

Title (en)

COOLING OF A PRODUCT WHICH IS TO BE ROLLED

Title (de)

KÜHLUNG EINES WALZGUTS

Title (fr)

REFROIDISSEMENT D'UN LAMINÉ

Publication

EP 3395463 A1 20181031 (DE)

Application

EP 17168241 A 20170426

Priority

EP 17168241 A 20170426

Abstract (en)

[origin: WO2018197100A2] The invention relates to a chilled beam (1) for cooling rolled material (5), moved in a transport direction (3) and in particular for reducing temperature differences in the temperature of the rolled material (5) transversely to the direction of transport (3). The chilled beam (1) comprises several full jet nozzles (11) by means of which a coolant beam of a coolant with an approximately constant jet diameter can be distributed to the rolling stock (5) in the direction of distribution (15). The invention relates to a cooling device (35) comprising at least two chilled beams (1) of said type.

Abstract (de)

Die Erfindung betrifft einen Kühlbalken (1) zur Kühlung eines in einer Transportrichtung (3) bewegten Walzguts (5) und insbesondere zur Reduzierung von Temperaturunterschieden der Temperatur des Walzguts (5) quer zur Transportrichtung (3). Der Kühlbalken (1) weist mehrere Vollstrahldüsen (11) auf, durch die jeweils ein Kühlmittelstrahl eines Kühlmittels mit einem nahezu konstanten Strahldurchmesser in einer Ausgaberichtung (15) zu dem Walzgut (5) ausgebbar ist. Ferner betrifft die Erfindung eine Kühlvorrichtung (35) mit wenigstens zwei derartigen Kühlbalken (1).

IPC 8 full level

B21B 45/02 (2006.01)

CPC (source: EP US)

B21B 45/0218 (2013.01 - EP US); **B21B 45/0233** (2013.01 - EP US); **B21B 37/44** (2013.01 - US); **B21B 37/74** (2013.01 - US);
B21B 2027/103 (2013.01 - US); **B22D 11/1246** (2013.01 - US)

Citation (applicant)

- WO 2014170139 A1 20141023 - SIEMENS VAI METALS TECH GMBH [AT]
- DE 102007053523 A1 20081204 - SMS DEMAG AG [DE]
- WO 2006076771 A1 20060727 - NUCOR CORP [US], et al
- DE 19934557 A1 20010201 - THYSSENKRUPP STAHL AG [DE], et al
- EP 0081132 A1 19830615 - NIPPON STEEL CORP [JP]
- DE 19854675 A1 20000608 - THYSSENKRUPP STAHL AG [DE], et al

Citation (search report)

- [Y] JP 2001321821 A 20011120 - NIPPON KOKAN KK
- [Y] WO 03070991 A1 20030828 - VITS MASCHB GMBH I I [DE], et al
- [Y] EP 1527829 A1 20050504 - JFE STEEL CORP [JP]
- [Y] US 6062056 A 20000516 - GROCH ANDRZEJ G [US]
- [Y] JP S59137111 A 19840807 - NIPPON STEEL CORP
- [Y] US 4440584 A 19840403 - TAKESHIGE KENJI [JP], et al
- [Y] JP 2011194417 A 20111006 - JFE STEEL CORP
- [Y] JP H06212279 A 19940802 - KAWASAKI STEEL CO
- [XY] EP 1938911 A1 20080702 - VAI IND UK LTD [GB]
- [Y] EP 0449003 A2 19911002 - SCHLOEMANN SIEMAG AG [DE]
- [Y] SU 908848 A1 19820228 - DO NII CHERNOJ METALLURGII [SU]
- [Y] EP 0997203 A1 20000503 - SCHLOEMANN SIEMAG AG [DE]
- [Y] JP H01178309 A 19890714 - NIPPON STEEL CORP

Cited by

WO2020127925A1; CN115532855A; EP3670682A1; EP3808466A1; EP3895819A1; EP3895820A1; CN114555253A; WO2021074233A1;
WO2021209251A1; EP3774100B1

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)

BA ME

DOCDB simple family (publication)

EP 3395463 A1 20181031; EP 3395463 B1 20191225; CN 110536761 A 20191203; CN 110536761 B 20220201; EP 3615237 A2 20200304;
JP 2020517458 A 20200618; JP 6946458 B2 20211006; US 11358195 B2 20220614; US 11786949 B2 20231017; US 2020047230 A1 20200213;
US 2022226873 A1 20220721; WO 2018197100 A2 20181101; WO 2018197100 A3 20181227

DOCDB simple family (application)

EP 17168241 A 20170426; CN 201880027555 A 20180314; EP 18719050 A 20180314; EP 2018056437 W 20180314;
JP 2019555876 A 20180314; US 201816607399 A 20180314; US 202217716000 A 20220408