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(54) Title: HIGH-PERFORMANCE-UNIFORMITY SUBSEA PIPELINE STEEL AND MANUFACTURING METHOD THEREFOR

(54) 发明名称: 一种高性能均匀性海底管线钢及其制造方法

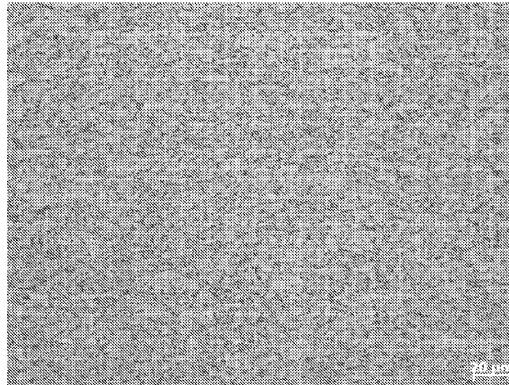


图 1

(57) 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%, Cu ≤ 0.30%, Ni ≤ 0.30%, Cr: 0.15-0.30%, Mo ≤ 0.15%, Nb: 0.03-0.05%, V ≤ 0.05%, Ti: 0.008-0.020%, Ca: 0.0012-0.0030%, and Al: 0.015-0.045%, with the balance comprising Fe and inevitable impurities, where it is required to control impurity elements P ≤ 0.01%, S ≤ 0.001%, B ≤ 0.0004%, N ≤ 0.005%, O ≤ 0.0025% and H ≤ 0.0002%. The manufacturing method uses an austenite recrystallization zone and non-recrystallization zone two-stage controlled rolling technology, spread ratio control, and controlled cooling, such that in addition to high performance, obtained subsea pipeline steel also has good performance uniformity.

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TD, TG)。

本国际公布:
— 包括国际检索报告(条约第21条(3))。

(57) 摘要: 一种高性能均匀性海底管线钢及其制造方法, 其化学成分重量百分比为: C: 0.02 ~ 0.06%,
Si: 0.10 ~ 0.30%, Mn: 1.20 ~ 1.65%, Cu ≤ 0.30%, Ni ≤ 0.30%, Cr: 0.15 ~ 0.30%, Mo ≤ 0.15%, Nb:
0.03 ~ 0.05%, V ≤ 0.05%, Ti: 0.008 ~ 0.020%, Ca: 0.0012 ~ 0.0030%, Al: 0.015 ~ 0.045%, 余量包括
Fe及不可避免的杂质; 且, 需控制杂质元素P ≤ 0.01%, S ≤ 0.001%, B ≤ 0.0004%, N ≤ 0.005%, O ≤
0.0025%, H ≤ 0.0002%。其制造方法采用奥氏体再结晶区和非再结晶区两阶段控轧技术及展宽比控制及
控制冷却, 获得的海底管线钢在具有高性能的基础上, 还具有良好的性能均匀性。