A recent Kobi Levi collection was a collaboration with the Disney Corporation. Disney called him and asked him which of its characters he'd like to base some designs on and he immediately chose the various witches that attempt to thwart the ambitions of the much more famous Disney princesses in each story. The company has forbidden him to make these shoes available to any client, but he confirms that he has had requests.

The Disney case was exceptional. Around the time of the 2012 Olympics in London, Kobi Levi had a pop-up store for a month in the host city's famous Selfridges store. He remembers that, at least at first, the public didn't know for sure if this was really part of the merchandise on offer: could you really try Kobi Levi shoes on and could you really buy them? Now, with the more "factory-friendly" collection in the offing, more and more consumers are likely to realise that the answer to both questions is yes. 🍷



A celebration of China. Kobi Levi designs usually have high heels, but not so high as to be unwearable.

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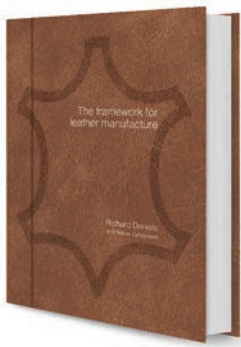
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