

Title (en)

Fabrication process of a soft nanocrystalline magnetic core for use in a differential circuit breaker

Title (de)

Herstellungsverfahren für einen nanokristallinen weichmagnetischen Kern für Anwendung in einem Differentialschutzschalter

Title (fr)

Procédé de fabrication d'un noyau magnétique doux nanocristallin utilisable dans un disjoncteur différentiel et noyau magnétique obtenu

Publication

**EP 0921541 B1 20040506 (FR)**

Application

**EP 98402804 A 19981113**

Priority

FR 9715273 A 19971204

Abstract (en)

[origin: EP0921541A1] Production of a nanocrystalline soft magnetic iron-silicon-boron alloy magnetic core involves crystallization heat treatment of the amorphous alloy at 250-450 degrees C in a transverse magnetic field of rectangular waveform. Production of a magnetic core of nanocrystalline soft magnetic alloy, of composition more than 60 at.% Fe, 10-20 at.% Si, 0.1-2 at.% Cu, 5-20 at.% B and 0.1-10 at.% of one or more of Ti, Nb, Zr, Hf, V, Ta, Cr, Mo, W and Mn, the sum of Si + B being less than 30 at.%, involves crystallization heat treatment of the amorphous alloy at 250-450 degrees C in a transverse magnetic field of rectangular waveform. An Independent claim is also included for a magnetic core produced by the above process and exhibiting, for a 50 Hz alternating excitation magnetic field of 10 mA/cm maximum amplitude at 25 degrees C, an impedance magnetic permeability ( $\mu_z$ ) of greater than 200000, a remnant induction/saturation induction (Br/Bm) ratio of less than 0.2 and DELTA Bstat and DELTA Bdyn values of greater than 0.2 T.

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CPC (source: EP)

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