



Milling strategy and tool geometry design for chatter reduction when milling thin-walled components from Inconel 718 made by wire and arc additive manufacturing

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Abstract:

The paper deals with the issue of chatter reduction by modification of both cutting tool geometry and machining strategy. Surface roughness of milled thin-walled parts produced by WAAM (Wire and Arc Additive Manufacturing) technology is evaluated. In addition, geometrical parameter of flatness was measured after the machining process. The machining strategy and parameters of the cutting tool macrogeometry were designed on the basis of experimental machining. Due to combination of custom geometry of the cutting tool and adapted machining strategy, it is possible to significantly reduce chatter during milling and thereby reduce the roughness of the machined surface as well as improve machining precision. The achieved experimental results contribute to the effort of expanding the knowledge in the field of machining thin-walled parts.