

Title (en)

Method and device for heating a pre-coated steel circuit board

Title (de)

Verfahren sowie Vorrichtung zur Erwärmung einer vorbeschichteten Platine aus Stahl

Title (fr)

Procédé et dispositif de chauffage d'une platine préenduite en acier

Publication

EP 2570503 A2 20130320 (DE)

Application

EP 12181212 A 20120821

Priority

DE 102011053634 A 20110915

Abstract (en)

Heating pre-coated plate (5) made of steel for producing thermoformed component, preferably a thermoformed bodywork or structural component, comprises (a) heating plate, which is provided with a coating, in an oven (1), where at least partially an intermetallic alloy layer is formed on the plate, and (b) controlling the atmosphere within the oven by supplying pretreated air, where the air is pretreated by drying before supplying. An independent claim is also included for a device for heating pre-coated plate, comprising the oven and at least one supply line (8), which is connected with a heatable inner space of the oven. The supply line is arranged between a drying assembly (7) and the inner space of the oven such that pretreated air passing through the supply line is supplied to the inner space via the drying assembly, where the drying assembly is connected with an air compressor, and the air passing through the drying assembly, which is compressed by the air compressor, is guided into the inner space of the oven via the supply line.

Abstract (de)

Verfahren sowie Vorrichtung zur Erwärmung einer vorbeschichteten Platine (5) aus Stahl für die Herstellung eines warmgeformten Bauteils, insbesondere für die Herstellung eines warmgeformten Karosserie- oder Strukturbauteils, wobei die mit einer Beschichtung versehene Platine (5) in einem Ofen (1) erwärmt wird, wodurch zumindest bereichsweise eine intermetallische Legierungsschicht auf der Platine (5) gebildet wird. Erfindungsgemäß wird die Atmosphäre innerhalb des Ofens (1) durch die Zufuhr vorbehandelter Luft kontrolliert, wobei die Luft vorbehandelt wird, indem sie vor ihrer Zufuhr getrocknet und bei Bedarf erwärmt wird.

IPC 8 full level

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CPC (source: EP US)

C21D 1/76 (2013.01 - EP US); **C21D 9/46** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP US); **C22C 38/14** (2013.01 - EP US); **C22C 38/22** (2013.01 - EP US); **C22C 38/28** (2013.01 - EP US); **C22C 38/32** (2013.01 - EP US); **C22C 38/38** (2013.01 - EP US); **C23C 8/10** (2013.01 - EP US); **C21D 2241/00** (2013.01 - EP US)

Citation (third parties)

Third party :

- DE 102011006171 A1 20120927 - SCHWARTZ EVA [DE]
- US 7867344 B2 20110111 - KUSUMI KAZUHISA [JP], et al
- DE 1187099 B 19650211 - DREVER CO, et al
- DE 1803211 A1 19690626 - GEN ELECTRIC
- DE 2636639 A1 19780216 - ASS ELECT IND
- EP 1790422 A1 20070530 - NIPPON STEEL CORP [JP]
- DE 69933751 T2 20071004 - ARCELOR FRANCE [FR]
- DE 69912698 T2 20040923 - AIR LIQUIDE [FR]
- JP S5855026 A 19830401 - NISSHIN STEEL CO LTD
- DE 19808011 C1 20000203 - TEPCON ENG GMBH [DE]
- DE 4437494 A1 19960425 - GRAEFF RODERICH WILHELM [DE]
- DE 10196063 T1 20030313 - CASH ENGINEERING RES PTY LTD [AU]
- DE 19816311 B4 20050825 - CIS INST FUER MIKROSENSORIK GG [DE]
- GB 777881 A 19570626 - HAROLD NORREGAARD IPSEN
- "Entwicklungstendenzen beim Presshärten in der Automobilindustrie", UMFORMTECHNIK, March 2006 (2006-03-01), pages 38 - 41, XP003031921
- LEHMANN H. ET AL: "Rollenherdöfen für das Presshärten", TAGUNGSBAND ZUM 3. ERLANGER WORKSHOP WARMBLECHUMFORMUNG 2008, 2008, pages 57 - 64, XP003031922
- LEHMANN H. ET AL: "Roller-hearth furnaces for hot-form hardening", STEEL GRIPS 6, SUPPL. CHS2, 2008, pages 247 - 251, XP003031923
- "Luft", WIKIPEDIA ARTICLE, pages 1 - 9, XP003031924

Cited by

EP2796570A1; WO2014173494A1; WO2022218831A1

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