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Wear character of diamond coatings in CFRP cuttingStepan Kyrsta¹, Nikolas Schaal², Mirjam Arndt²¹Oerlikon Balzers Coating Luxembourg, Niedercorn, Luxembourg ²Oerlikon Surface Solutions AG, Balzers, Liechtenstein

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Diamond coatings are increasingly used as wear protection for cutting tools in the machining of composite materials like carbon fiber reinforced plastics (CFRP). Due to excellent mechanical and tribological properties of diamond the cutting of very high abrasive carbon fibers can be conducted with a reasonable tool life and high precision required e.g. in the aerospace industry.

Since the performance of diamond coated hard metal cutting tools depends on coating and substrate properties, tool geometry and cutting parameters a significant cutting test is essential for the investigation of wear character and understanding of its relationship with coating properties.

The development of cutting tests for milling and drilling in CFRP and investigation of coating wear properties will be presented and discussed.

Keywords

diamond coating

cutting test

CFRP

wear protection

cutting tool