Title (en)

Fe-based soft magnetic alloy , magnetic core using the same, and method for making the same

Title (de)

Auf Eisen basierte weichmagnetisch Legierung,Magnetkern davon,und Herstellungsverfahren

Title (fr)

Alliage magnétique à base de fer magnétiquement doux, noyau magnétique de cela et procédé de fabrication

Publication

EP 1001437 A1 20000517 (EN)

Application

EP 99308538 A 19991028

Priority

- JP 31966298 A 19981110
- JP 31966398 A 19981110
- JP 31966498 A 19981110
- JP 33176298 A 19981120
- JP 33177298 A 19981120
- JP 33177398 A 19981120
- JP 33177498 A 19981120
- JP 33177598 A 19981120
- JP 34347398 A 19981202
- JP 34347498 A 19981202

Abstract (en)

A Fe-based soft magnetic alloy is represented by the formula: FeaZrxNbyB beta or (Fe1-aQa)bB beta M lambda Znz, wherein Q is at least one of Co and Ni; M is at least one selected from the group consisting of Ti, Zr, Hf, V, Nb, Ta, Mo and W; the subscripts satisfy the relationships; a ≤ 0.05, 80 atomic percent ≤ b; 5 atomic percent ≤ x + y ≤ 7.5 atomic percent; 1.5/6 ≤ x/(x+y) ≤ 2.5/6; and 5 atomic percent ≤ beta ≤ 12.5 atomic percent. The Fe-based soft magnetic alloy has a fine crystalline texture composed of at least 50% of the fine crystalline texture of a bcc-Fe phase as the major component and the balance being an amorphous phase. The soft magnetic alloy has high saturation magnetic flux density and low iron loss. The alloy is suitable for magnetic cores. <IMAGE>

IPC 1-7

H01F 1/153

IPC 8 full level

C22C 45/02 (2006.01); **H01F 1/153** (2006.01)

CPC (source: EP KR)

C22C 45/02 (2013.01 - KR); **H01F 1/15308** (2013.01 - EP)

Citation (search report)

- [AX] US 5474624 A 19951212 - SUZUKI KIYONORI [JP], et al
- [AX] WO 9215998 A2 19920917 - ALLIED SIGNAL INC [US]
- [XA] PATENT ABSTRACTS OF JAPAN vol. 1995, no. 11 26 December 1995 (1995-12-26) & US 5935347 A 19990810 - SUZUKI KIYONORI [JP], et al
- [A] HASEGAWA N ET AL: "MAGNETIC DOMAIN STRUCTURE OF NANOCRYSTALLINE FE-M-B (M=ZR,NB) ALLOYS REVEALED BY LORENTZ ELECTRON MICROSCOPY", JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS,NL,ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, vol. 160, 1 July 1996 (1996-07-01), pages 249 - 250, XP000625253, ISSN: 0304-8853

Cited by

CN105743232A; US7141127B2; WO02077300A1

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