

A Novel Eccentric Lapping Method with Two Rotatable Lapping Plates for Finishing Cemented Carbide Balls

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Abstract : Cemented carbide balls are usually implemented in industry under the environment of high speed, high temperature, corrosiveness and strong collisions. However, its application is limited due to high fabrication cost, processing efficiency and quality. A novel eccentric lapping method with two rotatable lapping plates was proposed in this paper. A mathematical model was constructed to analyze the influence of each design parameter on this lapping method. To validate this new lapping method, an orthogonal experiment was conducted with cemented carbide balls (YG6). The simulation model was verified and the optimal lapping parameters were derived. The results show that the surface roundness of the balls reaches to 0.65um from 2um in 1 hour using this lapping method. So, using this novel lapping method, it can effectively improve the machining precision and efficiency of cemented carbide balls.

Keywords : cemented carbide balls, eccentric lapping, high precision, lapping tracks, V-groove

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