

## Title (en)

TREATMENT PROCESS FOR OBTAINING GRADED PERFORMANCE AND MEMBER THEREOF

## Title (de)

BEHANDLUNGSVERFAHREN ZUM ERHALT EINER ABGESTUFTEN LEISTUNG UND ELEMENT DAFÜR

## Title (fr)

PROCÉDÉ DE TRAITEMENT PERMETTANT D'OBTENIR DES PERFORMANCES PROGRESSIVES ET ÉLÉMENT ASSOCIÉ

## Publication

**EP 3473735 A4 20200219 (EN)**

## Application

**EP 16905967 A 20160720**

## Priority

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## Abstract (en)

[origin: EP3473735A1] The present invention relates to a treatment process for obtaining gradient properties, comprising the steps of: A. preparing a blank, dividing the blank into a region to be formed as a hard zone, and a region to be formed as a soft zone; B. heating the region to be formed as a hard zone to 720 °C or more, such that its microstructure is transformed into austenite; C. stamping the entire blank and cooling it by any cooling method after the stamping; D. subjecting the hard zone of a component obtained after the stamping to carbon partitioning treatment to diffuse carbon from martensite to austenite; keeping a temperature of the region to be formed as the soft zone lower than 720 °C in step B, or adding a step E after the step D, wherein the region forming the soft zone is heated to 600 to 720 °C and soaked for 0.5 to 60 minutes. The invention also relates to a formed component made by the above-described treatment process. The treatment process of the invention has a simple die and good process reliability, and can realize a tensile strength of 900-1500 MPa of the soft zone and an elongation of more than 15%, which is far superior to the prior art.

## IPC 8 full level

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