

Title (en)

METHOD FOR CREATING A COMPONENT FROM A WOVEN MATERIAL TAKING THE OUT-OF-REGISTER INTO ACCOUNT

Title (de)

VERFAHREN ZUR ERZEUGUNG EINES TEILS AUS EINEM GEWEBTEN MATERIAL UNTER BERÜCKSICHTIGUNG DES WINKELS AUSSERHALB DES REGISTERS

Title (fr)

PROCÉDÉ DE RÉALISATION D'UNE PIÈCE EN MATÉRIAU TISSÉ TENANT COMPTE DU DÉCADRAGE

Publication

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Application

EP 20721099 A 20200228

Priority

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Abstract (en)

[origin: WO2020174198A1] Method for creating a component (10) from a preform (12) comprising a network (18) of fibres (16a, 16b) having, after the shaping of the preform, an out-of-register angle, comprising the following steps: - defining an orthogonal local frame of reference with respect to the network before the shaping of the preform, - defining a natural local frame of reference with respect to the network after the shaping of the preform, - defining a linked frame of reference with respect to the network, - expressing a tensor of the stiffnesses of the woven composite material in said natural local frame of reference, - constructing a tensor of the deformations in the orthogonal local frame of reference, - expressing, in the linked frame of reference, the tensor of the deformations constructed beforehand in the orthogonal local frame of reference, - calculating a tensor of the stresses in the natural local frame of reference on the basis of the behaviour law that is dependent on the stiffnesses tensor expressed in the natural local frame of reference and on the deformation tensor expressed in the linked frame of reference, - expressing, in the orthogonal local frame of reference, the stresses tensor calculated beforehand using the behaviour law, - expressing the stiffnesses tensor, already expressed in the natural local frame of reference, in the orthogonal local frame of reference, - constructing a tangent operator, for a numerical solution using the finite-element method comprising components which are equal to those of the stiffness tensor previously expressed in the orthogonal local frame of reference, - establishing an optimized configuration for the network of fibres (16a, 16b) on the basis of at least the stresses tensor expressed in the orthogonal local frame of reference before the shaping of the preform, and - locally adapting the fibres (16a, 16b) of the network (18) before impregnating said network.

IPC 8 full level

B29C 70/22 (2006.01)

CPC (source: EP US)

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Citation (search report)

See references of WO 2020174198A1

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