

ABSTRACT

5 A mass of narrow size-ranged single crystalline minute diamond particles and a
method for its production are provided for the use as an abrasive in precision
machining. Such particles are prepared by producing single crystalline diamond under
ultrahigh pressure static compression, pulverizing by crushing into very minute
particles and high precision sizing. The mass is characterized by these size parameters:
10 a D50 size of 120 nm or less and a ratio D10 and D90 sizes relative to D50 size being
50 % or more and 200 % or less, respectively. The mass, used as an abrasive material
is effective for the machining of various works, including common hard materials and
composite body of differently hard components and, in particular, ultrahigh precision
machining, with low PTR values.

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