

## Title (en)

METHOD AND DEVICE FOR DEFORMING A WORKPIECE MADE OF A MATERIAL HAVING AN EXPONENTIAL TENSILE STRESS-STRAIN BEHAVIOR INTO A THIN-WALLED, HOLLOW SHELL

## Title (de)

VERFAHREN UND VORRICHTUNG ZUM VERFORMEN EINES WERKSTÜCKS AUS EINEM WERKSTOFF MIT EXPONENTIELLEM ZUGSPANNUNGS-DEHNUNGSVERHALTEN ZU EINER DÜNNWANDIGEN, HOHLEN SCHALE

## Title (fr)

PROCEDE ET DISPOSITIF PERMETTANT DE FAÇONNER UNE PIECE CONSTITUEE D'UN MATERIAU PRESENTANT UN COMPORTEMENT A LA CONTRAINTE DE TRACTION-ALLONGEMENT DE TYPE EXPONENTIEL POUR OBTENIR UNE ENVELOPPE CREUSE A PAROI MINCE

## Publication

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## Application

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## Abstract (en)

[origin: WO2004089560A1] The invention relates, among other things, to a method for deforming a workpiece (240) made of a material that has an exponential tensile stress-strain behavior into a thin-walled, hollow shell (243). According to said method, the circumference of the workpiece (240) is chucked and is actively rotated about the centerline (M) thereof. A freely rotatable pressing mold (4) which is provided with an exterior face (4a) that is molded according to the desired shape of the shell (243) is pressed against one side (24a) of the workpiece at an adequate pressure. At least one track-controlled pressing roller (14, 17) is pressed against the other side (24b) of the workpiece such that the rotating workpiece (240) is deformed into the shell exclusively by means of local compressive forces. The relative speed between the workpiece (240) and the at least one pressing roller (14, 17) as well as the force applied to the workpiece (240) by the at least one pressing roller (14, 17) and the pressing mold (4) are modulated in such a way that the compressive forces applied to the workpiece (240) lie below the tensile strength of the workpiece (240). The invention further relates to a device for carrying out said method. Also disclosed are a method and a device for deforming a workpiece made of a material that used to be deformable only at previously known hot-forming temperatures. According to the invention, said material can be deformed into a thin-walled, hollow shell already at a temperature lying below the hot-forming temperature previously known for the material of which the workpiece is made.

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