

Steitz Secura 'Black Beast' safety shoe.

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# Safety with comfort

**"M**y back hurts," must be one of the most widely heard complaints in factories everywhere.

Almost every employee experiences work-related back pain as well as pain in the musculoskeletal system at some point in their working lives. They are in fact the most frequent causes of workplace absenteeism. Because back pain often becomes chronic, it is therefore important to try to take preventive measures before a problem occurs and also do something about existing errors in posture and excessive strain. Selecting the right kind of shoe can play a decisive role in preventing both of these problems.

How many hours a day does the average factory worker spend standing in their safety shoes? Probably more than in any other kind of footwear which is why the fit and comfort of safety shoes is especially significant. This is how German safety footwear manufacturer Steitz Secura sees it.

Instead of the wearer having to 'break in' new safety shoes to make them more comfortable, it says "Safety shoes should be adapted to the person wearing them; not the other way around. That is why we have developed technologies that adjust to the wearer's individual requirements."

Steitz Secura is one of the leading manufacturers of safety shoes in Europe and has a long history. Founded in 1863 under the name Louis Steitz, it produced conventional everyday footwear for the next one hundred years. The rapid expansion of German industry during the 1950s, plus growing legislation for workers' safety, persuaded the company in 1963 to focus solely on safety footwear. It proved a successful move and, in 1976, safety became part of the name: Louis Steitz Secura GmbH & Co. KG. Today, it produces between 3,500-4,000 pairs of safety shoes per day at its modern factories in Kirchheimbolanden and Pirmasens.

## VARIO DYNAMICS

Over the years, the company has always sought to innovate and a good example of this is a type of safety shoe called Vario Dynamics Pro where the emphasis is on 'comfortable safety'. A typical workday on a production or assembly line, with virtually non-stop standing and walking, places high demands on the feet. These shoes focus on comfort and safety while boasting a sporty design. Efficient foot climate comfort is provided through the use of highly breathable microfibre upper materials which also reduce weight, and real leather insoles. The shoes are in fact extremely light at only 544 grams which, coupled to an athletic type outsole, helps the wearer to maintain maximum performance in the work place.

The shoes have proved so successful that the company has won several design awards for innovation in the safety footwear sector. Among these are the Design Award of the State of Rhineland-Palatinate, the Red Dot

Design Award and the German Design Award. The jury of the State of Rhineland-Palatinate remarked that "At first glance, it is hardly believable that Steitz Secura's 'Black Beast' is one of the lightest safety shoes of its class on the market. Furthermore, it has integrated systems that support back health." These include multiple-width fittings, exchangeable heel damping and multi-zone damping to assist the forefoot which tends to become more sensitive to pressure as age increases.

The Aktion Gesunder Rücken e. V., and Bundesverband der deutschen Rückenschulen (BdR) e.V. (an organisation devoted to back health), have certified the Secura Vario system as being particularly good for the back. Steitz Secura says that it is particularly pleased with this as Aktion Gesunder Rücken e. V. has developed strict criteria for everyday products that are easy on the back and works closely with physicians, health insurance companies and important professional associations. Safety shoes with this system are the only ones that meet the organisation's high standards and include the following features.

**Vario Multiflex** – many safety shoes affect the natural movement of the foot and constrain its flexibility. The resulting leverage forces cause knee pain and back problems, and can also result in twisted ankles. Through intelligent adjustments to the shoe, these forces can be reduced by either changing the geometry of the outer sole or by reducing the actual sole thickness.

**Secura Vario** – exchangeable weight and load adjustable heel damping can be set to an individual's specific requirements. Excellent damping behaviour reduces the pressure load in the shoe to a natural level, relieving stress on the back and significantly reducing fatigue.

**Vario Vitality** – this load adjustable multi-zone damping system provides a pleasantly soft feel in wear, reduces the pressure load in the shoe and relieves pressure on the forefoot. This encourages a more natural stance and gait with obvious benefits as it reduces stress on both the foot and the body in general.

## MODERN SAFETY SHOE

New materials, precise workmanship and state-of-the-art production have

resulted in numerous innovations in safety footwear in recent years. The days of chunky, heavy and uncomfortable safety shoes are over and influences from the sports shoe sector are increasingly to be seen. Thomas Wagner, Head of Marketing at Steitz Secura says that, "The modern safety shoe is light, comfortable and meets all necessary safety standards." In addition, there is a growing trend towards customisation in terms of an ability to adapt characteristics of a shoe such as damping hardness in special areas to the individual. This is where shoes like the Black Beast are showing the way forward.

Development of the shoe clearly called for specialist input from outside the company in terms of lasts and moulds, so Steitz Secura turned to a long term partner, German last and mould maker Fagus-Grecon. This company has been producing lasts for the manufacture of perfectly fitting shoes for over one hundred years. From an initial design for the last and sole, through prototype manufacturing to the final lasts and moulds for bulk production, its policy of working closely with customers has been shown to save both time and money. Besides cutting-edge lasts and moulds, Fagus-Grecon is also able to offer innovative ideas for direct soling, enabling fast and efficient manufacturing.

Cooperation for the Black Beast shoe began with an initial discussion around the basic concept and product

requirements. These were then collated, sketches prepared and specifications discussed. Summarising the process, Janina Döhrmann, designer at Fagus-GreCon, says, "The interaction of aesthetics, ergonomics, technology and standards were all taken into account in the focus and, as always, fit played a decisive role." The Black Beast therefore has a size range of 36 to 50 in no less than four fittings. Margit Ahnert, shoe designer at Steitz Secura remarks that, "Styling was equally important, as although all these aspects are necessary, the shape also has to be right."

A sample last and mould were produced and adaptations made to the last following dialogue between Fagus and Steitz. Lasts and moulds for bulk production were then developed and completed. As the direct soling system consists of a TPU outsole with a PU midsole, the moulds were able to be made using high quality aluminium. The whole process from initial discussions to final completion took nine months. By using an end-to-end CAD-CAM process, all steps were based on a common data record. This not only avoided possible mistakes or oversights but made the whole process both smoother and easier for the customer. Steitz Secura appears very happy and Margit Ahnert concludes by saying that, "We are convinced of the quick response times thanks to short distances and defined project responsibilities." 🌀

