

Title (en)
DYNAMIC BONDING OF POWDER METALLURGY MATERIALS

Title (de)
DYNAMISCHE VERBINDUNG VON PULVERMETALLURGIEMATERIALIEN

Title (fr)
LIAISON DYNAMIQUE DE MATÉRIAUX DE LA MÉTALLURGIE DES POUDRES

Publication
EP 3187283 A1 20170705 (EN)

Application
EP 16206377 A 20161222

Priority
US 201514982627 A 20151229

Abstract (en)
A dynamic compaction process comprising providing a preform (20; 112) including forming a first container (28) having an interior and an exterior. Filling the interior of the first container (28) with a first powder material (22); sealing the first container (28); subjecting the exterior of the first container (28) to an instantaneous dynamic compaction, forming a solid powder metallurgy billet (210) encased by the first container (28). The process includes attaching a second container (116) to a portion of the preform (20; 112), filling the second container (116) with a second powder material (110, 118); subjecting the exterior of the second container (116) to an instantaneous dynamic compaction. The process includes forming a second solid powder metallurgy material (24; 110, 118) from the second powder material (24; 110, 118) encased by the second container (116). The process includes bonding the second solid powder metallurgy material (24; 110, 118) to the portion of the preform (20; 112); and removing the second container (116) from the component precursor (10; 100).

IPC 8 full level
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CPC (source: EP)
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Citation (search report)

- [XAI] US 2009317653 A1 20091224 - WAKADE SHEKHAR G [US], et al
- [A] US 3220103 A 19651130 - SIMONS CHARLES C
- [IJ] GB 2228217 A 19900822 - MTU MUENCHEN GMBH [DE]
- [X] US 2014093384 A1 20140403 - MIRONETS SERGEY [US], et al
- [A] "EXPLOSIVE WELDING, FORMING AND COMPACTION", 27 April 2012, APPLIED SCIENCE PUBLISHERS, ISBN: 978-94-011-9751-9, article R PRÜMMER: "Chapter 10 - Powder Compaction", pages: 369 - 395, XP055366027, DOI: 10.1007/978-94-011-9751-9
- [A] "EXPLOSIVE WELDING, FORMING AND COMPACTION", 1 January 1983, APPLIED SCIENCE PUBLISHERS, ISBN: 978-94-011-9751-9, article T Z BLAZYNSKI: "Chapter 8 - Welding of tubular, rod and special assemblies", pages: 289 - 345, XP055368793, DOI: 10.1007/978-94-011-9751-9

Cited by
CN114829062A; CN115070044A; CN115070041A; CN115070040A; CN115070039A; CN115070043A

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