

Title (en)  
LASER-BASED DEEP WELDING METHOD

Title (de)  
VERFAHREN ZUM LASERSTRAHLTIEFSCHWEIßEN

Title (fr)  
PROCÉDÉ DE SOUDURE PROFONDE AU LASER

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Application  
**EP 22724049 A 20220421**

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Abstract (en)  
[origin: WO2022248128A1] The invention relates to a method for a laser-based deep welding process of at least two joint partners (1, 3). A laser beam device generates a laser beam (10) with a deep welding laser beam component (11) which is moved along a joint point at an advancing speed (v). The deep welding laser beam component (11) generates a vapor capillary (15) in the joint partner material, said vapor capillary being surrounded by a molten bath (17) and moving through the joint partner material in the welding direction together with the laser beam (10), thereby forming a circulating capillary flow (18) by means of which the molten metal that can be found at the capillary front (19) flows in the direction of the capillary rear face (23) via molten bath channels (21) formed on both sides of the vapor capillary (15) or solidifies there. According to the invention, at least one melting laser beam component (13) is additionally attributed to the laser beam (10), said melting laser beam component being used to increase the width (b), i.e. the flow cross-section, of the molten bath channels (21), whereby the flow speed of the molten metal flowing through the molten bath channels (21) is reduced.

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