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Nota di contenuto	Introduction -- Overview of Wire Spark Erosion Machining (WSEM) -- Planning, Design and Details of Experimental Investigation -- Experimental Results and Analysis -- Modelling and Optimization -- Comparative Study, Conclusions and Future Avenues -- Appendix A: Chemical Composition of Gear material -- Appendix B: CNC program for WSEM of miniature gear using 250 µm diameter wire -- Index.
Sommario/riassunto	This work describes an experimental investigation with the aim to evaluate and establish wire spark erosion machining (WSEM) as a viable alternative for high quality miniature gear manufacturing. External spur type miniature brass (ASTM 858) gears with 12 teeth, 9.8 mm outside diameter and 5 mm face width were manufactured by WSEM. The research work was accomplished in four distinct experimental stages viz., preliminary, pilot, main and confirmation. The aim, scope and findings of each stage are progressively presented and discussed. In essence, the investigation found that it was possible to manufacture miniature gears to high quality by using WSEM. Gears up to DIN 5 quality with a good surface finish (1.2 µm average roughness) and

satisfactory surface integrity were achieved. The results suggest that WSEM should be considered a viable alternative to conventional miniature gear manufacturing techniques and that in some instances it may even be superior. This work will prove useful to researchers and professionals in the field of miniature and micro-scale manufacturing and machining.
