

12 **EUROPEAN PATENT APPLICATION**

21 Application number: 82111754.6

51 Int. Cl.⁴: **H 01 F 1/14**

22 Date of filing: 17.12.82

30 Priority: 18.01.82 US 340413

43 Date of publication of application:
27.07.83 Bulletin 83/30

68 Date of deferred publication of search report: 21.08.85

84 Designated Contracting States:
DE FR GB IT

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54 **Near-zero magnetostrictive glassy metal alloys with high magnetic and thermal stability.**

57 A new series of glassy metal alloys with near-zero magnetostriction is disclosed. The glassy alloys have the composition $\text{Co}_a\text{Fe}_b\text{Ni}_c\text{Mo}_d\text{B}_e\text{Si}_f$, where a ranges from about 58 to 70 atom percent, b ranges from about 2 to 7.5 atom percent, c ranges from about 0 to 8 atom percent, d ranges from about 1 to 2 atom percent, e ranges from about 11 to 15 atom percent and f ranges from about 9 to 14 atom percent with the proviso that the sum of a, b, c ranges from about 72 to 76 atom percent and the sum of e and f ranges from about 23 to 26 atom percent. The magnetostriction of these alloys ranges from about -1×10^{-6} to $+1 \times 10^{-6}$ and the saturation induction is between about 0.6 and 0.8 Tesla. The transition metal content is responsible for the low magnetostriction in these alloys. The metalloid content strongly affects the saturation induction, Curie temperature, and magnetic stability. Magnetostriction is mildly affected by the metalloid composition and a particular range of Si:B ratio for certain iron, cobalt containing alloys wherein the magnetostriction is near-zero and relatively insensitive to the Si/B ratio. The same Si/B ratios also provide high magnetic stability.



DOCUMENTS CONSIDERED TO BE RELEVANT			EP 82111754.6
Category	Citation of document with indication where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int ClX) 3
A	<u>US - A - 4 056 411 (CHEN)</u> * Column 2, lines 12-41; claim 1 * --	1-9	H 01 F 1/14 C 22 C 19/07 TECHNICAL FIELDS SEARCHED (Int ClX) 3 H 01 F C 22 C
A	<u>DE - A1 - 2 553 003 (ALLIED CHEMICAL CORP.)</u> * Claims 1,4-7 * --	1-9	
A	<u>US - A - 4 150 981 (O'HANDLEY)</u> * Abstract * --	1-3	
A	<u>US - A - 4 038 073 (O'HANDLEY)</u> * Abstract * ----	1-3	
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
VIENNA		15-05-1985	ONDER
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			