

Title (en)

Process of manufacturing iron-carbon-manganese alloy strips and strips obtained thereby

Title (de)

Verfahren zum Herstellen von Eisen-Kohlenstoff-Mangan-Legierungsbändern und also hergestellte Bänder

Title (fr)

"Procédé de fabrication de bandes en alliage fer-carbone-manganèse, et bandes ainsi produites"

Publication

EP 1067203 A1 20010110 (FR)

Application

EP 00401860 A 20000629

Priority

FR 9908758 A 19990707

Abstract (en)

1.5-10 mm-thick strip is cast from molten metal containing (in wt. %) C 0.001-1.6; Mn 6-30, Ni \leq 10 and (Mn+Ni) 16-30; Si \leq 2.5; Al \leq 6; Cr \leq 10; (P + Sn + Sb + As) \leq 0.2; (S + Se + Te) \leq 0.5; (V + Ti + Nb + B + Zr + rare earths) \leq 0.3%; (Mo + W) \leq 0.5%; N \leq 0.3%; Cu \leq 5%; and Fe and production impurities. After cold rolling to 10-90% reduction in one or more stages, recrystallization annealing is carried out. Preferably, the content of carbon in the molten metal is 0.2-0.8 wt.%. The strip is obtained by rolling between two closely located, horizontal cylinders which rotate in opposite directions and are internally cooled. Between the casting and rolling stages the strip is hot rolled to 10-60 % reduction in one or more stages, and between the casting and hot rolling stages the strip is passed through a non-oxidizing zone. Before the hot rolling stage the strip is subjected to decarbonization. The strip is coiled after casting or hot rolling and uncoiled before cold rolling. Acidic pickling of the strip is preferably carried out before cold rolling. Recrystallization annealing comprises a high density annealing process carried out at 900-1100 degrees C, immediately followed by cooling at a rate of 100-6000 degrees C/second. The strip is pickled after the annealing stage, followed by a skin-pass stage. An Independent claim is given for the an iron-carbon-manganese strip produced by the above process.

Abstract (fr)

L'invention concerne un procédé de production de bandes en alliage fer-carbone-manganèse, selon lequel : on coule sur une machine de coulée une bande mince d'épaisseur 1,5 à 10 mm directement à partir d'un métal liquide de composition en pourcentages pondéraux : C compris entre 0,001 et 1,6% ; Mn compris entre 6 et 30% ; Ni \leq 10% avec (Mn + Ni) compris entre 16 et 30% ; Si \leq 2,5% ; Al \leq 6% ; Cr \leq 10% ; (P + Sn + Sb + As) \leq 0,2% ; (S + Se + Te) \leq 0,5% ; (V + Ti + Nb + B + Zr + terres rares) \leq 3% ; (Mo + W) \leq 0,5% ; N \leq 0,3% ; Cu \leq 5%, le reste étant du fer et des impuretés résultant de l'élaboration ; on lamine à froid ladite bande à un taux de réduction compris entre 10 et 90% en une ou plusieurs étapes ; et on effectue un recuit de recristallisation de ladite bande. L'invention concerne également une bande susceptible d'être produite par ce procédé.

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Citation (search report)

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- [AD] WO 9526423 A1 19951005 - PO HANG IRON & STEEL [KR], et al
- [AD] WO 9313233 A1 19930708 - PO HANG IRON & STEEL [KR], et al
- [A] PATENT ABSTRACTS OF JAPAN vol. 016, no. 375 (C - 0973) 12 August 1992 (1992-08-12)
- [A] PATENT ABSTRACTS OF JAPAN vol. 014, no. 431 (C - 0759) 17 September 1990 (1990-09-17)

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