

# A shell-type running sole for a sports-shoe

The present Invention relates to a shell-type running sole for a sports-shoe which may be used especially for squash.

Shell-type running soles are usually prefabricated, and include a sole plate forming the running surface of the sole and an upstanding shell wall which is integral with the sole plate and extends along at least a part of the edge of the sole plate. The shell wall can be joined to the outside of the upper on the finished sports-shoe. The sole plate, on the foot side, can include a heel wedge consisting of a cushioning sole material or an appropriate rib structure forming hollow chambers to make the sports-shoe lighter. The lateral shell walls can extend continuously as a single shell wall along the entire outer edge of the sole, but can also be restricted to specific regions of the sole-plate edge. The shell wall is frequently recessed in the joint region of the inside of the sole. The invention is concerned with shell-type soles of this type, in which a shell wall is provided at least over most of the outside of the sole.

Shell-type soles of the type described above are in widespread use on sports-shoes because of their functional advantages and their advantages in terms of production. One functional advantage is that the shell wall ensures that the

foot is retained and supported effectively under forces exerted parallel to the plane of the sole plate, for example when the wearer comes to a stop after running. This is particularly important in squash, when the player often has to stop after running at top speed and assume the striking position.

According to the present invention, there is provided a shell-type running sole for sports-shoes, especially for squash, said sole comprising a sole plate forming the running surface of the sole, an upstanding shell wall extending around at least part of the edge of the sole plate and a supporting ridge projecting laterally outwardly from the sole plate beyond the shell wall, said supporting ridge extending on at least the outside edge of the sole in substantially the same plane as the sole plate, and having thickness approximately equal to the thickness of the sole plate.

Because, according to the invention, the supporting ridge projects laterally beyond the shell wall, at least on the outside of the sole, the player obtains additional support which still further reduces the danger that he will twist his foot or ankle when coming to a stop sideways, but without otherwise impeding him when he is running. Even a width of the lateral supporting ridge of 4 to 5 mm considerably increases the stability of the shoe as regards a twisting or tilting of the foot outwards, while the increase in weight of the running sole as a result of the supporting edge remains relatively small. To reduce the weight, it is possible to restrict the lateral supporting ridge locally to the outside of the heel and the outer-ball -----

region. However, a supporting ridge made continuous from the heel vertex to the outer-ball region and tapering off slowly towards the sole tip to avoid an abrupt transition is more effective and therefore preferred. Since there is less danger that the foot will twist inwards, on the inside of the sole it is sufficient to provide the supporting ridge in the inner-ball and heel regions only and also make it narrower there.

Appropriately, the lateral supporting ridge is a direct continuation of the sole plate and therefore also has essentially the same thickness as the latter, and its underside can also be profiled. It has proved advantageous, in the region in which the sole plate merges into the lateral supporting ridge, to select on the running side a profiling which forms longitudinal grooves extending approximately parallel to the outer edge of the supporting ridge. These therefore extend essentially below the "starting point" of the shell wall. As a result, the capacity of the supporting ridge to bend upwards somewhat under load can be controlled, so that by means of a suitable combination of such a longitudinal-groove profiling and a specific width of the supporting ridge the best possible stabilizing effect can be achieved.

As is customary in shell-type soles, the shell-type running sole according to the invention also consists of an elastically flexible and compressible wear-resistant material, for example synthetic rubber or polyurethane of

relatively high Shore hardness (up to approximately 70).

An exemplary embodiment of the shell-type sole according to the invention is explained in more detail below with reference to the accompanying drawing.

5       The shell-type sole indicated by the general reference 1 and intended for a sports-shoe for playing squash consists of a sole plate 2 and of a shell wall 3 which is integral with the latter and which is recessed only on the inside of the ankle joint region. The sole plate 2 is formed from a  
10 wear-resistant, elastically flexible material, for example synthetic rubber. The shell wall 3 which consists of a material more flexible than that of the sole plate 2, for example polyurethane, is injection-moulded directly onto the sole plate 2 and is thereby joined to it. Although not  
15 shown in detail in the drawing, the foot side of the sole plate 2 can have a chamber structure which is formed in a known way by ribs and which constitutes a heel wedge from the ankle joint region to the heel. The running side of the sole plate 2 is provided with a profiling which is not shown  
20 in detail. For the purpose of use on squash sports-shoes, it is advantageous to have a profiling producing, in the region of the outer ball of the sole, a "sliding zone" which allows limited sliding despite the adhesion of the sole material. This can be achieved, for example, if, in the  
25 region of the "sliding zone", the profile is formed by profile ribs extending transversely relative to the longitudinal direction of the sole.

On the outside of the shell-type sole 1, the sole plate 2 extends outwards beyond the shell wall 3 to such an extent that the lateral supporting ridge 4 evident in the drawing is formed. The supporting ridge 4 extends

5 approximately from the front end of the region 5 associated with the outer-ball of the foot, along the outside of the shell-type sole and round the heel vertex approximately up to the start of the ankle joint region 6 on the inside. At this point and at the front end in the outer-ball region 5,

10 the width of the supporting ridge 4 decreases gradually to zero, that is to say, it merges into the lateral surface of the shell wall 3. The width of the supporting ridge 4 outside the places where the width decreases gradually to zero is approximately 4 to 5 mm. Its thickness therefore

15 largely corresponds to the thickness of the sole plate 2, which amounts to approximately 6 mm.

On the running side of the sole plate 2 is formed a longitudinal groove (not shown) which is approximately 2 mm wide and deep and which extends over the same length as the

20 supporting edge 4 itself and runs under the junction between the sole plate 2 and the shell wall 3, following it relatively closely.

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CLAIMS

1. A shell-type running sole for sports-shoes, especially for squash, said sole comprising a sole plate forming the running surface of the sole, an upstanding shell wall extending around at least part of the edge of the sole plate  
5 and a supporting ridge projecting laterally outwardly from the sole plate beyond the shell wall, said supporting ridge extending on at least the outside edge of the sole in substantially the same plane as the sole plate, and having thickness approximately equal to the thickness of the sole  
10 plate.

2. A running sole according to claim 1, wherein the supporting ridge extends continuously from the heel vertex to the outer ball region of the sole plate.

3. A sole according to either one of claims 1 or 2,  
15 wherein the running surface of the sole is profiled and a longitudinal groove is formed in the profiling and substantially follows the junction between the sole plate and the shell wall.

4. A shell-type running sole substantially as here-  
20 inbefore described, with reference to and as illustrated in the accompanying drawing.

5. A sports shoe including a sole according to any one of claims 1 to 4.



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