

Title (en)

High strength thin steel sheet having high hydrogen embrittlement resisting property and high workability

Title (de)

Bearbeitungsfähiges hochfestes dünnes Stahlblech mit hohem Widerstand gegen Wasserstoffversprödung

Title (fr)

Tôle d'acier mince à haute résistance, possédant une résistance à la fragilisation par l'hydrogène et une aptitude au façonnage élevées

Publication

EP 1676933 B1 20150527 (EN)

Application

EP 05028528 A 20051227

Priority

- JP 2004381243 A 20041228
- JP 2004381244 A 20041228
- JP 2004381245 A 20041228
- JP 2005147357 A 20050519
- JP 2005147358 A 20050519
- JP 2005147359 A 20050519

Abstract (en)

[origin: EP1676933A1] The present invention provides a high strength thin steel sheet that has high hydrogen embrittlement resisting property and high workability. The high strength thin steel sheet having high hydrogen embrittlement resisting property has a metallurgical structure after stretch forming process to elongate 3%, which comprises: (i) 1% or more residual austenite; 80% or more in total of bainitic ferrite and martensite; and 9% or less (may be 0%) in total of ferrite and pearlite in terms of proportion of area to the entire structure, wherein the mean axis ratio (major axis/minor axis) of the residual austenite grains is 5 or higher, or (ii) 1% or more residual austenite in terms of proportion of area to the entire structure; mean axis ratio (major axis/minor axis) of the residual austenite grains is 5 or higher; mean length of minor axes of the residual austenite grains is 1 μ m or less; minimum distance between the residual austenite grains is 1 μ m or less; and the steel has tensile strength of 1180 MPa or higher.

IPC 8 full level

C22C 38/02 (2006.01); **C22C 38/04** (2006.01)

CPC (source: EP US)

C22C 38/02 (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP US); **C22C 38/08** (2013.01 - EP US); **C22C 38/12** (2013.01 - EP US); **C22C 38/14** (2013.01 - EP US); **C22C 38/16** (2013.01 - EP US); **C21D 2211/002** (2013.01 - EP US)

Cited by

EP2436794A4; EP2857540A4; EP2465962A1; EP3536818A4; EP2105514A4; WO2020109850A1; US8673093B2; US9464337B2

Designated contracting state (EPC)

AT DE FR GB

DOCDB simple family (publication)

EP 1676933 A1 20060705; **EP 1676933 B1 20150527**; CA 2531616 A1 20060628; KR 100886052 B1 20090226; KR 20060076741 A 20060704; US 2006137769 A1 20060629

DOCDB simple family (application)

EP 05028528 A 20051227; CA 2531616 A 20051223; KR 20050131620 A 20051228; US 31718105 A 20051227