

Title (en)
GPA-GRADE BAINITE STEEL HAVING ULTRA-HIGH YIELD RATIO AND MANUFACTURING METHOD FOR GPA-GRADE BAINITE STEEL

Title (de)
BAINITSTAHL MIT HOHEM VERHÄLTNIS VON POLYAINIT MIT HOHER AUSBEUTE UND HERSTELLUNGSVERFAHREN FÜR
POLYAINITSTAHL MIT POLYAINITQUALITÄT

Title (fr)
ACIER BAÏNITIQUE DE QUALITÉ GPA PRÉSENTANT UN RAPPORT DE RENDEMENT ULTRA ÉLEVÉ ET PROCÉDÉ DE FABRICATION
D'ACIER BAÏNITIQUE DE QUALITÉ GPA

Publication
EP 4206347 A1 20230705 (EN)

Application
EP 21860457 A 20210826

Priority
• CN 202010879001 A 20200827
• CN 2021114658 W 20210826

Abstract (en)
GPa-grade bainite steel having an ultra-high yield ratio, containing, in addition to Fe, the following chemical elements in mass percentages: 0.12-0.24% of C; 0.2-0.5% of Si; 1.3-2.0% of Mn; 0.001-0.004% of B; 0.01-0.05% of Al; and at least one of Cr, Nb, Ti, and Mo, wherein Cr<0.4%, Nb≤0.06%, Ti<0.1%, and Mo≤0.4%. Also disclosed are a manufacturing method and annealing process for the steel.

IPC 8 full level
C22C 38/02 (2006.01); **C21D 1/26** (2006.01); **C21D 6/00** (2006.01); **C21D 8/02** (2006.01); **C21D 9/00** (2006.01); **C21D 9/52** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/12** (2006.01); **C22C 38/20** (2006.01); **C22C 38/22** (2006.01); **C22C 38/24** (2006.01); **C22C 38/26** (2006.01); **C22C 38/28** (2006.01); **C22C 38/32** (2006.01); **C22C 38/38** (2006.01); **C22C 38/44** (2006.01); **C22C 38/50** (2006.01); **C22C 38/54** (2006.01); **C22C 38/58** (2006.01)

CPC (source: CN EP KR US)
B21C 47/02 (2013.01 - KR); **C21D 1/18** (2013.01 - EP US); **C21D 1/19** (2013.01 - EP); **C21D 1/26** (2013.01 - CN EP); **C21D 1/84** (2013.01 - EP US); **C21D 6/002** (2013.01 - CN EP KR US); **C21D 6/004** (2013.01 - CN US); **C21D 6/005** (2013.01 - CN EP US); **C21D 6/008** (2013.01 - CN EP US); **C21D 8/0205** (2013.01 - EP US); **C21D 8/021** (2013.01 - EP); **C21D 8/0221** (2013.01 - CN); **C21D 8/0226** (2013.01 - EP KR US); **C21D 8/0236** (2013.01 - EP KR US); **C21D 8/0247** (2013.01 - EP); **C21D 8/0263** (2013.01 - EP US); **C21D 8/0273** (2013.01 - EP KR); **C21D 8/0278** (2013.01 - US); **C21D 9/0081** (2013.01 - CN); **C21D 9/46** (2013.01 - EP); **C21D 9/52** (2013.01 - CN EP KR US); **C22C 38/002** (2013.01 - CN EP); **C22C 38/005** (2013.01 - CN EP US); **C22C 38/02** (2013.01 - CN EP US); **C22C 38/04** (2013.01 - CN EP US); **C22C 38/06** (2013.01 - CN EP KR US); **C22C 38/12** (2013.01 - CN EP US); **C22C 38/14** (2013.01 - EP); **C22C 38/20** (2013.01 - CN EP US); **C22C 38/22** (2013.01 - CN EP KR US); **C22C 38/24** (2013.01 - CN EP US); **C22C 38/26** (2013.01 - CN EP KR US); **C22C 38/28** (2013.01 - CN EP KR US); **C22C 38/32** (2013.01 - CN EP US); **C22C 38/38** (2013.01 - CN EP KR US); **C22C 38/44** (2013.01 - CN EP US); **C22C 38/50** (2013.01 - CN EP US); **C22C 38/54** (2013.01 - CN EP US); **C22C 38/58** (2013.01 - CN EP KR US); **C23G 1/08** (2013.01 - KR); **C21D 2211/002** (2013.01 - CN EP KR US); **C21D 2211/004** (2013.01 - EP); **C23G 1/08** (2013.01 - EP)

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
EP 4206347 A1 20230705; **EP 4206347 A4 20240327**; AU 2021332868 A1 20230504; AU 2021332868 A9 20240627; CN 114107785 A 20220301; CN 114107785 B 20221021; JP 2023538680 A 20230908; KR 20230058083 A 20230502; MX 2023002204 A 20230303; US 2023357882 A1 20231109; WO 2022042622 A1 20220303

DOCDB simple family (application)
EP 21860457 A 20210826; AU 2021332868 A 20210826; CN 202010879001 A 20200827; CN 2021114658 W 20210826; JP 2023513194 A 20210826; KR 20237009592 A 20210826; MX 2023002204 A 20210826; US 202118043034 A 20210826