

Title (en)
CARBON FIBER AND METHOD FOR PRODUCING SAME

Title (de)
KOHLEFASER UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)
FIBRE DE CARBONE ET SON PROCÉDÉ DE PRODUCTION

Publication
EP 3808880 A4 20221102 (EN)

Application
EP 19822232 A 20190617

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- JP 2018115113 A 20180618
- JP 2018161056 A 20180830
- JP 2019023851 W 20190617

Abstract (en)
[origin: EP3808880A1] The invention aims to provide a carbon fiber that hardly suffers fractures during molding for producing a carbon fiber reinforced composite and serves to provide a carbon fiber reinforced composite having a high elastic modulus. The carbon fiber has a strand elastic modulus of 360 GPa or more, a strand strength of 3.5 GPa or more, and a single-fiber diameter of 6.0 μm or more, and further satisfying either or both of the requirements (a) and (b) specified below: (a) when one end is fixed end and the other end being free end which is capable of rotation about the axis of the fiber bundle, the residual twist count is 2 turns/m or more, and (b) the total fineness, which is the product of the single fiber fineness (g/km) and the filament number (number) of the carbon fiber, is 740 g/km or more. Furthermore, the carbon fiber meets the relationship represented by formula (1) wherein E_s (GPa) is the single-fiber elastic modulus and A (N) is the loop fracture load: $A \geq -0.0017 \times E_s + 1.02 \dots$ formula (1). Or the carbon fiber has a single-fiber diameter of 6.0 μm or more, satisfies the relationship represented by formula (2) wherein E (GPa) is the strand elastic modulus and B (MPa) is the knot strength determined under conditions where the heat loss rate is 0.15% or less at 450°C, and has a twist count of 20 to 80 turns/m: $B \geq 6.7 \times 109 \times E - 2.85$

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Citation (search report)

- [IA] US 2017342602 A1 20171130 - MATSUMOTO NAOHIRO [JP], et al
- [A] WO 2017204026 A1 20171130 - TORAY INDUSTRIES [JP]
- See references of WO 2019244830A1

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