

Title (en)
Polycrystalline diamond cutting element

Title (de)
Polykristallines Diamant-Schneidelement

Title (fr)
Élément de coupe en diamant polycristallin

Publication
EP 0916804 A1 19990519 (EN)

Application
EP 97309188 A 19971114

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Abstract (en)
The present invention relates to a novel domed polycrystalline diamond cutting element (10) wherein a hemispherical diamond layer (14) is bonded to a tungsten carbide substrate (16), commonly referred to as a tungsten carbide stud. Broadly, the inventive cutting element includes a metal carbide stud having a proximal end adapted to be placed into a drill bit (12) and a distal end portion. A layer of cutting polycrystalline abrasive material disposed over said distal end portion such that an annulus (20) of metal carbide adjacent and above said drill bit is not covered by said abrasive material layer. The geometry of the diamond cutting element provides control of interfacial stresses and reduces fabrication costs. The diamond cutting element may contain a pattern of ridges or bumps integrally formed in the abrasive layer which ridges are designed to cause high localized stresses in the rock, thus starting a crack. By initiating cracks in localized areas, the crushing action could be performed with less force.
<IMAGE>

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E21B 10/56

IPC 8 full level
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CPC (source: EP US)
E21B 10/5671 (2020.05 - EP US); **E21B 10/5673** (2013.01 - EP US)

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