

Title (en)
THICK STEEL PLATE HAVING EXCELLENT CRYOGENIC TOUGHNESS

Title (de)
DICKE STAHLPLATTE MIT HERVORRAGENDER KRYOGENER ZÄHIGKEIT

Title (fr)
PLAQUE D'ACIER ÉPAISSE AYANT UNE EXCELLENTE ENDURANCE CRYOGÉNIQUE

Publication
EP 3392361 A4 20190612 (EN)

Application
EP 16875576 A 20161212

Priority
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Abstract (en)
[origin: EP3392361A1] To provide a thick steel plate having excellent cryogenic toughness particularly in the C-direction when the minimum value of absorption energy satisfies 150 J or more, on the assumption that a tensile strength is 690 to 830 MPa, a yield strength is 590 MPa or more, and a brittle fracture rate is 10% or less when a Charpy impact test is performed at -196°C in a Ni steel having a Ni content of 5.50 to 7.50%. Disclosed is a thick steel plate having excellent cryogenic toughness, which satisfies a predetermined composition, wherein a volume fraction v of the residual austenite phase existing at -196°C is 4.0 to 12%, and a fracture unit configuration parameter M value represented by the following formula (1) satisfies 2.4 or more when t is a thickness of the thick steel plate. In the following formula (1), DI is a value calculated by the following formula (2) and $[]$ represents the content (% by mass) of each element. M value = $DI \times v^2 / t$ $DI = 1.16 \times C / 10 \times 0.5 \times 0.7 \times Si + 1 \times 1 + 3.33 \times Mn \times 1 + 0.35 \times Cu \times 1 + 0.36 \times Ni \times 1 + 2.16 \times Cr \times 1 + 3 \times Mo \times 1 + 1.75 \times V \times 1$

IPC 8 full level
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Citation (search report)
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• See references of WO 2017104599A1

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