

Title (en)
PROCESS FOR ADDITIVE MANUFACTURING OF PARTS BY MELTING OR SINTERING PARTICLES OF POWDER(S) USING A HIGH-ENERGY BEAM WITH POWDERS ADAPTED TO THE TARGETED PROCESS/MATERIAL PAIR

Title (de)
VERFAHREN ZUR HERSTELLUNG VON ZUSATZSTOFFEN FÜR TEILE DURCH SCHMELZEN ODER SINTERN VON PARTIKELN AUS PULVER(N) MIT EINEM HOCHENERGIESTRAHL MIT AN DAS ANGEZIELTE PROZESS-/MATERIALPAAR ANGEPASSTEN PULVERN

Title (fr)
PROCEDE DE FABRICATION ADDITIVE DE PIECES PAR FUSION OU FRITTAGE DE PARTICULES DE POUDRE(S) AU MOYEN D'UN FAISCEAU DE HAUTE ENERGIE AVEC DES POUDRES ADAPTEES AU COUPLE PROCEDE/MATERIAU VISE

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Application
EP 14790118 A 20140630

Priority
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Abstract (en)
[origin: WO2015001241A2] The invention relates to a process for rapid manufacturing of parts made of a metallic, intermetallic or ceramic material, made of a ceramic matrix composite or made of a metal matrix composite with discontinuous reinforcement, especially with ceramic or intermetallic reinforcement, by melting or sintering particles of powder(s) using a high-energy beam. Characteristically, the powder used is a single powder, the particles of which have a sphericity of between 0.8 and 1.0 and a shape factor of between 1 and $\sqrt{2}$, each powder particle having a substantially identical mean composition and the particle size distribution of the particles of said powder is narrowed about the mean diameter d50% value so that: $(d90\% - d50\%) / d50\% \leq 0.66$ and $(d50\% - d10\%) / d50\% \leq 0.33$ with a "span" $(d90\% - d10\%) / d50\% < 1.00$. Application to the rapid manufacturing of parts by selective laser melting (SLM) or by selective laser sintering (SLS) or else by direct metal deposition (DMD). Such powders are adapted to the targeted process/material pair.

IPC 8 full level
B22F 1/052 (2022.01); **B22F 1/065** (2022.01); **B22F 3/105** (2006.01); **B22F 9/04** (2006.01); **B22F 9/08** (2006.01); **B29C 67/00** (2006.01); **B33Y 70/00** (2020.01); **C22C 1/04** (2006.01); **C22C 33/02** (2006.01); **B22F 1/148** (2022.01)

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WO 2015001241 A2 20150108; WO 2015001241 A3 20150618; WO 2015001241 A8 20150205; BR 112015032930 B1 20201201; CA 2917038 A1 20150108; CA 2917038 C 20210907; CN 105764634 A 20160713; CN 105764634 B 20190723; EP 3016764 A2 20160511; EP 3831513 A1 20210609; FR 3008014 A1 20150109; FR 3008014 B1 20230609; JP 2016532773 A 20161020; JP 6463746 B2 20190206; RU 2016103534 A 20170807; RU 2016103534 A3 20181018; RU 2682188 C2 20190315; US 10710156 B2 20200714; US 2016175929 A1 20160623

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