

Title (en)

COLD-ROLLED SHEET AND HOT-GALVANIZED, COLD-ROLLED SHEET, BOTH EXCELLENT IN BAKE HARDENING, COLD NONAGING AND FORMING PROPERTIES, AND PROCESS FOR PRODUCING THE SAME.

Title (de)

Kaltgewalztes Stahlblech, gegebenenfalls feuerverzinkt, mit guter Einbrenn-härtbarkeit, gute Kaltalterungsbeständigkeit und Formbarkeit und Verfahren zur Herstellung dieser Bleche.

Title (fr)

FEUILLE LAMEE A FROID, EVENTUELLEMENT GALVANISEE A CHAUD, AUX QUALITES DE SECHAGE DE PEINTURE A CHAUD, DE NON-VIEILLISSEMENT A FROID ET DE FORMAGE EXCELLENTES, ET PROCEDE DE PRODUCTION.

Publication

EP 0620288 A4 19950125 (EN)

Application

EP 93919599 A 19930831

Priority

- JP 4410893 A 19930304
- JP 9301231 W 19930831
- JP 23230192 A 19920831
- JP 23231992 A 19920831

Abstract (en)

[origin: EP0620288A1] A cold-rolled sheet or a hot-galvanized, cold-rolled sheet having high paint bake hardening and cold nonaging properties and being excellent in the forming properties such as an average r value (deep drawing characteristics) and elongation (bulging characteristics) is produced by annealing an ultralow-carbon steel itself or one containing at least either titanium or niobium above the Ac₃ transformation point to thereby give thereto a single-phase structure of low-temperature transformation product. As regards the paint bake hardening properties, it is possible to realize a BH value as high as about 10 kgf/mm². <IMAGE>

IPC 1-7

C22C 38/06; C22C 38/14; C21D 8/02; C21D 9/46; C23C 2/06

IPC 8 full level

C21D 8/04 (2006.01)

CPC (source: EP)

C21D 8/0426 (2013.01); **C21D 8/0436** (2013.01); **C21D 8/0473** (2013.01)

Citation (search report)

- [PY] WO 9216668 A1 19921001 - NIPPON STEEL CORP [JP]
- [Y] JP H04214820 A 19920805 - NIPPON STEEL CORP
- [PY] JP H0578783 A 19930330 - NIPPON STEEL CORP
- [PY] JP H0578784 A 19930330 - NIPPON STEEL CORP
- See references of WO 9405823A1

Cited by

EP1306456A4; DE19622164C1; EP0918098A4; EP3327164A4; EP0769565A4; CN107995931A; US9777350B2; WO9746720A1; US10907233B2; US6143100A; CN111527228A; EP3733906A4; US11578379B2

Designated contracting state (EPC)

DE FR GB IT

DOCDB simple family (publication)

EP 0620288 A1 19941019; EP 0620288 A4 19950125; EP 0620288 B1 20001122; DE 69329696 D1 20001228; DE 69329696 T2 20010613; KR 0121737 B1 19971204; WO 9405823 A1 19940317

DOCDB simple family (application)

EP 93919599 A 19930831; DE 69329696 T 19930831; JP 9301231 W 19930831; KR 19940701435 A 19940429