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声发射监测钻头折断的实验研究

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AN EXPERIMENTAL STUDY ON IN-PROCESS MONITORING DRILL SNAP USING ACOUSTIC EMISSION SIGNALS

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摘要

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摘要 金属切削过程中会发出声讯号。用声发射技术监测刀具破损是一个很有潜力的新方法。本文研究了声发射技术在钻头折断在线监测中的应用。实验结果表明,所设计的实验监测系统能可靠地监测钻头的折断,并可提前预报直径大于1.5mm钻头的折断。

关键词: 钻削 钻头破损 声发射 在线监测

Abstract: An abundance of acoustic emission (AE) is emitted in metal cutting process. The utilization of AE signal analysis for in-process monitoring tool breakage is a newly developed technique of great potentialities. The application of AE technique to monitoring of twist drill snap has been studied in this paper. The results of experiments show that the monitoring system is reliably capable of detecting drill snap, and can be used to predict the snap of drills with diameter of 1.5mm and over. No misinformation of drill snap occurred, and not a warning of drill snap was ignored.

Keywords: drilling drill breakage acoustic emission in-process detection

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