

Title (en)  
RAPID QUENCH LINE

Title (de)  
SCHNELLE QUENCH-LEITUNG

Title (fr)  
LIGNE DE TREMPER RAPIDE

Publication  
**EP 4045203 A1 20220824 (EN)**

Application  
**EP 20801073 A 20201013**

Priority  
• US 201962915915 P 20191016  
• US 2020055327 W 20201013

Abstract (en)  
[origin: WO2021076473A1] A rapid quenching line can be suitable for use with hot coil at, or above the metal strip's recrystallization point. Hot coil can be uncoiled by a low tension uncoiler using a non-contacting hold-down device. The metal strip coming off the hot coil is rapidly quenched (e.g., at rates of at or above 100°C/s or 200°C/s) through multiple quenching zones. Coolant can be removed, such as with an air knife and/or a wiper (e.g., an ultra-compliant wiper). Steam can be collected from earlier quenching zones and be repurposed to provide humid air to the metal strip, such as at regions where the temperature of the metal strip is at or below the Leidenfrost point. The cooled metal strip can pass through a bridge to increase the tension in the metal strip before the metal strip is optionally lubricated and then recoiled or otherwise further processed.

IPC 8 full level  
**B21B 37/76** (2006.01); **B21B 45/02** (2006.01); **B21C 47/18** (2006.01); **C22F 1/04** (2006.01)

CPC (source: CN EP KR US)  
**B21B 37/76** (2013.01 - KR); **B21B 45/0206** (2013.01 - KR); **B21C 47/18** (2013.01 - CN EP KR US); **B21C 47/26** (2013.01 - EP); **B21C 47/345** (2013.01 - EP US); **B21C 51/00** (2013.01 - EP); **B22D 11/22** (2013.01 - KR); **C21D 1/18** (2013.01 - EP); **C21D 1/62** (2013.01 - CN); **C21D 1/667** (2013.01 - CN); **C21D 9/0012** (2013.01 - KR); **C21D 9/0062** (2013.01 - CN KR); **C21D 9/46** (2013.01 - CN); **C21D 9/573** (2013.01 - CN); **C22F 1/002** (2013.01 - US); **C22F 1/04** (2013.01 - CN EP KR US)

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
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DOCDB simple family (publication)  
**WO 2021076473 A1 20210422**; BR 112022005740 A2 20220621; CA 3152277 A1 20210422; CN 114585753 A 20220603; CN 114585753 B 20240514; EP 4045203 A1 20220824; EP 4045203 B1 20231129; ES 2967375 T3 20240430; JP 2022552979 A 20221221; JP 7378609 B2 20231113; KR 20220062364 A 20220516; MX 2022004453 A 20220503; US 2022349038 A1 20221103

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