



The 'Desma family' of 50 co-exhibitors, including chemical companies and soling makers, offer their latest solutions to manufacturers.

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Desma sees the footwear manufacturing landscape changing as a 'decentralisation' takes place. Managing director Christian Decker also contemplates a retail environment that has fully integrated supply chains at its core.

Strength will lie in shorter supply chains

Rising wages, population growth and increased wealth – all factors that will alter the landscape of footwear manufacturing over the next decade, as companies look for ways to reduce outgoings and bring product closer to the market. Around 20.63 billion pairs of shoes were produced in 2013 – 13 billion of which were made in China – and this is forecast to rise to almost 22 billion by 2015.

"Even if China becomes expensive for labour, there will be no other China," says Christian Decker, CEO of footwear

machinery maker Desma. He says what happens in the country over the coming years will dictate the global landscape for footwear production. Rising wages will mean new generations of spenders; it will be "no longer just the production powerhouse but an important consumer market and we have to recognise this".

He predicts a different structure of production; a kind of decentralisation, featuring huge facilities housing 50,000 to 80,000 workers, churning out 20 million pairs per year, but also smaller locations making one or two million pairs, giving

other countries the opportunity to compete.

Understanding how the landscape will change is imperative to keep up with new requirements and offer solutions before the market has moved. Mr Decker's forecasts were keenly listened to by a group of global manufacturers in a packed conference room at the company's House Fair (open day) in Achim, northern Germany. Many of these companies had come to see the latest developments, including the Quadwrap shoe, made on an Amir D522 in four injected steps (see *World Footwear* November/December 2014). Instead of a typical shift of 200 workers that can produce 1,200 athletic shoes, the same number of Quadwrap shoes could be made in 24 hours with a bare minimum of workers, reducing labour needs by up to 90%, according to the company.

This kind of increased automation supports reshoring, as illustrated by German brand Ara expanding manufacturing in Portugal, and Puma looking at locating production in Eastern Europe. Sales of Desma's automation solutions have increased 20% in the last two years, and are expected to rise by a similar amount over the next two.

"We want to show what is possible. You can produce in high-cost countries because the labour costs will be low. You don't need to ship materials to Asia and can avoid the long lead times and so on; you can be flexible," explains Mr Decker. "We are talking with US brands who are extending facilities in the Dominican Republic and Puerto Rico, because NAFTA (North American Free Trade Agreement) means it's quite easy to ship from there to the US."

High quality in China

But it is not just Western companies that are keen: in 2013, China installed more automation solutions than Japan, the former leader for this kind of production. The country is looking to move away from low-complexity exports and increase its mid- and high-complexity exports, such as cars.

"Chinese are starting to invest money in equipment, some are thinking about lean production. There will come a point when there will be a total rethinking of existing processes, and we have already discussed this with some producers at the fair," says Mr Decker.

This new breed of Chinese footwear manufacturer has the resources to invest in high-tech machinery. One such company is a finalist in the Tannery of the Year programme, Henan Prosper, a sheepskin boot manufacturer that supplies to Ugg as well as making for its own brand. It is targeting five million pairs per year within two years, using Desma machinery. One crucial strength is that it controls a large part of the supply chain, from raw material through design and manufacture, starting at the skins.

"Having a short path from production to distribution and consumption of the products is something that I see coming up as a trend. There needs to be a closed chain between the design and the production – design for manufacturing – that's one key point. Some manufacturers already have this; Ecco is good example because they have the design, the marketing, the sales, a tannery, they make the lasts and moulds and so on, they have their own production and an extended shop chain."

He mentioned examples in South America where the groups own the chain from the cattle through to retail. "The



Manufacturers watch Desma's Amir machinery in action.

only exception is they don't produce the chemicals, but if they planted palm or soybeans, this could be used to create bioplastics and they would have even more control.

"The target should be that you can decentralise production and get it nearer to the customer – this is one of our drivers."

Retail adventure

The 'closed chain' also extends to the retail experience and consumers; he foresees a time when it is commonplace to customise shoes while in the store and have them made nearby, an initiative New Balance is trialling in New York. "The basic idea appeared at the beginning of 2014 and we are working on solutions. Shopping has to be an adventure, not just trying on shoes, paying and leaving. Where is the adventure in that?"

3D printing will also feed into this, another angle Desma is working on. "It is still too expensive to have mass production, but additive manufacturing is something we're focusing on and will have innovative solutions in the near future."

To counter all shoe purchases being made online, he envisages stores with walking tracks and foot scanners, 'tupperware party'-style shopping where groups come together, as well as retailing using 'virtual mirrors' that project

COMPONENTS SUPPLIERS OUT IN FORCE

Desma's House Fair focused on automation and polyurethane, welcoming around 600 visitors compared with 500 at the previous event in 2012. The 50 co-exhibitors were represented by chemical companies, soling and materials manufacturers and research institutes.

- Robotics manufacturer ABB displayed YuMi, only one of four prototypes in the world and the first robot that 'interacts' with a human. "We already have a lot of ideas for how we would use it, but I want to see what ideas shoe manufacturers have," said Desma CEO Christian Decker.
- Rhenoflex, a Germany-based toe box and counter producer, was promoting Rhenoprint, among other products – a "waste-free, fully recyclable" product. "We're looking at green and recyclable products at the moment – using a waste-free process, as well as sustainable raw materials like wood and straw compounds," explained sales manager Daniel Sommerhauser.
- Rika, a Germany-based shoe chemicals company, was promoting its release agents for moulded parts of PUR, PUR colour-pastes, environmental mould cleaner and lacquers for shoe components.
- Italy's Limonta promoted its ultra-microfibre and non-woven materials for safety shoes, a market it says is growing. "We want to bring to the sector not only our experience but also a style that we have accumulated working with fashion companies," said marketing director Massimo Sessana.
- AK Form, a Turkish insole manufacturer, presented a new washable product made from 100% organic cotton, stating that its customers are now requesting more sustainable options.
- Teco, a soles producer from Portugal, presented a new way to mix TPU, PU and rubber. Its in-house R&D team has developed a novel way to bond the materials using new machinery, for a "sole that offers the best of those properties". The group also owns last company Sifac and development and certification company Camatec.
- Chemical group Bayer, which partnered Desma for the Quadwrap development, also presented a CO₂ lightweight technology and blowing agent. It highlighted a new material for insoles that can be milled to the shape of the foot, designed to replace EVA for orthopaedic applications.
- UK-based D30 displayed its impact-protecting solution, which it has adapted for midsoles. "We use a raw dilatant material and incorporate that into the polymers, it offers flexibility but behaves like a solid when you apply force," explained material technologist Becky Donovan, who had visited Desma to run trials on its machines. "We can tailor it for cushioning or rebound, for heel inserts or insoles."
- Dow presented advancements in PU injection-moulded footwear technologies, including its Voralast solutions, and an update based on renewable resources.
- Huntsman discussed polyurethanes as a replacement for EVA, including Daltoped Lite and Daltoped Grip. Johann Van Dyke, head of footwear development in Europe and India, said: "PU is the only soling material that can do the same as all the rest, and is a good choice from a sustainability point of view."
- German chemical company Evonik, which makes additives for PU and foam soles, was promoting release agents. "Our main focus is the reduction of VOC emissions," said a spokesman. "We are looking to reduce the content of organic solvents in our products and replace them with water."

various colours and styles using augmented reality. Customers will be able to synchronise them with social media to get feedback from their friends, as adidas has begun to do in Germany. "But the brands have to be careful," he warns. "Suddenly it's switching the power. It's moving to being more controlled by Facebook, social communities and recommendations; the power is more in the hands of the consumer than the brand."

Brands will also have to stave off rising competition from

their Chinese counterparts; Mr Decker thinks a number of emerging brands will grow in importance. "You might not know them yet, because they might not be available in the Western markets, but in five years they will dominate the Western markets, all made in China."

China

China has the advantages of large harbours, good infrastructure, material availability, textile and engineering

knowledge, but weighed against those are rising labour costs, high fluctuation of labour, fewer at a working age because of an aging population, rising energy and material costs, distance to market and increasingly stringent environmental regulations. Another stumbling block could be a lack of liquidity. "They will have to be careful because liquid cash is required to invest." This gives other markets a chance to compete.

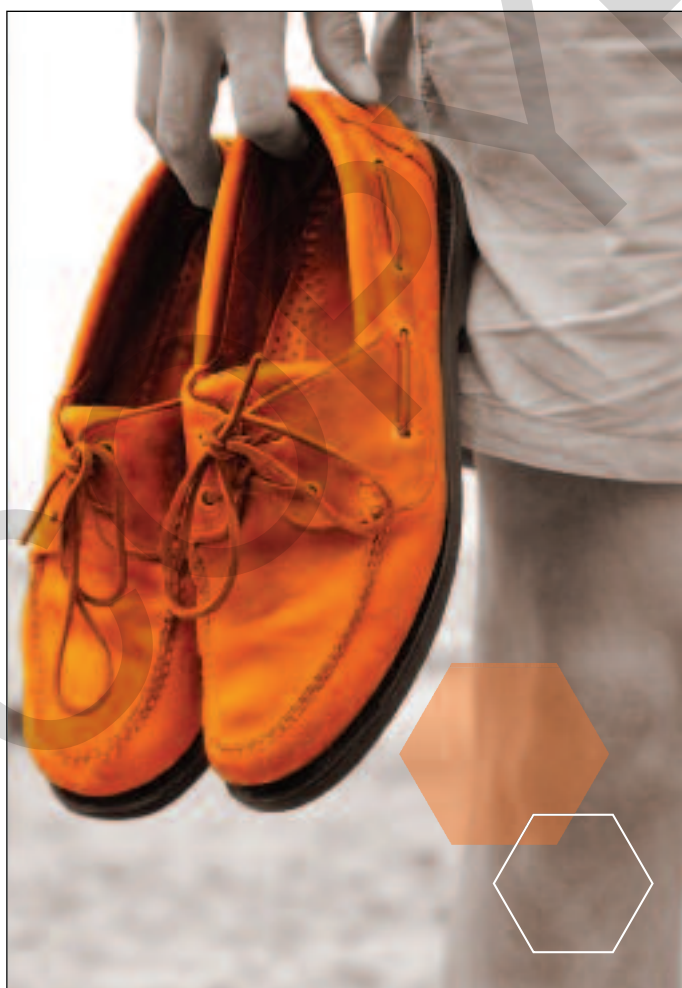
"In 2020, China will still be at the top but India is rising strongly, so is South Korea and Brazil. The potential in India is high if they improve their infrastructure. The same in Brazil, but there is also political risk, as there is in Thailand. The most interesting countries to watch are Mexico, Indonesia, Vietnam and Turkey, all have potential but some barriers to overcome."

What are the challenges for the footwear manufacturers of tomorrow? Labour costs, loyalty, overtime restrictions, workers' benefits; lead time, equipment and TCO (total cost of ownership); energy and material consumption, mould costs and waste costs; return on investment, efficiency of equipment and sustainability. "Projecting our business ideas for the next five to 10 years is really important for us; we want to design the solutions of tomorrow. Sometimes it is too visionary for some people, but our team is convinced it is the right direction.

"We need to make machines more effective to reduce cost factors," he concedes. "Material efficiency, production flexibility, service and quality are important factors, so we will focus on all these aspects in the future."



Desma managing directors Klaus Freese and Christian Decker.



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