

Title (en)

PROCESS FOR PRODUCING AN EASILY SHAPED COLD-ROLLED SHEET OR STRIP

Title (de)

VERFAHREN ZUR ERZEUGUNG EINES KALTGEWALZTEN STAHLBLECHES ODER -BANDES MIT GUTER UMFORMBARKEIT

Title (fr)

PROCEDE DE PRODUCTION D'UNE TOLE OU D'UN FEUILLARD D'ACIER LAMINE(E) A FROID, PRESENTANT UNE BONNE APTITUDE AU FORMAGE

Publication

EP 0914480 A1 19990512 (DE)

Application

EP 97922915 A 19970426

Priority

- DE 19622164 A 19960601
- EP 9702169 W 19970426

Abstract (en)

[origin: US6162308A] PCT No. PCT/EP97/02169 Sec. 371 Date Oct. 27, 1998 Sec. 102(e) Date Oct. 27, 1998 PCT Filed Apr. 26, 1997 PCT Pub. No. WO97/46720 PCT Pub. Date Dec. 11, 1997A method for producing a cold-rolled steel sheet or strip with good formability, especially stretch formability, for making pressings with a high buckling resistance from a steel comprising (in % by mass): 0.01 to 0.08% C, 0.10 to 0.80% Mn, maximum 0.15% Si, 0.015 to 0.08% Al, a maximum 0.005% N, 0.01 to 0.04% Ti and/or Nb, whose contents exceeding the quantity necessary for stoichiometric binding of the nitrogen, ranges from 0.003 to 0.015% Ti or 0.0015 to 0.008% Nb, and a maximum 0.15% in total of one or several elements from the group copper, vanadium, nickel, the remainder being iron, including unavoidable impurities, including a maximum 0.08% P and a maximum 0.02% S, comprises preheating the cast slab to a temperature exceeding 1050 DEG C., hot-rolling at a final temperature ranging from over the Ar3 temperature to 950 DEG C., coiling the hot-rolled strip at a temperature ranging from 550 to 750 DEG C., cold-rolling at a total cold-rolling degree of deformation from 40 to 85%, recrystallization annealing of the cold strip in a continuous furnace at a temperature of at least 720 DEG C., subsequent cooling at 5 to 70 K/s; and skin passing.

IPC 1-7

C21D 8/04

IPC 8 full level

C21D 9/46 (2006.01); **C21D 8/04** (2006.01); **C22C 38/00** (2006.01); **C22C 38/14** (2006.01); **C23C 2/02** (2006.01)

CPC (source: EP KR US)

C21D 8/04 (2013.01 - KR); **C21D 8/0473** (2013.01 - EP US); **C23C 2/02** (2013.01 - EP KR US); **C23C 2/0224** (2022.08 - EP KR US); **C21D 8/0426** (2013.01 - EP US); **C21D 8/0436** (2013.01 - EP US)

Citation (search report)

See references of WO 9746720A1

Cited by

CN112131528A

Designated contracting state (EPC)

AT BE DE ES FR GB IT NL SE

DOCDB simple family (publication)

US 6162308 A 20001219; AT E278040 T1 20041015; BR 9709633 A 19990810; CA 2251354 A1 19971211; DE 19622164 C1 19970507; DE 59711972 D1 20041104; EP 0914480 A1 19990512; EP 0914480 B1 20040929; ES 2229352 T3 20050416; JP 2000514499 A 20001031; JP 3875725 B2 20070131; KR 20000016309 A 20000325; PL 183911 B1 20020830; PL 330318 A1 19990510; WO 9746720 A1 19971211

DOCDB simple family (application)

US 17183798 A 19981027; AT 97922915 T 19970426; BR 9709633 A 19970426; CA 2251354 A 19970426; DE 19622164 A 19960601; DE 59711972 T 19970426; EP 9702169 W 19970426; EP 97922915 A 19970426; ES 97922915 T 19970426; JP 50012198 A 19970426; KR 19980709882 A 19981130; PL 33031897 A 19970426