

Title (en)

Clad hot-rolled and cold-rolled steel sheet, presenting a very high resistance after thermal treatment

Title (de)

Beschichtetes warmgewalztes und kaltgewalztes Stahlblech mit sehr hoher Festigkeit nach thermischer Behandlung

Title (fr)

Toile d'acier laminée à chaud et à froid revêtue et présentant une très haute résistance après traitement thermique

Publication

EP 0971044 B1 20030514 (FR)

Application

EP 99401690 A 19990707

Priority

FR 9808793 A 19980709

Abstract (en)

[origin: EP0971044A1] A hot rolled steel sheet, consisting of a hot dip aluminized, shaped and heat treated sheet of low alloy steel of specified composition, is new. A novel hot rolled steel sheet consists of a steel of composition (by wt.) 0.15-0.5% (exclusive) C, 0.5-3% (exclusive) Mn, 0.1-0.5% (exclusive) Si, 0.01-1% (exclusive) Cr, less than 0.2% Ti, less than 0.1% Al, less than 0.1% P, less than 0.05% S, 0.0005-0.08% (exclusive) B, balance Fe and impurities. An Independent claim is also included for forming a part from the above steel sheet having a hot dip aluminized coating which is heated at more than 5 to 600 degrees C/s. or more after sheet forming and before heat treatment. Preferred Features: The sheet is hot dip coated in a bath of composition 2-3.5% Fe and balance Al, optionally with addition of 9-10% Si.

IPC 1-7

C22C 38/32

IPC 8 full level

C23C 2/12 (2006.01); **C21D 8/02** (2006.01); **C22C 38/00** (2006.01); **C22C 38/32** (2006.01); **C22C 38/38** (2006.01); **C23C 2/28** (2006.01); **C23C 30/00** (2006.01)

CPC (source: EP US)

C21D 8/0278 (2013.01 - EP US); **C22C 38/32** (2013.01 - EP US); **C22C 38/38** (2013.01 - EP US); **Y10S 428/939** (2013.01 - EP US); **Y10T 428/12757** (2015.01 - EP US)

Cited by

DE102009016027A1; KR20140019838A; EP1966404A4; EP1939308A1; EP2224034A1; CN115475832A; CN104651590A; WO2012167930A1; WO20121074388A1; WO2009135776A1; WO20076798A1; US8197616B2; WO2014009004A1; US8685181B2; EP1672088B1; WO2009090443A1; WO2009090555A1; DE102016000177A1; US9718125B2; WO2017144419A1; US10702916B2; WO2010112140A1; US8066829B2; US8440323B2; WO2011104443A1; US9956636B2; WO2022038135A1; EP2993248A1; WO2007118939A1; WO2007125182A1; WO2011101158A1; US9593391B2; WO2018158166A1; WO2018158165A1; US11319623B2; DE102009007909A1; WO2010089273A1; US9604311B2; WO2021130524A1; WO2021130602A1; US11198195B2; WO2023222442A1; WO2012153008A1; WO2012153012A1; US10337090B2; US10895003B2; EP4092141A1; WO2022243397A1; DE102015225662A1; WO2022131862A1; KR20230040977A; WO2023202765A1; WO2013014481A1; WO2013014512A1; US8888934B2; DE102016222993A1; US10821546B2; US10828729B2; US10919117B2; US11426820B2; EP1865086A1; US9090951B2; DE102007061489A1; WO2023013876A1; KR20230021319A; DE202007018832U1; DE202011107125U1; WO2012139770A1; US8614008B2; US9375809B2; US9597750B2; US9669490B2; US9669491B2; US9676061B2; US9682443B2; US10323292B2; US10352342B2; US10473130B2; US10480554B2; US10626903B2; US10626902B2; US11154950B2; WO2015162445A1; WO2015162478A1; US9827633B2; DE202015009465U1; EP3501724A1; EP3520952A2; US10654134B2; US10668570B2; US10780529B2; US11097377B2; EP4039403A1; US11826856B2

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

EP 0971044 A1 20000112; **EP 0971044 B1 20030514**; AT E240419 T1 20030515; BR 9902712 A 20000308; CA 2276911 A1 20000109; CA 2276911 C 20090505; DE 69907816 D1 20030618; DE 69907816 T2 20040311; DK 0971044 T3 20030811; ES 2196740 T3 20031216; FR 2780984 A1 20000114; FR 2780984 B1 20010622; JP 2000038640 A 20000208; JP 3931251 B2 20070613; PT 971044 E 20030829; US 6296805 B1 20011002; US RE44153 E 20130416; US RE44940 E 20140610

DOCDB simple family (application)

EP 99401690 A 19990707; AT 99401690 T 19990707; BR 9902712 A 19990708; CA 2276911 A 19990707; DE 69907816 T 19990707; DK 99401690 T 19990707; ES 99401690 T 19990707; FR 9808793 A 19980709; JP 19566499 A 19990709; PT 99401690 T 19990707; US 201113205126 A 20110808; US 201313863100 A 20130415; US 35010099 A 19990709