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Abrasive jet turning of glass and PMMA rods and the micro-machining of helical channels

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Highlights

- Abrasive air jet micro-machining (AJM) is investigated for use as both unmasked and masked lathe operation for machining rotating glass and PMMA rods.
- A new model is presented for the prediction of the rate of material removal in unmasked lathe operations.
- Helical micro-channels of various aspect ratios are fabricated using AJM lathe machining.
- The surface evolution model is used for the first time to predict the profiles of masked helical micro-channels machined on turning rods.

Abstract

This paper investigates the use of air-driven abrasive jets as a lathe and as a means of machining helical patterns into rotating rods. The first part of the paper presents a model