

Title (en)

Method and thermal recasting assembly for producing a hardened, thermally recast workpiece

Title (de)

Verfahren und Warmumformanlage zur Herstellung eines gehärteten, warm umgeformten Werkstücks

Title (fr)

Procédé et installation de formage à chaud destinés à la fabrication d'une pièce usinée durcie et déformée à chaud

Publication

EP 2324938 A1 20110525 (DE)

Application

EP 10185787 A 20101001

Priority

DE 102009050533 A 20091023

Abstract (en)

The method for manufacturing a hardened heat-formed workpiece (2) from steel plate, comprises heating a workpiece blank (2') in furnace (5) partially up to a forming temperature, introducing the heated workpiece blank into a drawing press, forming the heated workpiece blank in the drawing press to a workpiece, introducing the formed workpiece into hardening device, fixing the formed workpiece in a reception of the hardening device adapted to a geometry of the deformed workpiece, and partially hardening the formed workpiece in the reception by direct heat exchanger with cooling medium. The method for manufacturing a hardened heat-formed workpiece (2) from steel plate, comprises heating a workpiece blank (2') in furnace (5) partially up to a forming temperature, introducing the heated workpiece blank into a drawing press, forming the heated workpiece blank in the drawing press to a workpiece, introducing the formed workpiece into hardening device, fixing the formed workpiece in a reception of the hardening device adapted to a geometry of the deformed workpiece, and partially hardening the formed workpiece in the reception through the direct heat exchanger with a cooling medium. The workpiece blank is heated to a deformation temperature exceeding the austenitising temperature of the workpiece blank. The heated workpiece blank is pre-cooled in air before introducing into the furnace. The workpiece blank is formed in stepwise manner in the drawing presses to the workpiece. The formed workpiece is partially flowed in the reception of the hardness direction by the cooling medium. The formed and hardened workpiece is directly introduced after removing from the hardening device into a trimmer and is partially trimmed during the forming process. The portion of the workpiece to be trimmed is not hardened in the hardening device and is kept away from the cooling medium. The portion of the workpiece to be trimmed is subjected in contact with the drawing tools of drawing press. An independent claim is included for a heat forming system for manufacturing a hardened workpiece.

Abstract (de)

Dargestellt und beschrieben ist ein Verfahren zur Herstellung eines gehärteten, warm umgeformten Werkstücks (2) aus Stahlblech, bei dem ein Werkstückrohling (2') in wenigstens einem Ofen (5) wenigstens partiell bis auf eine Umformtemperatur erwärmt wird, bei dem der erwärmte Werkstückrohling (2') in wenigstens eine Ziehpresse (7) eingebracht wird, bei dem der erwärmte Werkstückrohling (2') in der wenigstens einen Ziehpresse (7) zu einem Werkstück (2) umgeformt wird. Um insbesondere hohe Stückzahlen gehärteter, warm umgeformter Werkstücke kostengünstiger herstellen zu können, ist vorgesehen, dass das umgeformte Werkstück (2) in wenigstens eine Härteinrichtung (10) eingebracht wird, dass das umgeformte Werkstück (2) in einer an die Geometrie des umgeformten Werkstücks (2) angepassten Aufnahme (11) der Härteinrichtung (10) fixiert wird und dass das umgeformte Werkstück (2) in der Aufnahme (11) durch direkten Wärmeaustausch mit einem Kühlmedium wenigstens partiell gehärtet wird.

IPC 8 full level

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Citation (applicant)

DE 10049660 A1 20020425 - DAIMLER CHRYSLER AG [DE], et al

Citation (search report)

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- [YA] WO 2005078144 A1 20050825 - AUDI AG [DE], et al
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