

ABSTRACT

FUNCTIONAL ROLL INCORPORATING A STRUCTURE OF A LATTICE-SHAPED FLUID (GAS-LIQUID) GUIDEPATH

Conventional art has a structure consisting of a roll axis incorporating a structure of fine pores, and a roll unit provided around the outer circumference of a roll axis, wherein internal pressure of the roll axis is dispersed to the roll unit to make a fluid (gas-liquid) suction action, thus reducing the pressure loss and obtaining even distribution of the fluid (gas-liquid). As such, instead of a tubular roll axis, the structure of a roll axis is made fin-shaped or groove-shaped to maximize the action surface area that works on the inner pressure of the roll axis of the roll unit. However, other problems such as inefficiency of the fluid (gas-liquid) suction action and lack of mechanical strength of the roll axis remains. To solve these problems, this invention provides a functional roll incorporating a structure of a lattice-shaped fluid (gas-liquid) guidepath made of high-density porous sheet material to activate the internal pressure of the roll axis, therein the structure of the lattice-shaped fluid (gas-liquid) guidepath, consisting of an internal pressure action space made of a cut-out portion provided on the circumference of the roll axis, and in the axis direction of the roll unit, and an internal pressure branching guidepath made of low-density porous sheet material, or a space communicating with the internal pressure action space, as well, being provided in the radial direction of the roll unit.

Fig. 1



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