Title (en)

Ferritic stainless steel containing sulfur for ferromagnetic parts

Title (de)

Ferritischer rostfreier schwefelhaltiger Stahl verwendbar für ferromagnetische Werkstücke

Title (fr)

Acier inoxydable ferritique au soufre, utilisable pour des pieces ferromagnétiques

Publication

EP 1314792 A1 20030528 (FR)

Application

EP 02292873 A 20021119

Priority

FR 0115240 A 20011126

Abstract (en)

Ferritic stainless steel for ferromagnetic component production comprises (in weight %): carbon ≤ 0.030, silicon 1.0-3; manganese 0.1-0.5, chromium 10-13, nickel 0- 1, sulfur 0.03- 0.5, phosphorus 0-0.030, molybdenum 0.2-2; copper 0-0.5; nitrogen 0-0.030; titanium 0-0.5; niobium 0-1; aluminum 0-100 x 10<-4>, calcium (30-100) x 10<-4>; and O (50-150) x 10<-4>. The Ca/O ratio is 0.3-1. <??>Preferred Features: The steel includes calcium silico-aluminate of the type anorthite and/or pseudo-wollastonite and/or gehlenite, associated with chromium and manganese sulfide-type inclusions. <??>Preferably, the steel contains (in weight %) 1.5-2 silicon, 11.8-13 chromium, sulfur 0.10-0.5 (most preferably, 0.10-0.3), 0.4-1 molybdenum, and less than 0.3 manganese. <??>An Independent claim is given for the production of a component formed from the ferritic steel. After hot rolling and cooling, the steel is subjected to drawing, either after optional thermal annealing treatment or without thermal annealing treatment. The drawn steel can be finally submitted to complementary recrystallization annealing, to improve the magnetic properties of the component.

Abstract (fr)

Acier inoxydable ferritique au soufre utilisable pour des pièces ferromagnétiques caractérisé en ce qu'il comprend dans sa composition pondérale: C <= 0,030%, 1,0% < Si <= 3%, 0,1% < Mn <= 0,5%, 10% <= Cr <= 13%, 0% < Ni <1%, 0,03 < S < 0,5%, 0% < P <= 0,030%, 0,2% < Mo <= 2%, 0% <Cu <= 0,5%, 0% < N <= 0,030%, 0% <Ti <= 0,5%, 0% <Nb <= 1%, 0% < Al <= 100.10-4%, 30.10-4% < Ca <=100.10<-4>%, 50.10-4% < O <=150 10<-4>% le rapport entre la teneur en calcium et en oxygène Ca/O étant 0,3 <= Ca/O <= 1, le reste étant du fer et les impuretés inévitables à l'élaboration de l'acier, ainsi qu'un procédé de fabrication de pièces ferromagnétiques.

IPC 1-7

C22C 38/60; C22C 38/22; C22C 38/34; C21D 8/12

IPC 8 full level

C21D 8/06 (2006.01); **C22C 38/00** (2006.01); **C22C 38/18** (2006.01); **C22C 38/22** (2006.01); **C22C 38/34** (2006.01); **C22C 38/60** (2006.01); C21D 8/12 (2006.01)

CPC (source: EP US)

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Citation (search report)

- [DX] FR 2720410 A1 19951201 - UGINE SAVOIE SA [FR]
- [XA] EP 0773306 A1 19970514 - UGINE SAVOIE SA [FR]
- [DA] US 5769974 A 19980623 - MASTELLER MILLARD S [US], et al
- [A] EP 1130127 A1 20010905 - UGINE SAVOIE IMPHY [FR]
- [A] EP 0629714 A1 19941221 - UGINE SAVOIE SA [FR]
- [A] PATENT ABSTRACTS OF JAPAN vol. 1999, no. 11 30 September 1999 (1999-09-30)
- [A] PATENT ABSTRACTS OF JAPAN vol. 2000, no. 09 13 October 2000 (2000-10-13)
- [A] PATENT ABSTRACTS OF JAPAN vol. 2000, no. 16 8 May 2001 (2001-05-08)
- [A] PATENT ABSTRACTS OF JAPAN vol. 018, no. 468 (C - 1244) 31 August 1994 (1994-08-31)

Cited by

CN112522594A

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EP 1314792 A1 20030528; BR 0204739 A 20030916; CA 2409595 A1 20030526; CN 1424422 A 20030618; FR 2832734 A1 20030530; FR 2832734 B1 20041008; JP 2003213382 A 20030730; KR 20030043686 A 20030602; MX PA02011409 A 20041213; TW 200300454 A 20030601; US 2003121575 A1 20030703; US 6921511 B2 20050726; ZA 200209396 B 20030526

DOCDB simple family (application)

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