Title (en)

Method for generating a flat steel product with an amorphous, semi-amorphous or fine crystalline structure and flat steel product with such structures

Title (de)

Verfahren zum Erzeugen eines Stahlflachprodukts mit einem amorphen, teilamorphen oder feinkristallinen Gefüge und derart beschaffenes Stahlflachprodukt

Title (fr)

Procédé destiné à générer un produit plat en acier avec une structure cristalline fine, partiellement amorphe ou amorphe et produit plat en acier conçu de la sorte

Publication

EP 2759614 B1 20190102 (DE)

Application

EP 13152793 A 20130125

Priority

EP 13152793 A 20130125

Abstract (en)

[origin: EP2759614A1] A molten steel containing 1.2-7 wt.% silicon, 0.4-4 wt.% boron, 0.5-4 wt.% carbon and 1.5-8 wt.% phosphorus, optionally containing 5 wt.% or less copper, 10 wt.% or less chromium, 10 wt.% or less aluminum, 0.5 wt.% or less nitrogen, 2 wt.% or less niobium, 3 wt.% or less manganese, 2 wt.% or less titanium, 2 wt.% or less vanadium, and remainder of iron and unavoidable impurities is cast in a casting device (2). The obtained cast strip (B) is cooled, to obtain a flat steel product having an amorphous, partially amorphous or fine crystalline structure. A molten steel containing 1.2-7 wt.% silicon, 0.4-4 wt.% boron, 0.5-4 wt.% carbon and 1.5-8 wt.% phosphorus, optionally containing 5 wt.% or less copper, 10 wt.% or less chromium, 10 wt.% or less aluminum, 0.5 wt.% or less nitrogen, 2 wt.% or less niobium, 3 wt.% or less manganese, 2 wt.% or less titanium, 2 wt.% or less vanadium, and remainder of iron and unavoidable impurities is cast in a casting device (2). The obtained cast strip (B) is cooled, to obtain a flat steel product having an amorphous, partially amorphous or fine crystalline structure. The particle size of fine crystalline microstructure is 10-10000 nm.

IPC 8 full level

C22C 38/02 (2006.01); **B22D 11/06** (2006.01); **C21D 7/13** (2006.01); **C22C 45/02** (2006.01)

CPC (source: EP US)

B22D 11/0611 (2013.01 - EP US); **B22D 11/0622** (2013.01 - EP US); **B22D 25/06** (2013.01 - US); **B22D 27/04** (2013.01 - US); **C21D 1/18** (2013.01 - EP US); **C21D 6/002** (2013.01 - EP US); **C21D 6/005** (2013.01 - EP US); **C21D 6/008** (2013.01 - EP US); **C21D 9/46** (2013.01 - EP US); **C22C 1/11** (2023.01 - US); **C22C 33/003** (2013.01 - EP US); **C22C 38/002** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP US); **C22C 38/20** (2013.01 - EP US); **C22C 38/24** (2013.01 - EP US); **C22C 38/26** (2013.01 - EP US); **C22C 38/28** (2013.01 - EP US); **C22C 38/32** (2013.01 - EP US); **C22C 38/34** (2013.01 - EP US); **C22C 45/02** (2013.01 - EP US); C21D 2201/03 (2013.01 - EP US)

Cited by

DE102019122515A1; DE102019004114A1; WO2021032858A1; US10780492B2; US10695789B2

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DOCDB simple family (publication)

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DOCDB simple family (application)

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