

Title (en)

Online determination of the quality characteristics during self-piercing riveting or clinching

Title (de)

Onlinebestimmung der Qualitätskenngrößen beim Stanznieten und Clinchen

Title (fr)

Détermination en direct des caractéristiques de qualité lors de la pose de rivets auto-perforants ou lors du sertissage par clinchage

Publication

EP 1946864 B1 20090722 (DE)

Application

EP 07001042 A 20070118

Priority

EP 07001042 A 20070118

Abstract (en)

[origin: EP1946864A1] The method involves detecting a path covered by a moveable punch (10) during a punch rivet process by using a travel sensor. A force is applied to a half-hollow punch rivet (3) by the punch during the punch rivet process based on the covered path. An attachment point of the punch rivet with the punch to a joint part (5) is determined, and a release point from the detected force/path data is determined. A release of the punch after the punch rivet process is identified during the release point. A rivet head end position and a compression dimension of the rivet are calculated. An independent claim is also included for a method for online-determination of embossing depth and rivet head end position of a full punch rivet.

IPC 8 full level

B21J 15/28 (2006.01); **B21D 39/03** (2006.01); **B21J 15/02** (2006.01)

CPC (source: EP US)

B21J 15/025 (2013.01 - EP US); **B21J 15/285** (2013.01 - EP US); **Y10T 29/5343** (2015.01 - EP US); **Y10T 403/4974** (2015.01 - EP US)

Cited by

DE102015122255A1; CN102319859A; CN108541227A; DE102015108561A1; DE102017011460A1; US11135637B2; WO2017102335A1; WO2021013622A1

Designated contracting state (EPC)

DE FR GB

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