

Title (en)

METHOD FOR HEAT-TREATING STRUCTURAL MATERIAL AND HEAT-TREATED STRUCTURAL MATERIAL

Title (de)

VERFAHREN ZUR WÄRMEBEHANDLUNG EINES STRUKTURMATERIALS UND WÄRMEBEHANDELTES STRUKTURMATERIAL

Title (fr)

PROCÉDÉ POUR LE TRAITEMENT THERMIQUE D'UN MATÉRIAUX DE STRUCTURE ET MATÉRIAUX DE STRUCTURE TRAITÉ THERMIQUEMENT

Publication

**EP 2610355 A4 20170830 (EN)**

Application

**EP 11820051 A 20110826**

Priority

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- JP 2011069324 W 20110826

Abstract (en)

[origin: EP2610355A1] A heat treatment method of a structural material which includes a bent portion that extends in one direction of the structural material and has a bend in a direction perpendicular to the one direction, includes: determining an effective width of the bent portion e; in a case where an area which includes the bent portion and of which a distance in the direction perpendicular to the one direction from the bent portion is within the effective width e is defined as an effective width area and a ratio of an area in the effective width area which is hardened by a heat treatment is defined as a hardening ratio f M , determining a range of the hardening ratio f M on the basis of a rate of change in a yield stress  $\Delta Y$  with respect to the hardening ratio f M ; and performing the heat treatment on the effective width area of the structural material to satisfy the range of the hardening ratio f M .

IPC 8 full level

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CPC (source: EP)

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Citation (search report)

- [XA] JP H07119892 A 19950512 - NISSAN MOTOR
- [XA] JP 2004114912 A 20040415 - SUMITOMO METAL IND, et al
- [XA] FR 2849059 A1 20040625 - PEUGEOT CITROEN AUTOMOBILES SA [FR]
- [A] US 2004201256 A1 20041014 - CALISKAN ARI GARO [US], et al
- [A] DE 102007024797 A1 20081127 - LINDE & WIEMANN GMBH KG [DE]
- See references of WO 2012026591A1

Cited by

EP4371859A3; US11548561B2; WO2020079027A1

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