Title (en)

HIGH-STRENGTH STEEL SHEETS AND PROCESSES FOR PRODUCTION OF THE SAME

Title (de)

HOCHFESTE STAHLBLECHE UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

FEUILLES D'ACIER TRÈS RÉSISTANTES ET PROCÉDÉS DE PRODUCTION DE CELLES-CI

Publication

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Application

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Abstract (en)

[origin: EP2053140A1] A high strength steel sheet with both excellent elongation and stretch-flanging performance is provided. The high strength steel sheet of the present invention comprises, in percent by mass, C: 0.05 to 0.3%, Si: 0.01 to 3.0%, Mn: 0.5 to 3.0%, Al: 0.01 to 0.1%, and Fe and inevitable impurities as the remainder, and has a structure mainly composed of tempered martensite and annealed bainite. The space factor of the tempered martensite is 50 to 95%, the space factor of the annealed bainite is 5 to 30%, and the mean grain size of the tempered martensite is 10 μm or smaller in terms of the equivalent of a circle diameter. The steel sheet has a tensile strength of 590 MPa or higher. The high strength steel sheet of the present invention has a space factor of the martensite phase which is a main component of the metal structure is 80% or higher; the mean grain size of the martensite phase is 10 μm or smaller in terms of the equivalent of a circle diameter; in the martensite phase, the space factor of the martensite phase having a grain size of 10 μm or larger in terms of the equivalent of a circle diameter is 15% or lower; and the space factor of the retained austenite phase in the metal structure is 3% or lower. The high strength steel sheet of the present invention is a dual phase steel sheet mainly composed of a ferrite phase and martensite, and the space factor of the ferrite phase is 5 to 30%, and the space factor of the martensite phase is 50 to 95%. Moreover, the ferrite phase is annealed martensite.

IPC 8 full level

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