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Automated one-off production in woodworking by Part-to-Tool

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Abstract

The production of customized furniture and other objects in woodwork currently needs a high amount of manpower in the adaptation of production steps and results in high construction costs, even for machine-milled parts. Thereby and due to the still increasing shortage of skilled employees there is a high demand for adaptive and automated production, especially in milling. This paper shows an approach, which addresses the need for high adaptability by an innovative part-to-tool-application. By enabling a conventional 6-axis robot to handle all production steps, a multi-spindle-concept and an automatic material supply the production of individualized wooden parts becomes fully autonomous.

Keywords: Woodworking; part-to-tool; milling; manufacturing; one-off production; robotics; robot machining