Title (en)

Method for regulating the cross-machine shrinkage profile in a paper machine

Title (de)

Verfahren zur Regelung des Schrumpfungs-Querprofils in einer Papiermaschine

Title (fr)

Procédé pour régler le profil transversal du rétrécissement dans une machine à papier

Publication

EP 1323862 A1 20030702 (DE)

Application

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Priority

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- EP 99112905 A 19990705

Abstract (en)

To maintain the lateral profile of a running paper or cardboard web, the lateral shrinkage profile is adjusted during the formation process. The variations are through alterations in the fiber suspension composition locally to affect sections across the web width, using different proportions of suspension components with different shrinkage behaviors. <??>The shrinkage is increased at a section zone by a raised feed of fibers and/or other matter with a high shrinkage, or replacing fibers with fibers which shrink more strongly. The shrinkage is reduced by increasing the fiber feed of fibers with a low shrinkage character and/or other matter which shrinks less or replacing the fibers with the suspension containing fibers with lower shrinkage. The composition of the fiber suspension is adjusted at the stock inlet and/or the wet web section of the machine. Two flows of fiber suspension are prepared, to be mixed together at sections of the stock inlet to set the lateral shrinkage, while the lateral weight profile of the web is modified by the controlled flow of diluting water in sections across the web width. The fibers with a high shrinking tendency are long fibers and vice versa, very open fibers and vice versa, highly chopped or ground fibers and vice versa. The added matter to increase shrinkage is carboxymethyl cellulose (CMC) and/or other matter. The added matter to reduce shrinkage is a synthetic resin and/or wet strength agents and/or the like. The lateral weight profile of the web is measured, and the control values are determined to match the web weight in sections (N) across the web width together with a nominal profile for the operation of actuators (7). The shrinkage is computed by on-line mapping of the lateral weight profile, and the control values to set the shrinkage in sections (M) across the machine width using the nominal profile, and operate the actuators accordingly. The shrinkage with corrected values is measured, and the lateral shrinkage profile is computed by correlation between the measured values and the shrinkage. The control values are computed for sections (M) across the machine width, and the actuators are operated as appropriate. The on-line lateral weight mapping and the measurement of shrinkage with corrected values can be done together. The calculation for the lateral shrinkage profile is through correlation between the measured values and the shrinkage, and the weighted lateral shrinkage profile is registered from the measured and the computed lateral shrinkage profile to give the control values for the operation of the actuators. The profile control algorithm separates the lateral weight and shrinkage profiles. The measured values of the polish and/or strength are correlated with the shrinkage. An Independent claim is included for a paper or cardboard web prodn. machine with a constant section at the stock inlet with two zones for different fiber suspensions of fiber mixtures of different shrinkage characteristics, to be fed to the stock inlet. The stock inlet has a number of mixing points, by sections, where the different fiber suspensions are fed into the flow.

Abstract (de)

Die Erfindung betrifft ein Verfahren zur Regelung des Schrumpfungsquerprofils (1) einer laufenden Materialbahn aus Papier oder Karton mit mindestens den folgenden Verfahrensschritten: Messung des Flächengewichtsquerprofils der Materialbahn, Bestimmung der Regelgrößen zur Anpassung des Flächengewichts in N Sektionen über die Maschinenbreite an Hand eines Soll-Profils für das Flächengewicht und Betätigung von Aktuatoren (6) zur Anpassung des Flächengewichtsquerprofils. Die Erfindung ist durch die folgenden Verfahrensschritte gekennzeichnet: Berechnung des Schrumpfungsquerprofils (1) durch On-Line-Mapping des Flächengewichtsquerprofils, Bestimmung der Regelgrößen zur Beeinflussung der Schrumpfung in M Sektionen über die Maschinenbreite an Hand eines Soll-Profils für die Schrumpfung und Betätigung von Aktuatoren (6) zur Anpassung des Schrumpfungsquerprofils (1). <IMAGE>

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D21F 1/08

IPC 8 full level

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Citation (search report)

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