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## Specialist inserts

Millions of shoes are made with shock absorbency provided by laminating sheet urethane foam to the upper surface of the insole. Many others, however, opt for a moulded foam layer contoured to offer one or more of a number of perceived extra advantages. These vary depending on the intended final use of the shoe and can be specifically targeted at particular sections of the footwear market.

German company Brötje Schaumtechnik is one of the leading SBR-Latex foam pad producers in the world. Founded in 1960 and based in the north-west of Germany, it employs 50 people yet has the capacity to produce 30 million pairs per year due to its unique fully automatic production plant. In addition, all products are certified to DIN EN ISO 14001: 2005 standard. Its speciality is producing separate mouldings that can be bonded



*Brötje produces its moulds in-house to the highest standards.* PHOTO CREDIT: BRÖTJE

individually or together onto an insole in order to meet a range of specific activities and orthopaedic conditions. The total flexibility of the system means that a pair of insoles can have a different combination of mouldings on each foot.

An existing library contains around

15,000 different moulds and, if a customer's requirements cannot be fully met from this, a new mould can be quickly made. This is facilitated by the company producing all its own moulds, from concept through to final production tooling. A sample mould based on the

customer's requirements is made using CAD software and used to produce trial casts which are sent to the customer for approval. Once approved, the full range of production moulds is completed. The number of applications for which the pads can be used is extensive.

## CONTOUREX

The material used is a group of latex foams unique to Brötje called Contourex. They are made entirely without fillers in order to guarantee the highest level of purity and in a variety of formulations to meet different requirements. Furthermore, as no mould release agents are used, the foams all bond very easily. A special process is used to vulcanise different covering materials to the top surface of footbeds. This makes them totally solvent-free, saves the customer an operation and allows a logo to be included.

Due to the uniform and porous structure of Contourex, moisture absorbency capacity is approximately 40% of the material's own specific weight. Moisture absorbed during the day can be dissipated again at night by removing the insole from the shoe. The open pore structure also provides excellent breathability of 8.5 l/min (measured at 0.01 bar) and compression set, with the latter effectively returning to 97% of its original thickness after 100,000 cycles and 24 hours relief.

**Contourex Soft (pink)** – has a density of 0.20g/cm<sup>3</sup> and 40 Shore OO hardness. Its softness makes it ideally suited for sling, ankle, tongue and collar pads as well as trim strips.

**Contourex Medium (grey)** – with a density of 0.28g/cm<sup>3</sup> and 50 Shore OO Hardness, is designed to meet the comfort requirements for sports pads, sandal footbeds, as well as metatarsal pads and arch supports.

**Contourex Hard (anthracite)** – also has a density 0.28g/cm<sup>3</sup> but at a higher 60 Shore OO hardness. This rigid foam is especially popular in the orthopaedic sector where it is used for arch supports, metatarsal and heel lift pads.

**Contourex Memory (red)** – is a very special foam with a density of



*Contourex foams come in four colours: pink for Contourex Soft, grey for Contourex Medium, anthracite for Contourex Hard and red for Contourex Memory.*

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0.20g/cm<sup>3</sup> and biomechanical properties similar to the visco-elastic system contained in human skin. This manifests itself, for example, in the fact that pressure is optimally distributed by body heat and body weight. The viscous properties of this foam also have an excellent shock-absorbing effect at 95% after 100,000 load cycles. Its delayed memory (resilience) properties also enable it to adapt to the foot as it constantly changes during the course of the day so that an individual footbed can be formed at any time.

## APPLICATIONS

**Heel pads, heel pads with arch support and heel edge pads:** Heel

pads are generally used to protect the heel from pressure and impact. Those with arch support additionally support the ankle and prevent fallen arches (flat feet) from developing. Heel edge pads provide an elastic seat for the heel and, due to a recess in the centre, can be used for several sizes by pulling in the edges while attaching to the insole.

**Novelty, sports, sling and spherical heel pads or sandal footbeds:** Novelty and sports pads are designed to relieve the foot when footwear is worn for a long time. Sling pads have been especially developed for pumps and, as they taper to virtually nothing at the edges, are scarcely visible. Sandal footbeds significantly increase comfort and wearability and are widely used. They can be made with integrated arch support and metatarsal pads as protection against flat or splay footedness as well as for pure support of the natural foot arch.

**Shoe upper pads:** These are used to assist fit and, with sensitive feet, cushion tendons and ligaments. Ankle pads offer protection from bruising and tongue pads alleviate pressure on the instep caused by tight laces. Collar pads and trim strips soften the topline of the shoe, while cap pads protect the middle foot from the hard edge of a reinforced safety cap.

**Arch supports, metatarsal pads, toe grips and ball cushions:** Arch supports prevent flat feet or fallen arches by supporting the longitudinal arch of the foot while metatarsal pads help to stop the development of splayed feet. Toe grips offer improved grip for the foot in open shoes.

Contourex 3D footbeds can even be shaped on either side to match both the underside of the foot and the inside of the shoe, including individual lettering, logos and profiles if required. In a mass market world, Brötje has gone the other way and is probably one of the most specialist foam insert suppliers in the world. At the same time, it has used automation to enable it to produce its inserts quickly, at high volume and to the highest quality level—surely the best of both worlds. 🌀