

Title (en)  
Shoe press belt for paper machines

Title (de)  
Schuhpressenband für Papiermaschinen

Title (fr)  
Bande pour presse à patin pour machines à papier

Publication  
**EP 1162307 B1 20031112 (DE)**

Application  
**EP 01111416 A 20010510**

Priority  
DE 10027853 A 20000606

Abstract (en)  
[origin: EP1162307A2] The belt for use with a shoe press, in a papermaking machine, has a carrier layer and a belt layer composed of an inner and an outer (5) layer. The outer layer has a porous structure with hollow zones (8) open outwards, formed by an unfoamed material. The papermaking machine shoe press belt has an inner layer which is impermeable to fluids and has longitudinal and/or pressure elasticity. The carrier layer has a longitudinal specific module of  $\leq 500$  cN/tex with a woven or knitted structure, or as a band of filaments, a nonwoven, or a combination of material types. The carrier is embedded at least partially into the inner layer. The inner layer is of natural rubber and/or an elastomer. The inner layer has a hardness of 80-95 Shore A, and can contain inorganic bulking particles. The inner layer has a maximum thickness tolerance of 100  $\mu$ m. The hollow zones at the outer layer have an average diameter of 10-1500  $\mu$ m. The outer layer incorporates nano particles of SiO<sub>2</sub> or fluorocarbon chains, which form a partially closed surface. The outer layer can have a prepolymer emulsion coating, which is hardened by electron beams. The outer layer can be of a combination of materials which form different hydrophilic and hydrophobic zones. The outer layer has a thickness of  $\leq 3$  mm, and the thickness of the inner layer is 1-3 mm. The outer layer has a hardness of 80-95 Shore A and a thickness tolerance of plus or minus 50  $\mu$ m. A further layer can be inserted between the outer and inner layers, which is harder than the outer layer. The whole shoe press belt structure has a thickness tolerance of plus or minus 100  $\mu$ m.

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