

Title (en)

Method for producing a pin/tie-bolt

Title (de)

Verfahren zur Herstellung eines Zugbolzens

Title (fr)

Méthode de fabrication d'un boulon

Publication

**EP 2292347 B1 20120314 (EN)**

Application

**EP 10174806 A 20100901**

Priority

IT MI20091532 A 20090904

Abstract (en)

[origin: EP2292347A1] Method for producing a pin/tie-bolt (110;210) extending in the longitudinal direction (X-X), comprising the steps of: a) providing a solid workpiece (10a) made of suitable material and having a suitable length in the longitudinal direction and width/diameter in the transverse direction; wherein the length in the longitudinal direction of the initial workpiece is less than the length in the longitudinal direction of the finished pin/tie-bolt; c) compressing the solid workpiece (10b) inside a second mould (20c) associated with a second punch (30c) with formation of a workpiece (10c) having a length in the longitudinal direction elongated to the final desired size and with an internal longitudinal cavity (11c) having a suitable final depth; e) compressing in the transverse direction the workpiece (10d) inside a fourth mould (20e) with a longitudinally directed stretching and partial closing of the longitudinal internal cavity with formation of a workpiece (10e) which has a cylindrical top part (10f 1 ) closed to the final desired diameter, a hollow conical connecting collar (13e) with the final size and a hollow cylindrical middle part (10f 2 ) of larger diameter than the cylindrical top part (10f 1 ) and with the final size.

IPC 8 full level

**B21H 3/02** (2006.01); **B21K 1/46** (2006.01); **B21K 1/56** (2006.01); **B21K 21/08** (2006.01)

CPC (source: EP)

**B21H 3/02** (2013.01); **B21K 1/46** (2013.01); **B21K 1/463** (2013.01); **B21K 1/56** (2013.01); **B21K 21/08** (2013.01)

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 SE SI SK SM TR

DOCDB simple family (publication)

**EP 2292347 A1 20110309; EP 2292347 B1 20120314**; AT E549109 T1 20120315; IT MI20091532 A1 20110305

DOCDB simple family (application)

**EP 10174806 A 20100901**; AT 10174806 T 20100901; IT MI20091532 A 20090904