Title (en)

Cold rolled ULC - steel sheet and method of producing the same

Title (de)

Kaltband aus ULC - Stahl und Verfahren zu seiner Herstellung

Title (fr)

Tôle en acier à très faible teneur en carbone, laminée à froid, et procédé de fabrication

Publication

EP 1380663 A1 20040114 (DE)

Application

EP 02014692 A 20020703

Priority

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Abstract (en)

Cold strip contains specified amounts of carbon, niobium, titanium, silicon, manganese, phosphorus, sulfur, aluminum, nitrogen, chromium, copper, nickel, molybdenum, tin, boron, and a balance of iron and impurities. The strip has a bake hardening property of BH0 15 N/mm squared and BH2 20 N/mm squared, good deforming properties, a yield point of 170-230 N/mm squared and an n-value of at least 0.18. Cold strip contains (in wt. %) at most 0.003 carbon, at least 0.005 niobium, 0.005 titanium, at most 0.1 silicon, at most 0.2 manganese, at most 0.015 phosphorus, at most 0.015 sulfur, 0.005-0.05 aluminum, at most 0.004 nitrogen, at most 0.05 chromium, at most 0.05 copper, at most 0.05 nickel, 0.02 molybdenum, 0.02 tin, 0.004 boron, and a balance of iron and impurities. The strip has a bake hardening property of BH0 15 N/mm squared and BH2 20 N/mm squared, good deforming properties, a yield point of 170-230 N/mm squared and an n-value of at least 0.18. An Independent claim is also included for a process for the production of the cold strip.

Abstract (de)

Die vorliegende Erfindung betrifft ein Kaltband und ein Verfahren, das mit Bake-Hardening-Eigenschaften von BH0 > 15 N/mm<2> und BH2 > 20 N/mm<2>, gute Verformungseigenschaften, eine Streckgrenze von 170 N/mm<2> bis 230 N/mm sowie einen n-Wert >= 0,18 aufweist, enthaltend (in Gew.-%) C: <= 0,0030 %, Nb: >= 0,005 % mit der Maßgabe, daß der Gehalt an Nb < (93/12) * %C beträgt, mit %C = C-Gehalt in Gew.-%, Ti: < 0,0050 %, wahlweise eines oder mehrere der folgenden Legierungselemente Si: <=0,10 %, Mn: <=0,20 %, P: <=0,015 %, S: <=0,015 %, Alg: 0,005 - 0,05 %, N: <=0,0040 %, Cr: <=0,05 %, Cu: <=0,05 %, Ni: <=0,05 %, Mo: < 0,020 %, Sn: < 0,020 %, B: < 0,0004, und als Rest Eisen sowie übliche Verunreinigungen.

IPC 1-7

C22C 38/00; C22C 38/12

IPC 8 full level

C22C 38/00 (2006.01); **C22C 38/04** (2006.01); **C22C 38/12** (2006.01); **C22C 38/14** (2006.01); C21D 8/02 (2006.01)

CPC (source: EP)

C22C 38/004 (2013.01); **C22C 38/04** (2013.01); **C22C 38/12** (2013.01); **C22C 38/14** (2013.01); C21D 8/0226 (2013.01); C21D 8/0236 (2013.01); C21D 8/0273 (2013.01)

Citation (search report)

- [X] US 4496400 A 19850129 - IRIE TOSHIO [JP], et al
- [X] EP 0444967 A2 19910904 - KOBE STEEL LTD [JP]
- [X] EP 0510718 A2 19921028 - KAWASAKI STEEL CO [JP]
- [XY] EP 1028172 A1 20000816 - NIPPON STEEL CORP [JP]
- [DYA] EP 0816524 A1 19980107 - NIPPON KOKAN KK [JP]
- [X] PATENT ABSTRACTS OF JAPAN vol. 005, no. 012 (C - 040) 24 January 1981 (1981-01-24)

Citation (examination)

BAKER L.C.; DANIEL S.R.; PARKER J.D.: "Metallurgy and processing of ultralow carbon bake hardening steels", MATERIAL SCIENCE AND TECHNOLOGY, vol. 18, April 2002 (2002-04-01), pages 355 - 368

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