

ALLOY USED IN SOFT-MAGNETIC THIN-FILM LAYER ON
PERPENDICULAR MAGNETIC RECORDING MEDIUM,
SPUTTERING-TARGET MATERIAL, AND PERPENDICULAR
MAGNETIC RECORDING MEDIUM HAVING SOFT-MAGNETIC
THIN-FILM LAYER

ABSTRACT

There is provided a soft magnetic alloy for a perpendicular magnetic recording medium exhibiting a low saturation magnetic flux density at room temperature and having a small decrease in the saturation magnetic flux density at high temperature. The alloy comprises, in at%, one or two or more of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Ni, Cu, Al, B, C, Si, P, Zn, Ga, Ge, and Sn, and the balance Co, Fe, and unavoidable impurities, and satisfies all of: Expression (1) $0 \leq \text{Fe}\% / (\text{Fe}\% + \text{Co}\%) \leq 0.5$; Expression (2) $5 \leq \text{Ti}\% + \text{Zr}\% + \text{Hf}\% + \text{V}\% + \text{Nb}\% + \text{Ta}\% + \text{B}\% / 2$; and Expression (3) $0.3 \leq 0.813 \times \text{Fe}\% / (\text{Fe}\% + \text{Co}\%) - 0.062 \times \text{TNM} + 1.751 \leq 1.2$ (where, $\text{Fe}\% / (\text{Fe}\% + \text{Co}\%)$ is a ratio between the content of Fe and the total content of Fe and Co; and TNM is the total percentage of the amounts of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Ni, Cu, Al, B, C, Si, P, Zn, Ga, Ge, and Sn added, in which as for only B, a value of 1/2 thereof is used).