

## Title (en)

PROCESS FOR PRODUCING THIN CR-NI STAINLESS STEEL SHEET EXCELLENT IN BOTH SURFACE QUALITY AND QUALITY OF MATERIAL

## Publication

**EP 0378705 A4 19910904 (EN)**

## Application

**EP 89908266 A 19890710**

## Priority

- JP 8900692 W 19890710
- JP 22147288 A 19880906
- JP 22147188 A 19880906
- JP 16909688 A 19880708
- JP 16909588 A 19880708
- JP 16909488 A 19880708

## Abstract (en)

[origin: EP0378705A1] A process for producing Cr-Ni stainless steel sheet comprises (1) casting 18% Cr - 8% Ni stainless steel with a synchronous continuous caster, (2) quenching the thin cast piece at high temp., (3) hot or cold processing and (4) annealing. In step (1) the cooling rate for solidifying is 100 deg.C/sec. or more until the temp. decreases to 1100 deg.C. This produces very fine gamma grains. When the delta-Fe.cal(%), where delta- Fe.cal (%) =  $3(\text{Cr} + 3/2\text{Si} + \text{Mo} + \text{Nb} + \text{Ti}) - 2.8(\text{Ni} + 1/2\text{Mn} + 1/2\text{Cu}) - 84(\text{C} + \text{N}) - 19.8$  (%), is 2-10%, the following crystallisation conditions are present: The first crystallisation is a delta-phase crystallisation. The rate of gamma-phase crystallisation and growth is controlled during and after solidifying, and the starting temp. of gamma-phase crystallisation and deposition is made very low. When the obt'd. cast is cooled to 1200 deg.C with a rate of 200 deg.C/sec. or more, the mean particulate size of the gamma-grains is 50 micron or less. The cooling after casting is carried out using gas and/or liq.

## IPC 1-7

**B22D 11/06**; **C21D 8/02**; **C21D 9/46**

## IPC 8 full level

**B22D 11/06** (2006.01); **C21D 8/02** (2006.01)

## CPC (source: EP)

**B22D 11/06** (2013.01); **C21D 8/0205** (2013.01)

## Citation (search report)

- [A] PATENT ABSTRACTS OF JAPAN, vol. 11, no. 353 (C-457)[2800], 18th November 1987; & JP-A-62 124 220 (NIPPON STEEL) 05-07-1987
- [A] PATENT ABSTRACTS OF JAPAN, vol. 6, no. 261 (C-141)[1139], 21st December 1982; & JP-A-57 155 322 (SHIN NIPPON SEITETSU) 25-09-1982
- See references of WO 9000454A1

## Cited by

EP0530675A3; EP0481481A1; AU724431B2; EP0463182A4; US5188681A; US6568462B1; WO9906602A1; EP0679114B2

## Designated contracting state (EPC)

DE FR GB IT SE

## DOCDB simple family (publication)

**EP 0378705 A1 19900725**; **EP 0378705 A4 19910904**; **EP 0378705 B1 19960131**; **EP 0378705 B2 19990915**

## DOCDB simple family (application)

**EP 89908266 A 19890710**