

Title (en)

Polycrystalline diamond compact cutter with interface

Title (de)

Polykristallines Diamant-Schneidelement mit Zwischenflächen

Title (fr)

Élément de coupe en diamant polycristallin compacte avec interface

Publication

EP 0967037 A3 20070725 (EN)

Application

EP 99303237 A 19990427

Priority

- US 7236398 A 19980504
- US 26739199 A 19990315

Abstract (en)

[origin: EP0967037A2] A higher performance cutter for use in drilling, mining and quarrying comprises an abrasive layer; a cemented carbide core bonded to said abrasive layer; and a cemented carbide outer layer bonded to said core; wherein the metal binder content of said core is less than the metal binder content of said outer layer.. The carbide substrate of the PDC cutter has improved adhesion of the diamond layer to the interface because of maximizing the interface surface, a harder/stiffer center region to support the diamond table, and a softer/tougher outer region to reduce the tendency for cracking. The cutting action of this product can also be designed to deploy a kerfing cutting action on the rock as the cutter develops a wear flat. The transition from the diamond layer to the carbide can be accomplished in a more symmetrical pattern that could be achieved through other production methods. All interface surfaces can be produced with rounded and curved surfaces such that there are no flat surfaces or straight lines which would act as stress raisers.

IPC 8 full level

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CPC (source: EP KR)

B22F 7/06 (2013.01 - EP); **B24D 3/00** (2013.01 - KR); **B22F 2998/00** (2013.01 - EP)

Citation (search report)

- [A] EP 0604211 A1 19940629 - DE BEERS IND DIAMOND [ZA]
- [A] GB 2290329 A 19951220 - BAKER HUGHES INC [US]
- [A] EP 0418078 A2 19910320 - DE BEERS IND DIAMOND [ZA]
- [A] EP 0517510 A2 19921209 - DE BEERS IND DIAMOND [ZA]
- [A] US 5711702 A 19980127 - DEVLIN JOHN T [US]

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

Designated extension state (EPC)

AL LT LV MK RO SI

DOCDB simple family (publication)

EP 0967037 A2 19991229; **EP 0967037 A3 20070725**; **EP 0967037 B1 20100922**; JP 2000033574 A 20000202; KR 19990088003 A 19991227

DOCDB simple family (application)

EP 99303237 A 19990427; JP 12336199 A 19990430; KR 19990015596 A 19990430