

Title (en)
METHOD FOR FABRICATING A SUBSTANTIALLY EQUIATOMIC FECO-ALLOY COLD-ROLLED STRIP OR SHEET, SUBSTANTIALLY EQUIATOMIC FECO-ALLOY COLD-ROLLED STRIP OR SHEET, AND MAGNETIC PART CUT FROM SAME

Title (de)
VERFAHREN ZUR HERSTELLUNG EINES IM WESENTLICHEN GLEICHATOMIGEN KALTGEWALZTEN BANDES ODER BLECHES AUS FECO-LEGIERUNG, UND DARAUS GESCHNITTENES MAGNETISCHES TEIL

Title (fr)
PROCÉDÉE DE FABRICATION D'UNE BANDE OU TÔLE LAMINÉE A FROID EN ALLIAGE FECO SENSIBLEMENT EQUIATOMIQUE, UNE BANDE OU TÔLE LAMINÉE A FROID EN ALLIAGE FECO SENSIBLEMENT EQUIATOMIQUE, ET PIÈCE MAGNÉTIQUE DECOUPEE A PARTIR DE CELLE-CI

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Abstract (en)
[origin: WO2022123297A1] The invention relates to a substantially equiatomic FeCo-alloy cold-rolled strip or sheet, and to a magnetic part cut from same, as well as to a method for fabricating a FeCo-alloy cold-rolled strip or sheet. A fully recrystallised hot-rolled sheet or strip is prepared, with a thickness of 1.5 - 2.5 mm and the following composition: $47.0\% \leq \text{Co} \leq 51.0\%$; $\text{traces} \leq \text{V} + \text{W} \leq 3.0\%$; $\text{traces} \leq \text{Ta} + \text{Zr} \leq 0.5\%$; $\text{traces} \leq \text{Nb} \leq 0.5\%$; $\text{traces} \leq \text{B} \leq 0.05\%$; $\text{traces} \leq \text{Si} \leq 3.0\%$; $\text{traces} \leq \text{Cr} \leq 3.0\%$; $\text{traces} \leq \text{Ni} \leq 5.0\%$; $\text{traces} \leq \text{Mn} \leq 2.0\%$; $\text{traces} \leq \text{O} \leq 0.03\%$; $\text{traces} \leq \text{N} \leq 0.03\%$; $\text{traces} \leq \text{S} \leq 0.005\%$; $\text{traces} \leq \text{P} \leq 0.015\%$; $\text{traces} \leq \text{Mo} \leq 0.3\%$; $\text{traces} \leq \text{Cu} \leq 0.5\%$; $\text{traces} \leq \text{Al} \leq 0.01\%$; $\text{traces} \leq \text{Ti} \leq 0.01\%$; $\text{traces} \leq \text{Ca} + \text{Mg} \leq 0.05\%$; $\text{traces} \leq \text{rare earths} \leq 500 \text{ ppm}$; the remainder being iron and impurities. A first cold-rolling step is carried out with a reduction rate of 70 to 90%, to bring the strip or sheet to a thickness $\leq 1 \text{ mm}$. Intermediate annealing is carried out when running, leading to a partial recrystallisation of the strip or sheet, running at a speed (V), and where its temperature, in the useful zone of the furnace of useful length (Lu), is between Trc and 900°C , the strip or sheet remaining therein for 15 s to 5 min at a temperature (T) such that $26^\circ\text{C}.\text{min} \leq (\text{T} - \text{Trc}).\text{Lu}/\text{V} \leq 160^\circ\text{C}.\text{min}$. The strip or sheet is cooled at least at $600^\circ\text{C}/\text{hour}$. A second step of cold-rolling the annealed strip or sheet is carried out, with a reduction rate of 60 to 80%, to bring the strip or sheet to a thickness of 0.05 to 0.25 mm. And final annealing (Rf) of the cold-rolled strip or sheet is carried out to achieve complete recrystallisation followed by cooling at 100 to $500^\circ\text{C}/\text{hour}$. Magnetic part, such as a magnetic core, obtained from a strip or sheet manufactured by this method.

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