

Title (en)
METHOD FOR MEASURING A BASE ELEMENT OF A CONSTRUCTION CYLINDER ARRANGEMENT, WITH DEFLECTION OF A MEASURING LASER BEAM BY A SCANNER OPTICAL SYSTEM

Title (de)
VERFAHREN ZUR VERMESSUNG EINES BASELEMENTS EINER BAUZYLINDER-ANORDNUNG, MIT ABLENKUNG EINES MESSLASERSTRAHLS DURCH EINE SCANNER-OPTIK

Title (fr)
PROCÉDÉ POUR LE DIMENSIONNEMENT D'UN ÉLÉMENT DE BASE D'UN AGENCEMENT DE CYLINDRE DE CONSTRUCTION À L'AIDE D'UNE DÉVIATION D'UN RAYON LASER DE MESURE PAR UNE OPTIQUE DE BALAYAGE

Publication
EP 3703890 A1 20200909 (DE)

Application
EP 18789392 A 20181017

Priority
• DE 102017219559 A 20171103
• EP 2018078426 W 20181017

Abstract (en)
[origin: WO2019086250A1] The invention relates to a method for measuring a base element (13), particularly a substrate (13a) or a preform (13b), of a construction cylinder arrangement (11), the construction cylinder arrangement (11) being arranged on a machine (1) for the additive manufacturing of three-dimensional objects (2) by sintering or melting a powdery material (6) using a high-energy beam (16), in which the base element (13) can be moved by means of a piston (12) in the substantially cylindrical base body (14) of the construction cylinder arrangement (11), a measurement pattern (50) is produced from laser light that illuminates at least part of the base element (13), for measuring the base element (13), and sites of incidence (A1, A2) of the laser light are observed and evaluated with a camera (21), resulting in the determination of measuring data about the base element (13), comprising position information and/or orientation information and/or information about the three-dimensional shape of at least part of the surface (01-03) of the base element (13). Said method is characterised in that the measurement pattern (50) is produced from laser light by deflection of a laser beam (24) of a measuring laser (23) by a scanner optical system (19) such that differently deflected laser beams (24a) are produced and the deflected laser beams (24a) are oriented at least towards the part of the base element (13), and in that the camera (21) is arranged in a laterally offset manner in relation to the deflected laser beams (24a). The invention provides a method for measuring a base element, which is simple, can be used in a flexible manner, and only requires a small amount of space in the processing chamber.

IPC 8 full level
B22F 3/105 (2006.01); **B29C 64/153** (2017.01); **B33Y 10/00** (2015.01); **B33Y 30/00** (2015.01)

CPC (source: EP US)
B22F 10/28 (2021.01 - EP US); **B22F 10/31** (2021.01 - EP US); **B22F 12/13** (2021.01 - EP US); **B22F 12/45** (2021.01 - EP US); **B22F 12/49** (2021.01 - EP US); **B22F 12/90** (2021.01 - EP US); **B28B 1/001** (2013.01 - US); **B29C 64/153** (2017.08 - EP US); **B29C 64/245** (2017.08 - US); **B29C 64/30** (2017.08 - EP); **B29C 64/386** (2017.08 - EP); **B29C 64/393** (2017.08 - US); **B33Y 10/00** (2014.12 - EP US); **B33Y 30/00** (2014.12 - EP US); **B33Y 40/00** (2014.12 - EP US); **B33Y 50/00** (2014.12 - EP US); **B33Y 50/02** (2014.12 - US); **G01B 11/0608** (2013.01 - US); **G01B 11/2518** (2013.01 - US); **G01B 11/254** (2013.01 - US); **B22F 10/38** (2021.01 - EP US); **B22F 12/41** (2021.01 - EP US); **B22F 12/44** (2021.01 - EP US); **Y02P 10/25** (2015.11 - EP)

Cited by
US2020391324A1; US11583956B2

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

DOCDB simple family (publication)
WO 2019086250 A1 20190509; CN 111295259 A 20200616; CN 111295259 B 20221213; DE 102017219559 A1 20190509; EP 3703890 A1 20200909; US 11628621 B2 20230418; US 2020263978 A1 20200820

DOCDB simple family (application)
EP 2018078426 W 20181017; CN 201880071678 A 20181017; DE 102017219559 A 20171103; EP 18789392 A 20181017; US 202016864286 A 20200501