

Title (en)  
METHOD FOR COOLING STEEL SHEET, COOLING DEVICE FOR STEEL SHEET AND METHOD FOR MANUFACTURING STEEL SHEET

Title (de)  
VERFAHREN ZUR KÜHLUNG VON STAHLBLECH, KÜHLVORRICHTUNG FÜR STAHLBLECH UND VERFAHREN ZUR HERSTELLUNG VON STAHLBLECH

Title (fr)  
PROCÉDÉ DESTINÉ À REFROIDIR UNE TÔLE D'ACIER, DISPOSITIF DE REFROIDISSEMENT DESTINÉ À UNE TÔLE D'ACIER ET PROCÉDÉ DESTINÉ À FABRIQUER UNE TÔLE D'ACIER

Publication  
**EP 3560616 A4 20200115 (EN)**

Application  
**EP 18760481 A 20180301**

Priority  
• JP 2017038973 A 20170302  
• JP 2018007743 W 20180301

Abstract (en)  
[origin: EP3560616A1] An object is to provide, in controlled cooling in which a hot-rolled steel plate is cooled while being constrained by rolls, a steel-plate cooling method with a less distortion, a steel-plate cooling apparatus, and a steel-plate manufacturing method. A steel-plate cooling method includes conveying a steel plate in a state of being constrained by a plurality of rolls disposed at a predetermined pitch in a steel-plate conveying direction and cooling the steel plate by jetting a cooling water onto upper and lower surfaces of the steel plate by using cooling nozzles disposed between the plurality of rolls. The cooling is performed at a plate passage speed  $V$  that satisfies a formula (1) below.  $V > 2.21 \times 10^{-5} C_v \times L^3 \times t^{-2} \times 24.2 + 204.3 \times L / W^2 - 1$  where, in the formula (1),  $V$ : plate passage speed (m/s),  $C_v$ : cooling speed ( $^{\circ}\text{C/s}$ ) with respect to a steel-plate average temperature in a plate thickness direction,  $L$ : roll pitch (m),  $t$ : plate thickness (m), and  $W$ : plate width (m).

IPC 8 full level  
**B21B 45/02** (2006.01)

CPC (source: EP KR)  
**B21B 37/74** (2013.01 - KR); **B21B 45/02** (2013.01 - EP); **B21B 45/0218** (2013.01 - EP); **B21B 45/0233** (2013.01 - KR); **B21B 37/76** (2013.01 - EP); **B21B 2275/06** (2013.01 - EP)

Citation (search report)  
• [X] EP 1908535 A1 20080409 - NIPPON STEEL CORP [JP]  
• See references of WO 2018159749A1

Cited by  
EP3705587A4

Designated contracting state (EPC)  
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Designated extension state (EPC)  
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