

ABSTRACT

COPPER-ALLOY FOIL TO BE USED FOR SUSPENSION MEMBER OF
HARD-DISC DRIVE

The conductors, which are formed on a suspension member of the hard-disc drive suspension is subjected to thermal expansion and shrinkage during the laminating process with a substrate via polyimide binder 3. The tracking width of the suspension member is influenced by the thermal expansion and shrinkage. In order to provide a copper-alloy foil, which can attain improved tracking width, the following ratio of thermal expansion and shrinkage is adjusted in a range of from -0.1 to $+0.1\%$

$$\Delta(\%) = (l - l_0) / l_0 \times 100$$

l_0 : the length of a specimen before heating at 330°C for 2 hours, and l : the length of a specimen after heating at 330°C for 2 hours. $\Delta(\%)$ is measured in the direction parallel to the rolling direction. Furthermore, the copper alloy foil consists of from 1 to 4.8% of Ni, from 0.2 to 1.4% of Si, the ratio of Ni content relative to the Si content being adjusted to 2 to 8, the balance being essentially copper and unavoidable impurities. The tensile strength is 650 MPa or more. The inclusions do not exceeding $10\ \mu\text{m}$ in size and fifty or less inclusions from 5 to $10\ \mu\text{m}$ in size should be limited to fifty or less per mm^2 of a cross section of the foil in the direction parallel to the rolling direction.

Figure. 1



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