Title (en)

Glassy metal alloys with perminvar characteristics.

Title (de)

Glasartige Legierungen mit Perminvar-Eigenschaften.

Title (fr)

Alliages métalliques vitreux à caractéristiques perminvar.

Publication

EP 0240600 A1 19871014 (EN)

Application

EP 86115434 A 19861107

Priority

US 81719386 A 19860108

Abstract (en)

A series of glassy metal alloys with near zero magnetostriction and Perminvar characteristics of relatively constant permeability at low magnetic field excitations and constricted hysteresis loops is disclosed. The glassy alloys have the compositions CoaFebNicMdBeSif where M is at least one member selected from the group consisting of Cr, Mo, Mn and Nb, and "a-f" are in atom percent where "a" ranges from about 66 to 71, "b" ranges from about 2.5 to 4.5, "c" ranges from about 0 to 3, "d" ranges from about 0 to 2 except when M=Mn in which case "d" ranges from about 0 to 4, "e" ranges from about 6 to 24 and "f" ranges from about 0 to 19, with the proviso that the sum of "a", "b" and "c" ranges from about 72 to 76 and the sum of "e" and "f" ranges from about 25 to 27. The glassy alloy has a value of magnetostriction ranging from about - 1x10<-><6> to about + 1x10<-><6>, a saturation induction ranging from about 0.5 to 1 Tesla, a Curie temperature ranging from about 200 to 450 DEG C and a first crystallization temperature ranging from about 440 to 570 DEG C. The glassy alloy is heat-treated between about 50 and 110 DEG C below its first crystallization temperature for a time period ranging from about 15 to 180 minutes, then cooled to room temperature at a rate slower than about - 60 DEG C/min.

IPC 1-7

C22C 19/07; H01F 1/14

IPC 8 full level

C22C 19/00 (2006.01); **C22C 19/07** (2006.01); **C22C 45/04** (2006.01); **C22F 1/00** (2006.01); **C22F 1/10** (2006.01); **H01F 1/14** (2006.01); **H01F 1/153** (2006.01)

CPC (source: EP)

C22C 19/07 (2013.01); **H01F 1/15316** (2013.01)

Citation (search report)

- EP 0084138 A2 19830727 - ALLIED CORP [US]
- US 4288260 A 19810908 - SENNO HARUFUMI, et al
- US 4188211 A 19800212 - FUJISHIMA HIROKI [JP], et al
- ELEKTROTECHNIK UND MASCHINENBAU, 97. Jahrgang, Heft 9, September 1980 RICHARD HAFERL "Glasartige Metalle - Eigenschaften und Anwendungen" pages 378-385 page 383, lines 16-40
- APPLIED PHYSICS LETTERS, vol. 36, no. 4, February 1980 KOICHI ASO "Observation of magnetic hysteresis loop of the perminvar type in worked Co-based amorphos alloys" pages 339-341 abstract

Cited by

ES2524733A1; US5844462A; GB2374084A; US5923236A; FR2641104A1; GB2264716A; GB2264716B; GB2233346A; GB2233346B; US6457464B1; US6563411B1; US6580347B1; US6535096B1; WO2016012636A1; WO0030131A1; WO0017897A1; WO9849697A1; WO9741576A1; WO9741574A1; WO9741575A1

Designated contracting state (EPC)

DE GB

DOCDB simple family (publication)

EP 0240600 A1 19871014; **EP 0240600 B1 19920513**; CA 1317484 C 19930511; DE 3685326 D1 19920617; JP 2552274 B2 19961106; JP 2907271 B2 19990621; JP H08188858 A 19960723; JP S62170446 A 19870727

DOCDB simple family (application)

EP 86115434 A 19861107; CA 533379 A 19870331; DE 3685326 T 19861107; JP 256287 A 19870108; JP 26316495 A 19951011