Process Characteristics of Laser Brazing Aluminium Alloys

F. Klocke[a], A. Castell-Codesal[b] and D. Donst[c]

Fraunhofer Institute for Production Technology IPT
Steinbachstr. 17, 52074 Aachen, Germany

[a]fritz.klocke@ipt.fraunhofer.de, [b]andres.castell-codesal@ipt.fraunhofer.de,
[c]dmitri.donst@ipt.fraunhofer.de

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Abstract. Compared to welding, laser brazing offers a suitable possibility to lower the working temperature and to join unweldable material combinations, while maintaining the numerous advantages of the laser joining process. Beside an acceptable joint strength, the brazed joints are characterised by a smooth surface and seams with almost no pores. As a result of this laser brazing combines the advantages of conventional brazing and laser welding.

Within the scope of this paper the laser brazing process and its characteristics are explained in detail. In particular the interrelation of temperature progress, available processing time for brazing/diffusion and the thickness of the diffusion layer is discussed. Subsequently the material specific particularities of laser brazing aluminium alloys are described and discussed with respect to recently gained results.