

Title (en)

3D-PRINTED ELASTIC PRODUCTS REINFORCED BY MEANS OF CONTINUOUS FIBRES AND HAVING ASYMMETRICAL ELASTIC PROPERTIES

Title (de)

MITTELS ENDLOSFASERN VERSTÄRKTE 3D-GEDRUCKTE ELASTISCHE ERZEUGNISSE MIT ASYMMETRISCHEN ELASTISCHEN EIGENSCHAFTEN

Title (fr)

PRODUITS ÉLASTIQUES IMPRIMÉS EN 3D, RENFORCÉS PAR DES FILAMENTS, DOTÉS DE PROPRIÉTÉS ÉLASTIQUES ASYMÉTRIQUES

Publication

EP 3849778 A1 20210721 (DE)

Application

EP 19762999 A 20190910

Priority

- EP 18194177 A 20180914
- EP 2019074030 W 20190910

Abstract (en)

[origin: WO2020053168A1] The present invention relates to a fibre-reinforced 3D-printed elastic product (1, 3, 4, 7, 10, 12), wherein the product comprises a weight proportion of $\geq 50\%$ of a polymer having a mean molecular weight of ≥ 5000 g/mol, measured by means of GPC, and a weight proportion of $\geq 0.5\%$ and $\leq 20\%$ of one or more fibres having an aspect ratio of ≥ 100 and a length of ≥ 3 cm and ≤ 1000 cm, the product being produced at least in part by means of an FFF (Fused Filament Fabrication) method, and the product having a tensile modulus of ≥ 1.5 GPa in the region of the fibre reinforcement and in the direction of the fibre symmetry axis. The product also has a tensile modulus, measured according to DIN EN ISO 527-1, of ≤ 1.2 GPa in the region of the fibre reinforcement and perpendicular to the fibre symmetry axis, and has a yield strength of $> 5\%$, measured according to DIN EN ISO 527-1, perpendicular to the fibre symmetry axis.

IPC 8 full level

B29C 64/118 (2017.01); **B29C 64/00** (2017.01); **B29C 70/16** (2006.01); **B33Y 10/00** (2015.01); **B33Y 70/00** (2020.01); **B33Y 80/00** (2015.01)

CPC (source: EP US)

B29C 64/118 (2017.07 - EP); **B29C 70/16** (2013.01 - EP); **B33Y 10/00** (2014.12 - EP); **B33Y 70/00** (2014.12 - EP); **B33Y 80/00** (2014.12 - EP US); **C08K 7/14** (2013.01 - US); **C08L 21/00** (2013.01 - US); **C08L 75/04** (2013.01 - US); **F16F 9/0409** (2013.01 - EP); **F16F 9/05** (2013.01 - EP); **B29C 64/118** (2017.07 - US); **B29L 2031/265** (2013.01 - EP); **B29L 2031/7094** (2013.01 - EP); **B29L 2031/7532** (2013.01 - EP); **B33Y 10/00** (2014.12 - US)

Citation (search report)

See references of WO 2020053168A1

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)

EP 3623137 A1 20200318; CN 112654489 A 20210413; EP 3849778 A1 20210721; US 2021324177 A1 20211021; WO 2020053168 A1 20200319

DOCDB simple family (application)

EP 18194177 A 20180914; CN 201980060044 A 20190910; EP 19762999 A 20190910; EP 2019074030 W 20190910; US 201917273343 A 20190910