

Title (en)

COOLING DEVICE WITH WIDTH-DEPENDENT COOLING EFFECT

Title (de)

KÜHLEINRICHTUNG MIT BREITENABHÄNGIGER KÜHLWIRKUNG

Title (fr)

DISPOSITIF DE REFROIDISSEMENT AVEC EFFET DE REFROIDISSEMENT DÉPENDANT DE LA LARGEUR

Publication

**EP 2986400 A1 20160224 (DE)**

Application

**EP 14718020 A 20140404**

Priority

- EP 13163666 A 20130415
- EP 2014056771 W 20140404
- EP 14718020 A 20140404

Abstract (en)

[origin: WO2014170139A1] A flat rolled article (2) passes through a cooling device (1) in a transportation direction (x) at the level of a passline (3). Spray beams (5, 6) extend transversely with respect to the transportation direction (x). The spray beams (5, 6) have, as viewed perpendicular to the transportation direction (x), in each case two outer regions (7, 8) and a central region (9) in between. A liquid cooling medium (13) can be fed into the regions (7, 8, 9) via a respective dedicated, individually controllable valve device (10, 11, 12). A central flow rate profile (V1), pertaining to the central region (9), of the liquid cooling medium (13) has a maximum in the centre and decreases toward the edge as viewed perpendicular to the transportation direction (x), such that the central flow rate profile (V1) defines a central triangle of which one side runs perpendicular to the transportation direction (x) and the two other sides are of equal length. Outer flow rate profiles (V2, V3), pertaining to the outer regions (7, 8), of the liquid cooling medium (13) have a maximum at the edges and decrease toward the centre, such that the outer flow rate profiles (V2, V3) each define an outer triangle of which in each case one side runs parallel and perpendicular to the transportation direction (x). The central triangle and the two outer triangles combine to form a rectangle.

IPC 8 full level

**B21B 45/02** (2006.01)

CPC (source: EP RU US)

**B21B 43/00** (2013.01 - US); **B21B 45/02** (2013.01 - RU); **B21B 45/0218** (2013.01 - EP US); **B21B 45/0233** (2013.01 - EP US)

Citation (search report)

See references of WO 2014170139A1

Cited by

WO2019197255A1; WO2019197182A1; DE102018205685A1; US11612922B2; DE102018205684A1; DE102018211177A1; WO2019197254A1; US11980923B2

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 2792428 A1 20141022**; CN 105188975 A 20151223; CN 105188975 B 20170825; EP 2986400 A1 20160224; EP 2986400 B1 20171011; JP 2016515474 A 20160530; JP 6110015 B2 20170405; KR 102280234 B1 20210721; KR 20150143746 A 20151223; RU 2015141167 A 20170517; RU 2652606 C2 20180427; US 2016052033 A1 20160225; US 9868142 B2 20180116; WO 2014170139 A1 20141023

DOCDB simple family (application)

**EP 13163666 A 20130415**; CN 201480021293 A 20140404; EP 14718020 A 20140404; EP 2014056771 W 20140404; JP 2016508077 A 20140404; KR 20157032606 A 20140404; RU 2015141167 A 20140404; US 201414784812 A 20140404