Title (en)

METHOD FOR PRODUCING A COATABLE AND/OR JOINABLE SHEET METAL PART WITH A CORROSION PROTECTION COATING

Title (de)

VERFAHREN ZUR HERSTELLUNG EINES BESCHICHT- UND/ODER FÜGBAREN BLECHFORMTEILS MIT EINER KORROSIONSSCHUTZBESCHICHTUNG

Title (fr)

PROCÉDÉ DE FABRICATION D'UNE PIÈCE DE FORMAGE EN TÔLE POUVANT ÊTRE REVÊTUE ET/OU SOUPLE DOTÉE D'UN REVÊTEMENT ANTICORROSION

Publication

EP 2233598 B1 20170503 (DE)

Application

EP 10002911 A 20100319

Priority

DE 102009015160 A 20090326

Abstract (en)

[origin: EP2233598A2] The method comprises providing a plate made of curable steel sheet material (10) with a corrosion protection coating (12) applied on single side, forming the plate to a sheet metal part, carrying out a press hardening process in order to induce hardening the steel sheet material, where a temporary oxide layer (13) forms on the corrosion protection coating during the hardening process, and partially removing the oxide layer from the sheet metal part using cleaning jets (22) with an abrasive blasting material and/or by mechanical cleaning. The method comprises providing a plate made of curable steel sheet material (10) with a corrosion protection coating (12) applied on single side, forming the plate to a sheet metal part, carrying out a press hardening process in order to induce hardening the steel sheet material, where a temporary oxide layer (13) forms on the corrosion protection coating during the hardening process, and partially removing the oxide layer from the sheet metal part using cleaning jets (22) with an abrasive blasting material and/or by mechanical cleaning. The removal of the temporary oxide layer is carried out by pressure-cleaning jets or slingshot cleaning jet. The process parameter such as beam pressure is adjusted so that an interference of the corrosion protection coating and/or the dimensional accuracy of the sheet metal part are barred. Angular steel granulates are used as abrasive beam material. The sheet metal part is simultaneously exposed from both sides of a cleaning beam with abrasive beam materials. The removal of the oxide layer is automatically carried out. The steel sheet material is 22MnB5-steel material or is based on steel material. The corrosion protection coating consists of zinc and has a layer thickness of 400 g/m 2>. The mechanical cleaning is carried out by brushes and/or cleaning loop. The quality of the corrosion protective coating cleaned from oxide layer is detected. The quantitative detection of the quality is carried out through an electric resistance measurement. An independent claim is included for a method for removing a temporary protective layer from a sheet metal part.

IPC 8 full level

B24C 1/08 (2006.01); **C21D 1/673** (2006.01); **C21D 1/68** (2006.01); **C23C 2/02** (2006.01); **C23C 2/26** (2006.01)

CPC (source: EP US)

B24C 1/08 (2013.01 - EP); **C21D 1/673** (2013.01 - EP); **C21D 1/68** (2013.01 - EP); **C23C 2/26** (2013.01 - EP US)

Citation (opposition)

Opponent : Benteler Automobiltechnik GmbH

- EP 1630244 A1 20060301 - SUMITOMO METAL IND [JP], et al
- DE 102007038215 A1 20090219 - NANO X GMBH [DE]
- US 2008182486 A1 20080731 - VOGES KEVIN C [US]
- DE 102007038214 A1 20090219 - VOLKSWAGEN AG [DE], et al
- DE 102007022174 B3 20080918 - VOESTALPINE STAHL GMBH [AT]
- DE 4036568 A1 19920521 - LACKER HERBERT [DE]
- EP 1439240 A1 20040721 - SUMITOMO METAL IND [JP]
- DE 102006058679 A1 20080619 - MTU AERO ENGINES GMBH [DE]
- EP 2045360 A1 20090408 - THYSSENKRUPP STEEL AG [DE]
- DE 3010750 C2 19900301

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CN105113432A; EP2998055A4; CN106737213A; EP2606161A1; WO2024002507A1

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