Non-Vacuum Electron Beam Welding

U. Dilthey, A. Gumenyuk and H. Masny

ISF-Welding and Joining Institute, RWTH-Aachen University,
Pontstrasse 49, 52062 Aachen, Germany

office@isf.rwth-aachen.de

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Abstract. The electron beam has, for decades now, proven to be a most efficient and reliable tool for joining tasks in different application fields. Vacuum electron beam welding (EBW) has, for many years now, been a standard method for a great variety of industrial application fields. However, even out-of-vacuum (NV-EBW), the electron beam has become a high-productivity joining tool. The substantial weld depths which characterise vacuum electron beam welding are not achievable with the NV-EBW method – those weld depths characterise the vacuum electron beam and are a result of its power density. The strong points of NV-EBW lie, mainly, in high-speed production. The achievable welding speeds reach up to 60 m/min when welding aluminium sheets and up to 25 m/min when welding steel plates.