

A STEEL PLATE SUPERIOR IN FATIGUE CRACK PROPAGATION
RESISTANCE AND A METHOD OF PRODUCTION OF THE SAME

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ABSTRACT OF THE DISCLOSURE

10 A steel plate superior in fatigue crack propagation
resistance used for welded structural members of
buildings, ships, bridges, construction machines,
offshore structures, etc., containing, by wt%, C: 0.03 to
0.2%, Si: 0.01 to 1.6%, Mn: 0.5 to 2%, P: 0.02% or less,
S: 0.02% or less, Al: 0.001 to 0.1%, and N: 0.001 to
15 0.008% and a balance of Fe and unavoidable impurities,
wherein a microstructure of the base material is a
lamellar structure having ferrite with a Vickers hardness
of at least 150 as a matrix phase and having martensite
with a Vickers hardness of 400 to 900, an area fraction
20 of 5 to 30%, and an aspect ratio (long axis/short axis)
of 3 or more as a second phase, an average interlayer
distance between the ferrite and martensite in the plate
thickness direction is 3 to 50 μm , and a fatigue crack
propagation speed da/dN when a stress intensity factor
25 range ΔK of a stress ratio 0.1 is 20 $\text{MPa}\sqrt{\text{m}}$ is not more
than 10^{-8} m/cycle, and a method of production of the same.