

Title (en)
Soft roll and process for making such a roll

Title (de)
Elastische Walze und Verfahren zum Herstellen einer solchen

Title (fr)
Rouleau élastique et procédé de fabrication d' un tel rouleau

Publication
EP 1041198 B1 20060621 (DE)

Application
EP 00105583 A 20000316

Priority
DE 19914710 A 19990331

Abstract (en)

[origin: EP1041198A1] The roller, especially for polishing paper webs, has a metal core (1) and an outer elastic cladding layer (2) with fibers (4 embedded in an elastic matrix material (3,3')). The fiber content is variable outwards from within, within the cladding layer (2) and especially decreases. The fiber content is generally zero at the radial outer zones of the roller cladding layer (2). The roller cladding layer (2) has a radially outer functional layer (9) and a radially inner bonding layer (10), to bond the functional layer to the roller core (1). The bonding layer (10) is composed of an elastic matrix (3') material with embedded fibers. The matrix material (3,3') is the same in the functional (9) and bonding (10) layers and/or the fibers (4,4') are of the same material in the functional (9) and bonding (10) layers and/or the fiber content is higher in the bonding layer (10) than in the functional layer (9) and/or the fibers (4,4') are evenly distributed radially over the bonding layer (10) and/or the fiber content in the bonding layer (10) varies outwards from within and especially decreases and/or the fiber content in the radial outer zone of the bonding layer (10) equals the fiber content of the radially inner zone of the functional layer (9). The fibers (4,4') are arranged in radially spaced fiber layers (7,7'), where the radial gap between the radially outer fiber layers (7) is larger than the gap between radially inner layers (7'). The average fiber content of the functional layer (9) is 5-20 vol% and especially 8-12 vol% and/or the average fiber content of the bonding layer (10) is 40-70 vol% and especially 50-60 vol% and preferably 55 vol%. The fibers (4,4') are of glass and/or carbon and/or matrix material (3,3') is of plastics and especially a heat-setting or thermoplastic and/or the matrix material (3,3') is a combination of resin and a hardener. An Independent claim is included for a roller cladding process, where the fiber content in the cladding layer is varied in radial direction, and especially is decreased radially outwards from within. Preferred Features: The fibers, in a number of bundles are wound around the roller core in overlapping layers. The fiber bundles are rovings where each roving is composed of adjacent fibers of the same type and/or the fiber bundles are formed by a fiber web. Before the fiber bundles are wound around the roller core, they are impregnated in a matrix bath, or they are dry when wound around the roller core to be treated with the matrix material during or after winding so that the fibers are wholly embedded in the matrix. The fibers are of glass and/or carbon.

IPC 8 full level
D21G 1/02 (2006.01)

CPC (source: EP US)
D21G 1/0233 (2013.01 - EP US)

Cited by
CN102648316A; EP2444681A3; EP1094154A3; US6880456B2; US8282785B2; WO2011035969A1; WO202075049A3

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