

Title (en)

HIGH TOUGHNESS BAINITIC STEEL WHEEL FOR RAIL TRANSIT, AND MANUFACTURING METHOD THEREFOR

Title (de)

BAINITISCHES STAHLRAD MIT HOHER ZÄHIGKEIT FÜR DEN SCHIENENVERKEHR UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

ROUE EN ACIER BAINITIQUE À TÉNACITÉ ÉLEVÉE POUR TRANSPORT FERROVIAIRE ET SON PROCÉDÉ DE FABRICATION

Publication

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Application

EP 17823657 A 20170706

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Abstract (en)

[origin: EP3483298A1] The present invention provides a high-toughness bainitic steel wheel for rail transit and a manufacturing method therefor. The steel wheel includes elements with the following weight percents: carbon C: 0.10-0.40%, silicon Si: 1.00-2.00%, manganese Mn: 1.00-2.50%, nickel Ni: 0.20-1.00%, rare earth RE: 0.001-0.040%, phosphorus P \leq 0.020%, and sulphur S \leq 0.020%, where the remaining is iron and unavoidable residual elements, and 2.00% \leq Si+Mn \leq 4.00%. Compared with the prior technology, in the present invention, by using design of chemical compositions of steel and production and manufacturing processes, especially a heat treatment process and technology, a rim of the wheel obtains a carbide-free bainitic structure, and a web and a wheel hub obtain a metallographic structure based on granular bainitic and supersaturated ferritic. The wheel has comprehensive mechanical properties such as high yield strength, toughness, and low-temperature toughness, and good service performance. In addition, costs are reduced, thereby improving a service life and comprehensive efficiency of the wheel, bringing specific economic and social benefits.

IPC 8 full level

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Citation (search report)

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