

WORLD FOOTWEAR

PROFILE

One of the industry's leading companies began in Brockton, Massachusetts, USA, in 1930 as a last manufacturer. At the time forty companies produced over five million pairs of wooden lasts per year. Today, it is the only remaining manufacturer of lasts in the USA. Over the years it has also diversified into one of the most successful shoe component manufacturers and distributors in the world—Jones & Vining Incorporated.

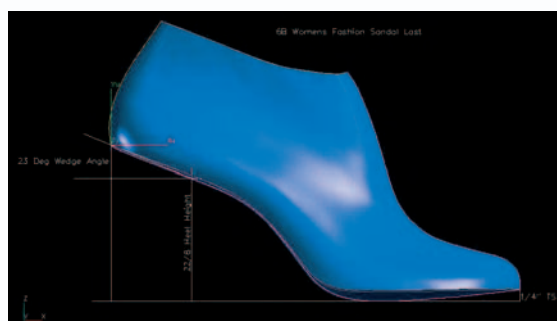
Jones & Vining hits 75 not out

The first big development as far as lasts are concerned came in 1984 with the introduction of the patented Compu-Last system. It was truly revolutionary in that it was a fully integrated, computer-controlled last production system that numerically defined the last, precisely graded and reproduced it and, at the same time, guaranteed consistency of both quality and fit no matter where the footwear was to be produced. The system remains at the forefront of last manufacture to this day.

The company had recognised the shift in footwear manufacturing away from traditional domestic centres to less expensive areas in Asia. The development of Compu-Last was not only a boon to footwear companies outsourcing their products but, at the same time, created a new and expanding business opportunity in the international market.

Compu-Last

The system had many advantages over conventionally produced lasts. Unlike



Modern Compu-Last model

many of those turned on conventional tracer lathes, these new lasts offered a totally standardised level of accuracy and consistency, as the base data is the same wherever the lasts are produced.

The system also reduced the product development cycle by up to 50% due to a reduction in the number of models needed and the time required to produce the final range. All this helped to drive down the cost of lasts as a result of the reduced labour content involved. Another advantage lay in the fact that, as the master data was digitally stored, the 'master last' was protected from mistreatment and typical storage problems.

Today, Jones & Vining has six model rooms and six last production plants around the world. Four of the model rooms are still located in North America as many brands continue to develop products at home and then manufacture them either at home or elsewhere. Customers are therefore provided with modelling and last production locations to suit their individual needs. Other facilities are located in China, Korea and Thailand.

Being heavily involved in the Far East, the company quickly became aware of the need for accurate lasts for vulcanised footwear. The high temperatures called for aluminium lasts as the plastic then available would melt under the 200-250°C temperatures involved. Once ➤



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again the company strove for accuracy but this time used a wooden model to create all the casting patterns. It produced very consistent moulds which, coupled with a specialised method of casting, achieved excellent results.

Technology in this area as in all others has moved on and the development by Jones & Vining of a temperature resistant polypropylene copolymer plastic has enabled the Compu-Last system to be applied to lasts for the vulcanising process. While some companies still require or prefer aluminium, many others have now moved over to these special plastic lasts.

Moulded soles

In the early 1960s, when the cost of leather soles became increasingly prohibitive, Jones & Vining entered the injection moulded unit sole business. Polyvinyl chloride (PVC) was initially used as it was best suited for the smooth edges and simulated stacked leather heels and bottom textures of the time. When brush-off finishes were added, a convincing 'leather look' could be achieved at an affordable price. It would also reproduce ribbed sole designs and, as it was also waterproof and oil-resistant, it was suitable for a wide range of shoe types.

Thermo plastic rubber (TPR) was the next material to be adopted. It could again be injected but had the advantage of a rubbery look and feel which meant it could be used to replace crepe or natural rubber soles for many applications and with less weight. It also possessed the ability to take on a wide spectrum of design detail in the mould, making it especially suited to the casual and sporty shoes that were becoming increasingly popular.

In the early 70s, Jones & Vining further expanded its component offering in order to meet the growing demand for lightweight and durable outsoles. A state of the art factory was built in Lewiston, Maine, to produce high quality moulded unit soles using the then relatively new polyurethane. This material was ideal for the thick platform soles fashionable at the time and its good definition combined with sophisticated finishes enabled the effective duplication of further natural finishes such as wood.

More recent developments have included Herculair—an expanded PVC material with high abrasion and slip

resistance. It is also extremely light at 0.70 density, making it some 30% lighter than standard TPR. The use of a blowing agent effectively reduces the weight of compound used, allowing it to compete with TPR and PVC on price as well as offering a superior comfort feel. Further additions have been thermo moulded polyurethane (TPU) and include the new lightweight Smart-Lite material. All injection moulded products continue to be produced for the North American market at the company's plant in Canada.

In addition the PU factory in Lewiston, Jones & Vining has recently opened a PU moulding plant in Zhongshan City, Guangdong Province, China. This wholly owned facility was opened in response to the demands of Asian customers for a high quality PU sole unit for use by Asian footwear producers. It was also a natural addition to the company's existing last production facilities in China and Thailand.

A selection of Poliyou foam insoles



An alternative to EVA

Experience in the Far East casual and sports shoe business led to the development in 2001 of a high performance micro-cellular based material designed to overcome some of the shortcomings of EVA. The properties of this new product called Emax were formulated to offer high abrasion resistance (thus minimising the need for rubber), energy management and good cushioning properties. It was targeted directly at the huge sports and casual shoe production of China and is produced both there and in Taiwan.

Compression moulding was already a widely used process in the Far East, so the new material was designed to be suitable for both this method and injection moulding. It therefore appeals to users of either system. This was

another example of careful product development with an eye on what was needed in terms of manufacturing and performance appeal.

Foot comfort

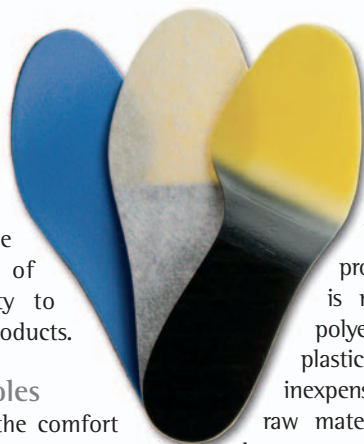
Next to Compu-Last and moulded outsoles, Jones & Vining is probably best known for its cushion foam insock materials. With the increasing consumer demand for comfort, in 1992 the company formed a partnership with the manufacturers of Poliyou in order to offer a cushioning system that provided comfort and a built-in moisture management system.

The lack of advanced machinery and skilled labour in the stitching rooms of many Asian factories meant that the upper sections of sports shoes were glued together before stitching to ensure accuracy. This in turn meant that the uppers did not breathe very well and so perspiration became a major problem for the wearer. Consumers were concerned about potential health factors but still wanted to wear the shoes as, despite this drawback, they were extremely comfortable and made the all important 'lifestyle' statement.

Poliyou is a patented open cell crystalline polyurethane material that provides excellent cushioning while wicking perspiration away from the foot. The open cell structure allows the moisture to pass through it by capillary action and so provides a better level of foot comfort than ever before. It also had a long life due to compression set properties as low as 5%.

Poliyou also contains active carbon as a natural control of odour. This was taken a stage further in conjunction with Dow Corning Corporation, with the environmentally friendly Aegis technology. This has led to superior anti-bacterial and anti-fungal protection compared to other systems using 'zones of inhibition' that leach the anti-microbial away from the affected area and weaken its properties as well as damaging the environment.

Further cushioning foam materials have been added over the years to address the need for additional benefits such as higher energy return, shock absorption and shape memory capabilities. Cork granules have also been included in some variants to satisfy the growing demand for more 'natural'



A selection of Bi-Fit insoles

footwear. All these products reflect the company's depth of knowledge and ability to formulate successful products.

Dual hardness insoles

Moving away from the comfort factor, the company came up with another very clever insole product in 2003. The most widely used insole material over the past 40 years has been cellulose board. Depending on the final shoe construction, insoles from this material might or might not have a shank-board seat, but would most certainly have a steel shank to support the waist. These insoles were never truly flexible in the forepart and many ways were tried to overcome this drawback—none being wholly effective.

The new product called Bi-Fit approached the problem from a totally different direction and utilised the experience gained in other company

products. To begin with, it is made from 80% recycled polyethylene or polypropylene plastic bottles, so there is an inexpensive and constant supply of raw material without the need to destroy trees.

Bi-Fit can also be made in varying grades of softness or hardness so an insole sheet can be made with a flexible forepart and a rigid backpart. It also has a non woven cover and needle punch polyester backer to enable the easy use of lasting adhesives. Finally, it can be cut to shape and easily pressure moulded to fit the last. I-beam support bars can also be added to the backpart for added stability, while flex bars can be incorporated to increase forepart flexibility. In some applications, Bi-Fit can eliminate the need for a shank, while thinner versions can be strobil stitched.

This is another example of the

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company combining performance with existing manufacturing methods. These insoles are currently being produced in Taiwan and are protected by patent both there and in China. Other patents are pending in the USA and Vietnam.

JONES & VINING

This year Jones & Vining celebrates 75 years of developing and producing quality components for footwear manufacturers. The company aims to continue this proud tradition by generating new and exciting products to meet the challenges and needs of a rapidly changing industry. Indeed, the company is about to open a new last production plant in China. As a further mark of this significant milestone, there is also a new company logo and image (*shown above*) as Jones & Vining Incorporated 'Steps into the Future'. 



If only I had advertised in **WORLD  FOOTWEAR**