

Title (en)

Dual-phase steel, flat product made of such dual-phase steel and method for manufacturing a flat product

Title (de)

Dualphasenstahl, Flachprodukt aus einem solchen Dualphasenstahl und Verfahren zur Herstellung eines Flachprodukts

Title (fr)

Acier en phase double, produit plat à partir d'un tel acier en phase double et son procédé de fabrication

Publication

EP 2028282 B1 20120613 (DE)

Application

EP 07114398 A 20070815

Priority

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Abstract (en)

[origin: EP2028282A1] Dual-phase steel comprises 20-70% of martensite, up to 8% of residual austenite and balance of ferrite and/or bainite and which possess a tensile strength of at least 950 MPa, and composition of carbon (0.1-0.2 wt.%), silicon (0.1-0.6 wt.%), manganese (1.5-2.5 wt.%), chromium (0.2-0.8 wt.%), titanium (0.02-0.08 wt.%), boron (less than 0.002 wt.%), molybdenum (less than 0.25 wt.%), aluminum (less than 0.1 wt.%), phosphorus (= 0.2 wt.%), sulfur (= 0.01 wt.%), nitrogen (= 0.012 wt.%) and balance of iron and unavoidable contamination. Independent claims are included for: (1) a flat product comprising the dual-phase steel; (2) production of a hot laminated strip with a tensile strength of at least 950 MPa and a dual phase structure, comprising melting the dual-phase steel, pouring the melt to a preproduct such as slab or thin slab, reheating or holding the preproduct at a hot rolling starting temperature of 1100-1300[deg] C, hot rolling the preproduct at a hot rolling temperature of 800-950[deg] C to the hot laminated strip and winding the hot laminated strip at a winder temperature of up to 570[deg] C; and (3) production of a cold strip with a tensile strength of at least 950 MPa and a dual phase structure, comprising melting the composite dual-phase steel, pouring the melt to a preproduct such as slab or thin slab, reheating or holding the preproduct at a hot rolling starting temperature of 1100-1300[deg] C, hot rolling the preproduct at a hot rolling temperature of 800-950[deg] C to the hot laminated strip, winding the hot laminated strip at a winder temperature of 500-650[deg] C, carrying out cold rolling of the hot laminated strip after the winding step, tempering the cold strip to a tempering temperature of 700-900[deg] C and controlled cooling of the tempered cold strip.

IPC 8 full level

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Citation (examination)

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DE102014017274A1; DE102015111177A1; DE102012002079A1; RU2615957C2; DE102012002079B4; RU2610989C2; EP3647455A4; WO2020104437A1; WO2013113304A3; WO2013113304A2; US10273552B2; EP2684975A1; WO2014009404A1; US10344344B2; WO2016078644A1; US10626478B2; DE102017123236A1; WO2019068560A1; EP2489748A1; WO2012110165A1

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