

Title (en)

Method and device for removing a slug from an internal high-pressure forming tool

Title (de)

Verfahren und Vorrichtung zum Entfernen eines Lochbutzens aus einem Innenhochdruck-Umformwerkzeug

Title (fr)

Méthode et appareil pour l'enlèvement d'une pièce découpée d'un outil de formage par haute pression interne

Publication

**EP 0940200 A3 20000503 (DE)**

Application

**EP 99101944 A 19990130**

Priority

DE 19809519 A 19980305

Abstract (en)

[origin: US6006566A] A method and a device for removal of a slug separated from a hollow profile by means of a fluidic internal pressure from a hydroforming tool. The slug is separated from the hollow profile from the inside to the outside by the retraction of a plunger integrated into the hydroforming tool and clearing a slug channel when retracted, and is forced out of the die cavity of the hydroforming tool into the slug channel. Then, with the hollow profile in a zero-pressure state, the slug, which after it is pressed in abuts the end of the plunger, is removed by a removal tool from the hydroforming tool. In order to remove slugs from the hydroforming tool in any desired position of the slug channel that leads into the die of the hydroforming tool, in which the slug is initially received after perforation, in simple fashion, the slug is held at the end of the plunger during its stay in the slug channel by an adhesion means connected with the plunger. Then, after the hydroforming tool is opened and the finished hollow profile is removed, the slug, while continuing to adhere to the end of the plunger, is guided by means of the plunger and of the removal tool designed with adhesion means into the open die cavity. The slug and the area of the removal tool on which the adhesion means acts assume a relative position opposite one another, after which the slug is separated from the plunger and then adheres to the removal tool, by means of which the adhering slug is then removed from the hydroforming tool.

IPC 1-7

**B21D 45/00**; **B21D 28/28**

IPC 8 full level

**B21D 26/02** (2011.01); **B21D 28/28** (2006.01); **B21D 45/00** (2006.01)

CPC (source: EP US)

**B21D 28/28** (2013.01 - EP US); **B21D 45/003** (2013.01 - EP US); **Y10T 29/49805** (2015.01 - EP US); **Y10T 83/0596** (2015.04 - EP US)

Citation (search report)

[AD] US 5398533 A 19950321 - SHIMANOVSKI BRUCE S [US], et al

Cited by

EP0995513A1; US7552535B2; WO2007009595A1; WO2004043623A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

**US 6006566 A 19991228**; AT E204520 T1 20010915; CA 2264491 A1 19990905; DE 19809519 C1 19990701; DE 59900203 D1 20010927; EP 0940200 A2 19990908; EP 0940200 A3 20000503; EP 0940200 B1 20010822; ES 2162711 T3 20020101

DOCDB simple family (application)

**US 26283399 A 19990305**; AT 99101944 T 19990130; CA 2264491 A 19990304; DE 19809519 A 19980305; DE 59900203 T 19990130; EP 99101944 A 19990130; ES 99101944 T 19990130