Title (en)

METHOD AND SYSTEM FOR USING AIR GAPS IN HOT-STAMPING TOOLS TO FORM TAILOR TEMPERED PROPERTIES

Title (de)

VERFAHREN UND SYSTEM ZUR VERWENDUNG VON LUFTSPALTEN IN HEISSPRÄGEWERKZEUGEN ZUR HERSTELLUNG VON MASSGESCHNEIDERTEN TEMPERIERTEN EIGENSCHAFTEN

Title (fr)

PROCÉDÉ ET SYSTÈME POUR UTILISER DES ESPACES D'AIR DANS DES OUTILS D'ESTAMPAGE À CHAUD POUR FORMER DES PROPRIÉTÉS DE REVENU SUR MESURE

Publication

EP 3924116 A1 20211222 (EN)

Application

EP 20756349 A 20200204

Priority

- US 201962805232 P 20190213
- IB 2020050886 W 20200204

Abstract (en)

[origin: WO2020165693A1] A sheet metal blank is hot-stamped between first and second tool surfaces of first and second die tools, respectively, to form a hot-stamped product. That product is then heat treated between the first and second tool surfaces. An actively cooled portion of the tool surfaces quenches part of the hot-stamped product to form a hardened zone. An actively heated portion of the tool surfaces slows heat transfer from the hot-stamped product to the heated portion, which causes the hot-stamped product to have a soft zone. A matrix of insulating gaps is formed in the heated portion to further slow the rate of heat transfer from the hot-stamped product to the heated portion. The insulating gaps may facilitate the use of a lower-temperature heated portion, which may consequently save energy and result in the heated portion having greater wear resistance and longer life.

IPC 8 full level

B21D 22/02 (2006.01); **B21D 37/16** (2006.01); **B21D 53/88** (2006.01); **C21D 1/34** (2006.01)

CPC (source: EP US)

B21D 22/208 (2013.01 - EP US); **B21D 37/16** (2013.01 - EP US); **C21D 1/34** (2013.01 - EP); **C21D 7/13** (2013.01 - EP US); **C21D 8/0221** (2013.01 - US); **C21D 8/0247** (2013.01 - US); B21D 53/88 (2013.01 - EP); C21D 2221/00 (2013.01 - 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

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

WO 2020165693 A1 20200820; CN 113423518 A 20210921; EP 3924116 A1 20211222; EP 3924116 A4 20221214; US 2022105553 A1 20220407

DOCDB simple family (application)

IB 2020050886 W 20200204; CN 202080013857 A 20200204; EP 20756349 A 20200204; US 202017428761 A 20200204