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## Precision machining of ‘water-drop’ surface by single point diamond grinding

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### Highlights

- Single point diamond grinding was firstly utilized to machine a designed ‘water-drop’ surface
- Diamond wheel wear involved in the loss of sharp edge, grits flattening, grooving and splintering
- Tool path compensation at center was successfully performed to alleviate the center dent
- The surface finish and form accuracy of machined ‘water-drop’ surface reached  $0.64\ \mu\text{m}$  ( $PV$ ) and  $6\ \text{nm}$  ( $Sa$ )

### Abstract

With good prospect for machining functional surfaces on hard and brittle materials, single point diamond grinding (SPDG) has been applied, but its wider application still need more effort and development. In the present work, an appropriate dressing method is firstly proposed to obtain a sharp edge on a fine grit

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