

Title (en)
MANUFACTURING PROCESS OF SPHERICAL COMPONENTS BY HYDROFORMING, HYDROFORMING MACHINE FOR CARRYING OUT THE METHOD AND SPHERICAL COMPONENT

Title (de)
VERFAHREN ZUR HERSTELLUNG VON KUGELFÖRMIGEN BAUTEILEN DURCH INNENHOCHDRUCKUMFORMUNG, INNENHOCHDRUCKUMFORMMASCHINE ZUR DURCHFÜHRUNG DES VERFAHRENS UND KUGELFÖRMIGES BAUTEIL

Title (fr)
PROCÉDÉ DE FABRICATION DE COMPOSANTS SPHÉRIQUES PAR HYDROFORMAGE, MACHINE D'HYDROFORMAGE POUR LA MISE EN ŒUVRE DU PROCÉDÉ ET COMPOSANT SPHÉRIQUE

Publication
EP 4288226 A1 20231213 (EN)

Application
EP 22700686 A 20220121

Priority
• IT 202100002219 A 20210202
• IB 2022050550 W 20220121

Abstract (en)
[origin: WO2022167888A1] A manufacturing process of components (12, 13, 13') with spherical and hollow shape and defining at least one radially inner recess (12b, 13b) with respect to an outer surface (12a, 13a) of said spherical shape is described; the process comprising the steps of i) arranging an initial component (10) inside a first hydroforming mould (3); ii) performing a hydroforming operation of the initial component (10) inside the first mould (3) in order to obtain a first intermediate component (11); iii) performing a work-hardening reduction heat treatment of the first intermediate component (11) obtained in step ii); iv) arranging the first intermediate component (11) heat-treated in step iii) inside a second hydroforming mould (4); v) performing a further hydroforming process of the first intermediate component (11) inside the second mould (4) in order to obtain the spherical shaped component (12, 13, 13') provided with the recess (12b, 13b); wherein the maximum value of pressure of said hydraulic fluid during said further hydroforming operation is greater than the maximum value of pressure of said hydraulic fluid during said hydroforming process.

IPC 8 full level
B21D 26/033 (2011.01); **B21D 37/16** (2006.01); **B21D 51/08** (2006.01); **B21D 53/10** (2006.01); **C21D 1/26** (2006.01); **F16K 5/06** (2006.01)

CPC (source: EP)
B21D 26/033 (2013.01); **B21D 37/16** (2013.01); **B21D 51/08** (2013.01); **B21D 53/10** (2013.01); **C21D 1/26** (2013.01); **C21D 1/30** (2013.01); **C21D 7/12** (2013.01); **C21D 9/08** (2013.01); **F16K 5/0605** (2013.01); **F16K 5/0657** (2013.01); **C21D 1/74** (2013.01)

Citation (search report)
See references of WO 2022167888A1

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

Designated extension state (EPC)
BA ME

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
WO 2022167888 A1 20220811; EP 4288226 A1 20231213; IT 202100002219 A1 20220802

DOCDB simple family (application)
IB 2022050550 W 20220121; EP 22700686 A 20220121; IT 202100002219 A 20210202