

Title (en)

METHOD FOR ADDITIVELY MANUFACTURING A THREE-DIMENSIONAL COMPONENT, AND REPAIRING SYSTEM

Title (de)

VERFAHREN ZUR ADDITIVEN FERTIGUNG EINES DREIDIMENSIONALEN BAUTEILS UND SYSTEM ZUR REPARATUR

Title (fr)

PROCÉDÉ DE FABRICATION ADDITIVE D'UN COMPOSANT TRIDIMENSIONNEL ET SYSTÈME DE RÉPARATION

Publication

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Application

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Priority

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Abstract (en)

[origin: WO2021175791A1] The invention relates to a method (12) for additively manufacturing a three-dimensional component (10) from a plurality of component layers (Li), said method being achieved by the repeated incremental addition of powdered or wire-like component starting material and consolidating the shape of the component starting material by selective melting and/or sintering by means of at least one energy source (11), wherein energy is input in accordance with an initial path plan (13) of the or each energy source (11) for a component layer (Li), said path plan being defined before starting the completion of said component layer (Li), the creation of the component layer (Li) is monitored in a process monitoring system (22), and the component layer (Li) is at least partially consolidated. The invention is characterised in that: using data from the process monitoring system (22) about the consolidated portion of the component layer (Li), a location and spread of at least one defect site (Dj) in the component layer (Li) is determined and a preheating area (Vj) that is within the component layer (Li) and comprises the defect site (Dj) is determined and a repair area (Rj) that is within the component layer (Li) and comprises the defect site (Dj) is determined; the preheating area (Vj) is preheated, by means of an input of energy into the preheating area (Vj), to a preheating temperature which is in the temperature range between room temperature and a melting temperature of the component starting material, and the repair area (Rj) is remelted during or after the input of energy into the preheating area (Vj) in order to repair the defect site (Dj) by means of an input of energy into the repair area (Rj); and the energy is input into the preheating area (Vj) and the repair area (Rj) during or after the completion of the component layer (Li) and before starting the creation of the next component layer (Li+1).

IPC 8 full level

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