



Speedfactory will help the environment by cutting down on shipping emissions, says adidas.
CREDIT: ADIDAS

Sports brands accelerate factory turnarounds

The time when customising sports shoes becomes the norm is around the corner, according to sports brands such as adidas. The German group's first Speedfactory will be operational by the first half of this year, and will enable movement away from standardisation and into customisation. Based in Ansbach near its Bavarian headquarters, the factory will be minimally staffed, with machines making shoes with knitted uppers and Boost soles. Adidas describes it as the first step towards creating "the ultimate personalised product for every consumer".

German engineering group Manz has been enlisted to produce technology for the initiative. The design of custom-tailored shoe components, textiles and accessories will be transitioned into data which will enable them to be produced on a fully automated basis. Dieter Manz, CEO of Manz, said: "Our engineers in our 'innovation incubator' have done pioneering work in developing this technology. The automation of manufacturing and the integration of the end customer in the design of the customised final product open up completely new and innovative business models to our customers. The collaboration with adidas represents the kick-off for us in the field of additive manufacturing technologies."

The idea is that once the German factory is up and running, more factories will be established close to markets, essentially reshoring production which has all the advantages of shorter lead times and lower transportation costs – but also without the

Adidas' Speedfactory programme is gaining momentum and Nike has partnered an automotive expert to drive reshoring programmes.



Futurecraft Leather offers the opportunity for athletes to have bespoke footwear from leather of their choice.

CREDIT: ADIDAS

workforce. "Our vision is that we can bring production back to the market where the consumption is. This would mean we could produce in Germany for the European markets or in England for the English market, or in America for the American market, which obviously would give us a lot of advantages," added Mr Hainer. "This is the vision; will it be in three, four or five years? With Speedfactory, we are making the first attempts and we are working intensively on the premise that the faster it is, the better it will be."

Adidas's other partners in the project are Johnson Controls, robotic assembly expert KSL Keilmann, the Technical University of Munich's Fortiss Institute as well as the University of Aachen's ITA RWTH textile technology institute, coordinated by the German government, towards a 2020 deadline for automated production across all adidas production sites.

Futurecraft programme

Towards the end of last year, the company announced a further shift towards customisation with its Futurecraft initiative, the first product of which is a prototype shoe with a customisable 3D printed midsole, which it claims can offer "unprecedented individualised support and cushioning".

Futurecraft 3D is a prototype and a "statement of intent", launched in collaboration with 3D printed insole maker Materialise. Adidas says the idea is that consumers will run on a monitored treadmill and have their feet measured by scanners, and the insole will be printed in store.

However, limitations mean costs are prohibitively expensive, admits Mr Hainer, and the launch was merely to highlight the company's new direction. "This is such an important milestone for us in the area of 3D printing. Who would have imagined a year ago that we will be able to introduce to the sporting goods industry a 3D-printed functional midsole that will enable athletes to perform at their very best?" he said.

Futurecraft Leather, the second launch of the series, also moves towards bespoke products and limited human involvement: the shoe is made with a single piece of leather for the upper, rather than pieces that need stitching together.

Using a milling technique traditionally applied to metals in industrial manufacturing, Futurecraft Leather provides the potential to tailor leather more precisely to individual needs by creating a fit to the geometry of the foot. The digital milling process gently strips away at a single piece of leather, creating precision-engineered fit with reduced adhesive.

The third Futurecraft announcement, which it published details of in late January, is laceless football boots. The Ace 16+ Purecontrol's laces have been replaced with three "points of stability" to lock the foot into the boot. A TPU cage locks over the adidas three stripes to secure the mid foot, and is anchored by a knitted upper and an internal knitted techfit locking system.

The upper is an evolution of adidas' Primeknit technology, combining tight and loose premium knits across the boot, and the boot is "set to become one of the most iconic releases", according to adidas Football's vice-president of design, Sam Handy.

The company said it would reveal more "groundbreaking design innovations" in the coming six months.

New methods

Both adidas and Nike have been talking of "manufacturing revolutions" over the past few years, suggesting more knitted

designs will reduce reliance on Asian factories as they will need less labour – particularly important as wages rise in China, and reshoring benefits such as reducing time to market become more attractive.

Nike is targeting revenues of \$50 billion by the end of 2020, up from \$30 billion in 2015, and has partnered 'supply chain solutions' company Flextronics International "to bring advanced innovation to its supply chain".

Like adidas, it claims the project will enable footwear to reach consumers more quickly, with customised solutions and increased performance, and will bring manufacturing closer to major markets. It has been developing technologies to enhance its manufacturing business model for the past few years with investments in automation, modernisation, sustainability, and advanced methods of manufacturing such as its Flyknit.

Nike's chief operating officer, Eric Sprunk, said: "Flex's expertise in design, engineering and manufacturing in industries like automotive, medical and consumer electronics make them a perfect partner to help us revolutionise footwear manufacturing. The future of personalised, rapidly-delivered product that is made more efficiently and with less waste is well under way."

Nike is working with Flex at its California-based campus, testing automation techniques and "new ways of making shoes". Flex will be undertaking a product customisation programme near Nike's Memphis distribution centre.

Nike says a phased approach to testing, developing and creating new methods of production will enable it to develop "an eco-system of suppliers and vendors to support long-term, sustainable manufacturing closer to major markets".

CEO Mark Parker said: "Flex is already accelerating our manufacturing revolution efforts. It's in the early stages yet, but in one specific process they have combined automated material management with automated laser cutting, which can reduce waste by up to 50%."

"This is just one example of many that are in development. And what we learn from Flex, we expect to scale across our global source base. For the consumer, our partnership has the potential to expand their list of choices and accelerate delivery times from weeks to days." 🌀



Nike's latest American football boots use knitted technology to deliver a tight yet flexible fit that adapts to the foot's motion.

CREDIT: NIKE