

ABSTRACT

BRAKE DISK HAVING HIGH TEMPER SOFTENING RESISTANCE

A brake disk having proper hardness and high temper softening resistance is provided. In particular, the brake disk has a martensitic structure having prior-austenite grains with an average diameter of 8  $\mu\text{m}$  or more, a hardness of 32 to 38 HRC, and high temper softening resistance. The brake disk contains, by mass, 0.1% or less of C, 1.0% or less of Si, 2.0% or less of Mn, 10.5% to 15.0% of Cr, 2.0% or less of Ni, greater than 0.5% to 4.0% of Cu, 0.02% to 0.3% of Nb, and 0.1% or less of N and further contains C, N, Nb, Cr, Si, Ni, Mn, Mo, and Cu, the remainder being Fe and unavoidable impurities, such that the following inequalities are satisfied:

$$5\text{Cr} + 10\text{Si} + 15\text{Mo} + 30\text{Nb} - 9\text{Ni} - 5\text{Mn} - 3\text{Cu} - 225\text{N} - 270\text{C} < 45 \quad (1)$$

$$0.03 \leq \{\text{C} + \text{N} - (13 / 93)\text{Nb}\} \leq 0.09 \quad (2).$$

Fig. 1