

Title (en)
PROCESS FOR PRODUCING A LIGHTWEIGHT STRUCTURAL STEEL WITH A HIGH MANGANESE CONTENT

Title (de)
VERFAHREN ZUR HERSTELLUNG EINES LEICHTBAUSTAHLS MIT EINEM HOHE MANGAN-GEHALT

Title (fr)
PROCEDE DE PRODUCTION D'UN ACIER POUR CONSTRUCTION LEGERE A HAUTE TENEUR EN MANGANESE

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Application
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Abstract (en)
[origin: CA2560681A1] For various reasons, in the prior art it is considered difficult or impossible to produce steels with high manganese (Mn), aluminium (Al) and silicon (Si) contents and with TWIP (Twinning Induced Plasticity) properties by continuous casting. The reasons cited include low strength of the strand shell during solidification on account of extensive micro-segregation of Mn, high strength at lower temperatures, reactions of the aluminium in the steel with the casting powder, macro-segregations, depletion of the alloying elements in the surface region and oxidation of the grain boundaries during the reheating of slabs in the pusher furnace. Therefore, the invention proposes that, by successive process steps, lightweight structural steel with a predetermined chemical composition of up to 27% Mn, 1 to 6% Al, 1 to 6% Si, < 0.8% C, remainder Fe and accompanying elements, be cast on a thin-slab casting machine (1) (d ≤ 120 mm) using suitable casting powders, then immediately after the solidification slabs (3) be severed from the endless strand (2) and that temperature equalization be carried out during continuous passage through an intermediate furnace (4) and then the slab (3) be directly hot-rolled without intervening cooling.

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