

Title (en)  
PROCESS FOR PRODUCING FINE-GRAINED, WELDABLE PLATES FOR LARGE PIPES

Publication  
**EP 0098564 B1 19860409 (DE)**

Application  
**EP 83106483 A 19830702**

Priority  
DE 3226160 A 19820709

Abstract (en)  
[origin: US4494999A] Microalloyed steel containing, among other ingredients, at least 0.02% niobium, between 0.005 and 0.01% nitrogen, and titanium in a proportion equaling about 3.5 to 4 times that of nitrogen is continuously cast into a slab which is heated to a temperature between about 1120 DEG and 1160 DEG C. whereby titanium nitride precipitates in particles ranging between about 0.06 and 0.2  $\mu$ . The slab is thermomechanically treated at this temperature and after intermediate cooling in several hot-rolling stages, with an initial deformation of at least 55%; after final rolling, the slab is cooled in water at a rate of at least 10 DEG C. per second to a temperature of about 500 DEG to 550 DEG C. Niobium, which goes into solution at the elevated initial temperature, forms NbC precipitates during the subsequent treatment; this has a hardening and grain-refining effect.

IPC 1-7  
**C21D 8/02**

IPC 8 full level  
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CPC (source: EP US)  
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DOCDB simple family (publication)  
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