

MANUFACTURING METHOD OF SPUTTERING TARGET MATERIAL  
ABSTRACT OF THE DISCLOSURE

A method for stably manufacturing a sputtering target material with a cast ingot being plastic worked when an Fe-Co based alloy sputtering target material for forming a soft magnetic film used in a perpendicular magnetic recording medium is manufactured from the cast ingot is provided. The sputtering target material is an Fe-Co based alloy having an atomic ratio represented by a composition formula  $((\text{Fe}_{100-x}\text{-Co}_x)_{100-y}\text{-Ni}_y)_{100-a}\text{-M1}_a$ , where  $5 \leq X \leq 95$ ,  $0 \leq Y \leq 25$ ,  $5 \leq a \leq 20$ , and the M1 element in the composition formula is one or two or more elements selected from B, Zr, Hf, Ta, Nb and Y. The manufacturing method of the sputtering target material includes inserting a cylindrical cast ingot having a diameter/height ratio up to 0.5-2 into a pressure mold and upsetting by hot press with an upsetting rate more than 30%-70% at a temperature in a range of 900°C-1250°C, so as to obtain a target material.

Fig. 1