

Chances and Challenges in Joining by Forming with a Flat Counter Tool

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Abstract. Two new joining methods for sheet metal parts, dieless clinching and dieless rivet-clinching are introduced in this paper. With these methods all formable materials can be joined. Contrary to conventional technology in joining by forming these new methods are working with a flat anvil as a counter tool instead of a contoured die, which has a number of advantages. The process has become simpler, the process reliability is increased, misalignments of the joining tools don't effect the quality of the connection anymore and even new applications, such as the joining of materials with a limited malleability become possible. Examples of realized connections and FE-calculations of the joining processes are presented.