

Title (en)

HIGH-STRENGTH STEEL HAVING EXCELLENT BRITTLE CRACK ARRESTABILITY AND WELDING PART BRITTLE CRACK INITIATION RESISTANCE, AND PRODUCTION METHOD THEREFOR

Title (de)

HOCHFESTER STAHL MIT AUSGEZEICHNETER SPRÖDBRUCHSTABILITÄT UND SCHWEISSTEILE MIT SPRÖDBRUCHSTABILITÄT UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

ACIER HAUTE RÉSIDENCE PRÉSENTANT UNE EXCELLENTE APTITUDE À ARRÊTER LES FISSURES DE FRAGILITÉ ET UNE EXCELLENTE RÉSIDENCE À L'INITIATION DE FISSURES DE FRAGILITÉ D'UNE PARTIE SOUDÉE ET PROCÉDÉ POUR SA PRODUCTION

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Application

**EP 16871086 A 20161202**

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Abstract (en)

One aspect of the present invention provides a high-strength steel having excellent brittle crack arrestability and welding part brittle crack initiation resistance, and a production method therefor. According to one aspect of the present invention, provided are a high-strength steel having excellent brittle crack arrestability and welding part brittle crack initiation resistance, and a production method therefor, the high-strength steel: comprising, in wt%, C: 0.05-0.09%, Mn: 1.5-2.0%, Ni: 0.3-0.8%, Nb: 0.005-0.04%, Ti: 0.005-0.04%, Cu: 0.1-0.5%, Si: 0.05-0.3%, Al: 0.005-0.05%, P: 100ppm or less, S: 40ppm or less, and a remainder made up by Fe and other inevitable impurities; having a center part microstructure comprising, in area%, 70% or more of acicular ferrite and 10% or more of pearlite, wherein the equivalent circular diameter of the pearlite is 15  $\mu$ m (micrometers) or less; having, in a 2mm or less subsurface region, a microstructure comprising, in area%, 30% or more of one type or more among ferrite and a remainder made up by bainite, martensite, and pearlite; and having a welding heat affected zone, which is formed when welding, that comprises, in area%, 5% or less of a martensite-austenite constituent. According to the present invention, high-strength steel having high yield strength, excellent brittle crack arrestability, and excellent welding part brittle crack initiation resistance may be obtained.

IPC 8 full level

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