

Title (en)  
Machine and method for the manufacture of a fibrous web

Title (de)  
Maschine sowie Verfahren zur Herstellung einer Faserstoffbahn

Title (fr)  
Machine et procédé pour la fabrication d'une bande fibreuse

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Application  
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Priority  
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Abstract (en)  
The papermaking machine, especially for tissue or toilet paper, has at least one press gap (12) between a shoe press unit (14) and the drying/tissue cylinder (16). The length (L) of the press gap is  $\leq 60$  mm, in the direction (I) of web travel. The pressure profile along the length (L) of the press gap (12) has a max. pressure of  $\geq 3.3$  MPa. The press gap length (L) is pref.  $\leq 50$  mm, and the max. pressure is 4.8 MPa within a press gap length stretch of 37 mm. To form a tissue paper web, the angle between the tangent at the end of the press gap (12) at the drying cylinder (16) and the carrier blanket (18) leaving the press gap (12) is  $\geq 10$  degrees and especially  $\geq 18$  degrees and pref.  $\geq 20$  degrees. The press blanket (20) is ridged and/or is fitted with blind drillings. The length (L) of the press gap (12) can be  $\geq 80$  mm and pref. less than 200 mm and especially a max. of 150 mm. The max. pressure in the pressure profile is  $\leq 2$  MPa. The max. linear pressure applied in the press gap (12) is 90-110 kN/m and/or the shoe press unit (14) has a press shoe (22) with a number of independent press components (26) across the direction (I) of web travel, to be pressed against the drying cylinder. The drying cylinder (16) is a Yankee cylinder and/or has an asymmetrical pressure profile along the length (L) of the press gap. The max. pressure is applied in the trailing one-half or one-quarter of the press gap length (L), in the direction (I) of web travel. The mean pressure rise gradient from the start of the press gap to the max. pressure zone, with a carrier blanket of a new value, is  $\geq 40$  kPa/mm and especially  $\geq 60$  kPa/mm and pref.  $\geq 120$  kPa/mm and/or the mean pressure drop gradient at the end of the press gap with a new value carrier blanket is  $\geq 300$  kPa/mm and especially  $\geq 500$  kPa/mm and pref.  $\geq 800$  kPa/mm or  $\geq 800$  kPa/mm or  $\geq 960$  kPa/mm and/or the water-absorbent blanket (18) in the press gap (12) lies between the impermeable press blanket (20) and the web with the web in contact with the drying cylinder (16) and/or a felt blanket is used for the water-absorbent carrier (18). The water-absorbent carrier blanket (18) has different qualities through its thickness, with a finer structure at the side towards the web than at the other side. The press blanket (20) has a surface which is smooth, ridged and/or with blind drillings and/or at least one additional press gap (12) is formed at the drying cylinder (16) using two shoe press units (14). A further press gap (12) is formed before the drying cylinder (16), in the direction (I) of web travel and/or the carrier blanket (18) and the web pass through at least one preceding suction unit. The suction unit has a suction roller and/or a suction shoe and/or it is a shoe press roller where the press blanket is pref. formed by the press mantle (20) of the shoe press roller (14). The shoe press unit (14) has at least one replaceable press shoe (22) and/or the carrier blanket is structured to give an imprint or patterning. An Independent claim is included for tissue-toilet paper prodn., where the wet fiber web is within the press gap (12) for a time span of max. 3 ms at a pressure of at least 3.3 MPa or at least 3.5 ms at a max. pressure of 2 MPa.

Abstract (de)  
Eine Maschine zur Herstellung einer Faserstoffbahn, insbesondere Tissue- oder Hygienepapierbahn, umfaßt wenigstens einen zwischen einer Schuhpreßeinheit 14 und einem Trockenzylinder 16 gebildeten Preßspalt 12, durch den ein wasseraufnehmendes Trägerband 18, ein wasserundurchlässiges Preßband 20 und die Faserstoffbahn hindurchgeführt sind. Dabei ist wenigstens ein zwischen einer Schuhpreßeinheit 14 und dem Trockenzylinder 16 gebildeter Preßspalt 12 vorgesehen, dessen in Bahnlaufrichtung I betrachtete Länge L kleiner oder gleich einem Wert von etwa 60 mm ist und dessen sich über die Preßspaltlänge L ergebendes Druckprofil einen maximalen Preßdruck aufweist, der größer oder gleich einem Wert von etwa 3,3 MPa ist. Alternativ kann die Preßspaltlänge größer als ein Wert von etwa 80 mm sein, wobei in diesem Fall der maximale Preßdruck kleiner oder gleich einem Wert von etwa 2 MPa ist. <IMAGE>

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DE 29719501 U1 19971218 - LRE TECHNOLOGY PARTNER GMBH [DE]

Citation (search report)  
• [XA] EP 0289477 A2 19881102 - VALMET PAPER MACHINERY INC [FI]  
• [A] US 5092962 A 19920303 - KOSKI ERKKI [FI]  
• [DA] DE 19654198 A1 19980625 - VOITH SULZER PAPIERMASCH GMBH [DE]  
• [DA] DE 19654197 A1 19980625 - VOITH SULZER PAPIERMASCH GMBH [DE]  
• [DA] EP 0852273 A2 19980708 - VOITH SULZER PAPIERMASCH GMBH [DE]  
• [DA] WO 9800604 A1 19980108 - PROCTER & GAMBLE [US]  
• [A] WO 9743483 A1 19971120 - KIMBERLY CLARK CO [US]

Cited by  
CN106988150A; EP1111127A3; EP1342838A1; US7008506B2; US6488814B2; US6893539B2; US6780282B2

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US 2004194904 A1 20041007; US 2004261967 A1 20041230; US 6746574 B2 20040608; US 7288168 B2 20071030; US 7326320 B2 20080205;  
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