High Frequency Core Loss and Initial Permeability of Ferromagnetic Amorphous Ribbons

the amorphous iron alloys is attributed to the peculiar film formation partly by the presence of Cr and a large quantity of P in the alloys and partly by a single phase of the amorphous state.

Magnetostriction of Amorphous $Fe_{0.80}P_{0.13}C_{0.07}$ Ribbon

N. TSUYA, K.I. ARAI, Y. SHIRAGA, M. YAMADA and T. MASUMOTO

Phys. Stat. Sol. a, **31** (1975), 557.

The saturation magnetostriction constants and the forced magnetostriction of the amorphous $Fe_{0.80}P_{0.13}C_{0.07}$ ribbon are measured from liquid nitrogen to room temperatures by a three terminal capacitance method. As a result, the saturation magnetostriction constants λ_s are not completely isotropic but partly anisotropic with direction of the ribbon, and the average constant is 31×10^{-6}.

Electrical Properties of Amorphous Cu-Zr Alloy

T. MURATA, S. TOMIZAWA, T. FUKASE and T. MASUMOTO

Scripta Met., **10** (1976), 181.

The electrical resistivity of amorphous Cu_{60}-Zr_{40} alloy and the temperature coefficient of the resistivity are estimated to be $195\,\mu\Omega\cdot$cm and $-1.23\times10^{-2}\,\mu\Omega\cdot$cm/°K at 273°K, respectively. The Hall coefficient and the thermoelectric power are equal to $+7.4\times10^{-11}$ m^3/AS and $+0.39\,\mu$V/°K, respectively. These electrical properties are similar to those for some liquid transition metals.

High Frequency Core Loss and Initial Permeability of Ferromagnetic Amorphous Ribbons

Noboru TSUYA, Masamichi YAMADA, Ken Ichi ARAI, Tsuyoshi MASUMOTO and Hiroyasu FUJIMORI

Japan. J. Appl. Phys., **15** (1976), 743.

For the purpose of practical applications of the amorphous $Fe_5Co_{70}Si_{15}B_{10}$ ribbon to high frequency magnetic material, the initial permeability μ_i, the loss factor tan δ as well as the quality factor were measured in the frequency region from 3 kHz to 70 kHz by using a Maxwell Bridge. μ_i is almost independent of the intensity of magnetic field and increases monotonically with a decrease of the frequency. tan δ increases linearly with an increase of the frequency in the initial permeability region. $\tan\delta/\mu_i$ is a good linear function of the square of the thickness and increase with an increase of the frequency. From these experiments, it was found that among losses, the eddy current loss is most essential in the high frequency region in the amorphous ribbons.