

Abstract

A high-performance-uniformity subsea pipeline steel and a manufacturing method therefor. The chemical components of the high-performance-uniformity subsea pipeline steel comprise, in percent by weight: C: 0.02-0.06%, Si: 0.10-0.30%, Mn: 1.20-1.65%, $\text{Cu} \leq 0.30\%$, $\text{Ni} \leq 0.30\%$,
5 Cr: 0.15-0.30%, $\text{Mo} \leq 0.15\%$, $\text{Nb: } 0.03\text{-}0.05\%$, $\text{V} \leq 0.05\%$, $\text{Ti: } 0.008\text{-}0.020\%$, $\text{Ca: } 0.0012\text{-}0.0030\%$, and $\text{Al: } 0.015\text{-}0.045\%$, with the balance comprising Fe and inevitable impurities, where it is required to control impurity elements $\text{P} \leq 0.01\%$, $\text{S} \leq 0.001\%$, $\text{B} \leq 0.0004\%$, $\text{N} \leq 0.005\%$, $\text{O} \leq 0.0025\%$ and $\text{H} \leq 0.0002\%$. The manufacturing method uses an austenite recrystallization zone and non-recrystallization zone two-stage controlled rolling technology, spread ratio control, and
10 controlled cooling, such that in addition to high performance, obtained subsea pipeline steel also has good performance uniformity.

(Figure 1)