

Induction Brazing Process Control Using Reduced Order Model

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Abstract

Induction brazing of pipes into sleeves of an evaporator is a process of specific character. The melting temperature of the basic material should be close to the melting temperature of the solder and the process is required to proceed without all kinds of defects (dissolution, gathering, insufficient penetration of the solder). This process cannot be controlled by methods based on on-line measurement of required quantities (they are either enormously expensive or technologically impossible). As the complete physical model of the process is often too complex and cannot be implemented in a micro-controller, the technique employs model order reduction (MOR) providing its fast solution at a still sufficient accuracy. The paper presents a novel way of control based on a model working with prediction of system behavior that flexibly allows controlling the process.

References

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