

Title (en)

METHOD OF DESIGNING MATERIAL FOR CYLINDER FORMATION PROCESS

Title (de)

VERFAHREN ZUM ENTWURF EINES MATERIALS FÜR EIN ZYLINDERFORMUNGSVERFAHREN

Title (fr)

PROCÉDÉ DE CONCEPTION D'UNE MATIÈRE POUR UNE OPÉRATION DE FORMAGE DE CYLINDRE

Publication

EP 2638982 B1 20200115 (EN)

Application

EP 11849189 A 20111213

Priority

- JP 2010277923 A 20101214
- JP 2011079273 W 20111213

Abstract (en)

[origin: EP2638982A1] An object of the present invention is to provide a method for designing a metal material having mechanical properties with which a specified spring back angle can be achieved after any one of metal materials having a wide variety of mechanical properties and thicknesses has been formed by performing cylinder forming and a product formed by using the method. A method for designing a material to be subjected to cylinder forming, the method including, in the design of a metal material to be subjected to cylinder forming in which the metal material is formed by performing bending forming, calculating the yield strength YP, the Young's modulus E and the thickness t of the metal material so that a spring back angle θ_s becomes a specified value when cylinder forming is performed under conditions of a radius of curvature of bending r of 5 mm or more and a bending angle θ_b of 90 degrees or more and 180 degrees or less and designing the metal material so that the metal material has the calculated yield strength YP and Young's modulus E.

IPC 8 full level

B21D 5/01 (2006.01); **B21D 5/00** (2006.01); **B21D 51/10** (2006.01)

CPC (source: EP KR US)

B21C 37/06 (2013.01 - US); **B21D 5/00** (2013.01 - EP US); **B21D 5/01** (2013.01 - KR); **B21D 5/015** (2013.01 - EP US); **B21D 51/10** (2013.01 - EP KR US)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

EP 2638982 A1 20130918; **EP 2638982 A4 20180110**; **EP 2638982 B1 20200115**; CA 2818716 A1 20120621; CA 2818716 C 20160315; CN 103260781 A 20130821; CN 103260781 B 20150715; ES 2771482 T3 20200706; JP 2012125780 A 20120705; JP 5803097 B2 20151104; KR 101505340 B1 20150323; KR 20130083458 A 20130722; TW 201244845 A 20121116; TW I453073 B 20140921; US 2013327116 A1 20131212; WO 2012081717 A1 20120621

DOCDB simple family (application)

EP 11849189 A 20111213; CA 2818716 A 20111213; CN 201180059553 A 20111213; ES 11849189 T 20111213; JP 2010277923 A 20101214; JP 2011079273 W 20111213; KR 20137013764 A 20111213; TW 100146242 A 20111214; US 201113994103 A 20111213