

Title (en)

Method and apparatus for producing patterned nonwovens by hydrodynamic needling

Title (de)

Verfahren und Vorrichtung zur Herstellung von strukturierten Vliesstoffen mittels hydrodynamischer Vernadelung

Title (fr)

Méthode et appareil pour fabriquer des nontissés structurés par aiguilletage hydrodynamique

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Application

EP 00112661 A 20000615

Priority

DE 19929105 A 19990624

Abstract (en)

To produce a bonded nonwoven with a structured surface, hydrodynamic needling is used to bond the fabric while supported by a continuous sieve belt and the like. To give a surface structure on only one side, the loose fiber web is carried initially by a continuous belt through a compression gap between a deflection roller for the belt and another sieve belt to form a compression channel for the web between them. While still compressed, water jets are directed at it through the second sieve belt. When the web has been deflected round the roller for the first sieve belt, it is passed with a structured sieve belt around a permeable roller where there is at least one jet beam for the hydrodynamic needling action. Or it is passed to a further support sieve belt for needling or is pressed against the sieve so that the required surface structure is embossed on it at one side. Water is extracted from the bonded nonwoven web. The water extraction is at the deflection roller for the first sieve belt, using a suction beam directly at the under side of the sieve belt. A further deflection roller is between the first deflection point and the water extraction sieve, simply to maintain the line of material movement. A water needling action is applied to the material at the first deflection roller, and the structure for one side of the web is embossed at the second deflection roller or the additional continuous belt. The material surface structure needling, after material bonding, is on at least one roller to carry a structured continuous belt with water extraction. A water extraction beam is under the belt and at least one jet beam is over it in front of the water extraction point in the direction of material travel. The surface structure on one side of the material can be formed by an under pressure, where the final water extraction draws out the water while the material is against a structured and continuous sieve belt. After the material has been deflected, a surface structure can be formed on the other side. An Independent claim is included for an assembly for needling a fiber web to give a nonwoven with a structured surface. It has at least one jet beam (8,10,12) at the belt transport system (3,9,11) with a structured surface. Preferred Features: The continuous sieve belt (3) around first deflection roller (4) is a structured sieve. The continuous sieve belt (11) for water extraction is structured. The first structured sieve belt (3), with its associated jet beam (8), can be followed by a second structured sieve belt (9,11) in the opposite direction, also with associated jet beams (10,12).

Abstract (de)

Es ist ein Vlies oder Tissue mit einer einseitigen Struktur zu prägen. Gleichzeitig ist es aber auch optimal zu verfestigen. Dazu läuft das Vlies mittels eines Endlosbandes zunächst in einen Verdichtungsspalt wird im gedrückten Zustand genetzt und dann ggf. auf derselben Trommel vernadelt. Wenn das Endlosband ein strukturiertes Band ist, dann erhält das Vlies mit der Vernadelung das Muster des Endlosbandes auf der Rückseite. Man kann aber das Vlies auch auf zwei gegenläufigen Trommeln erst beidseitig vernadeln und dann auf ein horizontales Endlosband, das als Strukturband ausgebildet ist, übergeben, wo dann mittels weiterer Düsenbalken oder nur mittels der Absaugeinrichtung am Auslauf der Vorrichtung der prägende Kontakt mit dem Strukturband erzeugt werden kann. <IMAGE>

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