

Title (en)

LASER PROCESSING APPARATUS AND METHODS OF LASER-PROCESSING WORKPIECES

Title (de)

LASERBEARBEITUNGSVORRICHTUNG UND VERFAHREN ZUM LASERBEARBEITEN VON WERKSTÜCKEN

Title (fr)

APPAREIL DE TRAITEMENT AU LASER ET PROCÉDÉS DE TRAITEMENT AU LASER DE PIÈCES À USINER

Publication

**EP 3490750 A1 20190605 (EN)**

Application

**EP 17835014 A 20170721**

Priority

- US 201662368053 P 20160728
- US 2017043229 W 20170721

Abstract (en)

[origin: WO2018022441A1] A method of processing a workpiece having a first surface and a second surface opposite the first surface includes: generating a first beam of laser pulses having a pulse duration less than 200 ps at a pulse repetition rate greater than 500 kHz, directing the first beam of laser pulses along a beam axis intersecting the workpiece, and scanning the beam axis along a processing trajectory. The beam axis is scanned such that consecutively-directed laser pulses impinge upon the workpiece at a non-zero bite size to form a feature at the first surface of the workpiece. One or more parameters such as bite size, pulse duration, pulse repetition rate, laser pulse spot size and laser pulse energy is selected to ensure that the feature has a processed workpiece surface with a mean surface roughness (Ra) of less than or equal to 1.0  $\mu\text{m}$ .

IPC 8 full level

**B23K 26/0622** (2014.01); **B23K 26/06** (2014.01); **B23K 101/36** (2006.01)

CPC (source: EP KR)

**B23K 26/0604** (2013.01 - KR); **B23K 26/0622** (2015.10 - KR); **B23K 26/0624** (2015.10 - EP); **B23K 26/3576** (2018.07 - EP); **B23K 2103/50** (2018.07 - EP); **B23K 2103/56** (2018.07 - EP)

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 2018022441 A1 20180201**; CN 109862991 A 20190607; EP 3490750 A1 20190605; EP 3490750 A4 20200429; JP 2019532815 A 20191114; KR 20190025721 A 20190311; TW 201803674 A 20180201

DOCDB simple family (application)

**US 2017043229 W 20170721**; CN 201780054282 A 20170721; EP 17835014 A 20170721; JP 2019504698 A 20170721; KR 20197004389 A 20170721; TW 106125299 A 20170727