

Title (en)  
HIGH-STRENGTH STEEL SHEET

Title (de)  
ULTRAHOCHFESTES STAHLBLECH

Title (fr)  
TÔLE D'ACIER HAUTE RÉSISTANCE

Publication  
**EP 2177640 A4 20120118 (EN)**

Application  
**EP 08792282 A 20080731**

Priority  
• JP 2008064175 W 20080731  
• JP 2007198944 A 20070731

Abstract (en)  
[origin: EP2177640A1] A high-strength steel sheet having high stretch flangeability after working and corrosion resistance after painting is provided. The steel sheet contains, on the basis of mass percent, C: 0.02% to 0.20%, Si: 0.3% or less, Mn: 0.5% to 2.5%, P: 0.06% or less, S: 0.01% or less, Al: 0.1% or less, Ti: 0.05% to 0.25%, and V: 0.05% to 0.25%, the remainder being Fe and incidental impurities. The steel sheet has a substantially ferritic single phase, the ferritic single phase containing precipitates having a size of less than 20 nm, the precipitates containing 200 to 1750 mass ppm Ti and 150 to 1750 mass ppm V, V dissolved in solid solution being 200 or more but less than 1750 mass ppm.

IPC 8 full level  
**C21D 8/02** (2006.01); **C21D 9/46** (2006.01); **C22C 38/14** (2006.01); **C22C 38/38** (2006.01)

CPC (source: EP US)  
**C21D 8/0426** (2013.01 - EP US); **C21D 9/48** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP US); **C22C 38/12** (2013.01 - EP US); **C22C 38/14** (2013.01 - EP US); **C22C 38/24** (2013.01 - EP US); **C22C 38/28** (2013.01 - EP US); **C21D 2211/004** (2013.01 - EP US); **C21D 2211/005** (2013.01 - EP US)

Citation (search report)  
• [X] JP 2005002406 A 20050106 - SUMITOMO METAL IND  
• [X] JP 2005120430 A 20050512 - JFE STEEL KK  
• [A] JP 2002363649 A 20021218 - NIPPON KOKAN KK  
• See references of WO 2009017256A1

Cited by  
US10202667B2; EP2843075A4; EP2767606A4; US2014141280A1; EP2735623A4; EP2808413A4; US2014295210A1; EP2765211A4; US9657380B2; JP2012172238A

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

DOCDB simple family (publication)  
**EP 2177640 A1 20100421**; **EP 2177640 A4 20120118**; **EP 2177640 B1 20171101**; CA 2693489 A1 20090205; CA 2693489 C 20131119; CN 101772584 A 20100707; CN 101772584 B 20120725; JP 2009052139 A 20090312; JP 5326403 B2 20131030; KR 20100029138 A 20100315; MX 2010001110 A 20100309; TW 200912015 A 20090316; TW I390050 B 20130321; US 2010196189 A1 20100805; WO 2009017256 A1 20090205

DOCDB simple family (application)  
**EP 08792282 A 20080731**; CA 2693489 A 20080731; CN 200880101205 A 20080731; JP 2008064175 W 20080731; JP 2008194546 A 20080729; KR 20107001975 A 20080731; MX 2010001110 A 20080731; TW 97128967 A 20080731; US 67015308 A 20080731