

Title (en)

Method of reducing cycle time for metal forming

Title (de)

Verfahren zum Verkürzen der Formgebungstaktzeit

Title (fr)

Procédé pour réduire le temps du cycle de formage

Publication

EP 1435269 A1 20040707 (EN)

Application

EP 04000131 A 20040107

Priority

US 33723903 A 20030106

Abstract (en)

A method for reducing the part-to-part cycle time of quick plastic forming and superplastic forming of a metallic sheet alloy into an automotive sheet metal component by locally modifying a die surface (18) to control friction which militates against undesirable necking and thinning.

IPC 1-7

B21D 37/20; **B21D 26/02**; **B21D 22/20**

IPC 8 full level

B21D 22/20 (2006.01); **B21D 26/02** (2006.01); **B21D 37/20** (2006.01)

CPC (source: EP US)

B21D 22/20 (2013.01 - EP US); **B21D 26/055** (2013.01 - EP US); **B21D 37/20** (2013.01 - EP US)

Citation (search report)

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- [X] US 4269053 A 19810526 - AGRAWAL SUPHAL P, et al
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- [X] PATENT ABSTRACTS OF JAPAN vol. 016, no. 467 (M - 1317) 29 September 1992 (1992-09-29)
- [A] PATENT ABSTRACTS OF JAPAN vol. 004, no. 158 (M - 039) 5 November 1980 (1980-11-05)
- [A] PATENT ABSTRACTS OF JAPAN vol. 017, no. 126 (M - 1381) 17 March 1993 (1993-03-17)
- [A] PATENT ABSTRACTS OF JAPAN vol. 012, no. 347 (M - 743) 19 September 1988 (1988-09-19)

Designated contracting state (EPC)

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