

Title (en)

ULTRA-HIGH STRENGTH STEELS WITH EXCELLENT CRYOGENIC TEMPERATURE TOUGHNESS

Title (de)

ULTRAHOCHFESTE STÄHLE MIT HERVORRAGENDER TIEFTEMPERATURZÄHIGKEIT

Title (fr)

ACIERS PRESENTANT UNE RESISTANCE EXTREMEMENT ELEVEE ET UNE TENACITE EXCELLENTE AUX TEMPERATURES CRYOGENIQUES

Publication

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Application

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Priority

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Abstract (en)

[origin: WO9932672A1] An ultra-high strength, weldable, low alloy steel, containing less than 9 wt.% nickel, with excellent cryogenic temperature toughness in the base plate and in the heat affected zone (HAZ) when welded, having a tensile strength greater than 830 MPa (120 ksi) and a microstructure comprising predominantly fine-grained lath martensite and/or fine-grained lower bainite, is prepared by heating a steel slab comprising iron and some or all of the additives carbon, manganese, nickel, nitrogen, copper, chromium, molybdenum, silicon, niobium, vanadium, titanium, aluminum, and boron; reducing the slab to form plate in one or more passes in a temperature range in which austenite recrystallizes; finish rolling the plate in one or more passes in a temperature range below the austenite recrystallization temperature and above the Ar3 transformation temperature; quenching the finish rolled plate (10") to at a suitable Quench Stop temperature; stopping the quenching; and tempering the plate (10") at a suitable temperature for a period of time sufficient to cause precipitation of hardening particles.

IPC 1-7

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IPC 8 full level

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