

Abstract

Low-hardenability narrow-bandwidth Mn-Cr series round gear steel and a manufacturing method therefor. The round gear steel comprises the following components in percentages by mass: C: 0.15-0.18%, Si: 0.040-0.10%, Mn: 1.10-1.40%, $P \leq 0.02\%$, S: 0.015-0.030%, Cr: 1.00-1.20%, Mo: 0.006-0.02%, Ni: 0.020-0.10%, Al: 0.020-0.050%, N: 0.007-0.015%, $Al/N \geq 2.0$, Nb: 0.004-0.03%, $[O] \leq 0.0015\%$, and the balance of Fe and other inevitable impurities. The Mn-Cr series round gear steel satisfies J5=33-36 HRC, J9=25-28 HRC, J15=20-24 HRC, and the hardenability bandwidth before J9 is less than or equal to 3 HRC, such that the purpose of reducing heat treatment distortion is achieved; and the performance requirements of application scenarios such as new energy automobiles for a gear steel material can be met, such that the performance stability and safety of steel for new energy automobiles are improved.

(Fig.1)