

Title (en)
METHOD FOR MANUFACTURING A MULTI-MATERIAL PART BY ADDITIVE MANUFACTURING, USING THE TECHNIQUE OF POWDER BED SELECTIVE LASER MELTING OR SELECTIVE LASER SINTERING

Title (de)
VERFAHREN ZUR HERSTELLUNG EINES MEHRSTOFFTEILS DURCH GENERATIVE FERTIGUNG UNTER VERWENDUNG DER TECHNIK DES PULVERBETTSELEKTIVEN LASERSCHMELZENS ODER SELEKTIVEN LASERSINTERNIS

Title (fr)
PROCÉDÉ DE FABRICATION D'UNE PIÈCE MULTI-MATÉRIAUX PAR FABRICATION ADDITIVE, SELON LA TECHNIQUE DE FUSION SÉLECTIVE OU DE FRITTAGE SÉLECTIF DE LIT DE POUDRE PAR LASER

Publication
EP 4093566 A1 20221130 (FR)

Application
EP 21702194 A 20210122

Priority
• FR 2000641 A 20200123
• EP 2021051485 W 20210122

Abstract (en)
[origin: WO2021148624A1] The invention relates to a method for manufacturing a multi-material part by additive manufacturing, comprising the following steps: a) a step of providing a pretreated metal powder comprising grains and an oxidised and porous layer on the surface of the grains; b) a step of powder bed selective laser melting comprising the implementation of the following steps i) and ii): i) a step of forming a layer from the pretreated metal powder; ii) a step of laser melting of the layer, carried out in a reactive atmosphere and comprising the adaptation of application parameters of the laser in order to transform at least one first zone of the layer in such a way as to reduce its electrical conductivity, thus forming a dielectric, and in order to densify at least one second zone of the layer without transforming it, the at least one first zone being formed when the application parameters of the laser allow a first energy density to be applied to the first zone and/or the laser beam to be held for a first hold time on the first zone, the at least one second zone being formed when the application parameters of the laser allow a second energy density to be applied to the second zone and/or the laser beam to be held for a second hold time on the second zone, and the first energy density being greater than the second energy density and/or the first hold time being greater than the second hold time. The invention also relates to a part obtained by this method.

IPC 8 full level
B22F 3/105 (2006.01); **B22F 1/145** (2022.01); **B22F 1/16** (2022.01); **B22F 3/11** (2006.01); **B22F 7/06** (2006.01); **B22F 10/28** (2021.01); **B22F 10/32** (2021.01); **B22F 10/34** (2021.01); **B22F 10/368** (2021.01); **B22F 10/38** (2021.01); **B33Y 10/00** (2015.01); **B33Y 40/10** (2020.01); **B33Y 70/00** (2020.01); **B33Y 70/10** (2020.01); **B33Y 80/00** (2015.01); **C22C 1/04** (2006.01); **C22C 1/10** (2006.01); **C22C 29/12** (2006.01); **C22C 29/16** (2006.01)

CPC (source: EP US)
B22F 1/145 (2022.01 - EP US); **B22F 1/16** (2022.01 - EP US); **B22F 10/28** (2021.01 - EP US); **B22F 10/32** (2021.01 - EP US); **B22F 10/34** (2021.01 - EP US); **B22F 10/36** (2021.01 - EP US); **B22F 10/38** (2021.01 - EP US); **B22F 12/40** (2021.01 - EP US); **B33Y 10/00** (2014.12 - EP US); **B33Y 40/10** (2020.01 - EP US); **B33Y 70/10** (2020.01 - EP US); **B33Y 80/00** (2014.12 - EP); **C22C 1/0416** (2013.01 - EP); **C22C 1/1078** (2013.01 - EP US); **B22F 3/1143** (2013.01 - EP); **B22F 2999/00** (2013.01 - EP US); **C22C 29/12** (2013.01 - EP); **C22C 29/16** (2013.01 - EP); **C22C 2204/00** (2013.01 - EP US); **Y02P 10/25** (2015.11 - EP)

Citation (search report)
See references of WO 2021148624A1

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

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
WO 2021148624 A1 20210729; CA 3165810 A1 20210729; EP 4093566 A1 20221130; FR 3106512 A1 20210730; FR 3106512 B1 20220617; US 2023058595 A1 20230223

DOCDB simple family (application)
EP 2021051485 W 20210122; CA 3165810 A 20210122; EP 21702194 A 20210122; FR 2000641 A 20200123; US 202117793199 A 20210122