

Title (en)

METHOD FOR PRODUCING A STEEL STRIP WITH A MULTIPHASE STRUCTURE, AND RELATED STEEL STRIP

Title (de)

VERFAHREN ZUR HERSTELLUNG EINES STAHLBANDES MIT EINEM MEHRPHASENGEFÜGE UND STAHLBAND HIERZU

Title (fr)

PROCÉDÉ DE FABRICATION D'UNE BANDE D'ACIER À STRUCTURE MULTIPHASÉE ET BANDE D'ACIER ASSOCIÉE

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Application

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Abstract (en)

[origin: WO2021209503A1] In order to provide a method which is intended for producing a steel strip with a multiphase structure and by which the production of complex geometries with a high energy-absorption capacity and high resistance to edge cracking is made possible, in particular compensating for the drop in yield strength, and consequently achieving a combination of a high yield strength or high yield-strength ratio and a high elongation at break, it is proposed that the method comprises the following steps: - producing a hot- or cold-rolled steel strip from a steel consisting of the following elements in % by weight: C: from 0.085 bis 0.149; Al: from 0.005 to 0.1; Si: from 0.2 to 0.75; Mn: 1.6 to 2.9; N: < 0.02; S: ≤ 0.005 and optionally of one or more of the following elements in % by weight: Cr: 0.05 to 0.5; Mo: 0.05 to 0.5; Ti: 0.005 to 0.060; Nb: 0.005 to 0.060; V: 0.001 to 0.060; B: 0.0001 to 0.0060; N: 0.0001 to 0.016; Ni: 0.01 to 0.5; Cu: 0.01 to 0.3; the remainder iron, including customary steel-accompanying elements, - first annealing, in particular continuous annealing, of the steel strip, in particular the cold-rolled steel strip, at a temperature of between 750 °C and 950 °C, inclusive, for the entire duration of 10 s to 1200 s, in particular from 50 s to 650 s, and subsequently first cooling of the steel strip to a temperature of between 200 °C and 500 °C, inclusive, at an average cooling rate of 2 K/s to 150 K/s, in particular of 5 K/s to 100 K/s, - further cooling of the steel strip to a supercooling temperature below 100 °C at an average cooling rate of 1 K/s to 50 K/s, - final annealing, in particular continuous annealing, of the steel strip with a Hollomon-Jaffe parameter $H_p = TH \cdot (\ln(T) + 20)$ of > 7.5 x 10³, where the maximum temperature TH in K is 100 °C to 470 °C, inclusive, and the total duration T in h is 2 s up to 1000 s, inclusive, and - final cooling of the steel strip to room temperature at an average cooling rate of 1 K/s to 160 K/s, in particular of 1 K/s to 30 K/s. The invention also relates to a steel strip with a multiphase structure, produced by this method.

IPC 8 full level

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