

## Design, Fabrication, and Experimental Validation of a Warm Bulge Test System

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**Abstract :** In this study, a warm bulge test system was designed, built and experimentally validated to perform warm bulge tests with all necessary systems. In addition, performance of each sub-system is validated through repeated production and/or test runs as well as through part quality measurements. Validation and performance tests were performed to characterize the repeatability of the system. As a result of these tests, the desired temperature distribution on the sheet metal was obtained by the heating systems and the good repeatability of the bulge tests was obtained. Consequently, this study is expected to provide other researchers and manufacturer with a set of design and process guidelines to develop similar systems.

**Keywords :** design, test unit, warm bulge test unit, validation test

**Conference Title :** ICAMMM 2016 : International Conference on Applied Mechanics, Materials, and Manufacturing

**Conference Location :** Jeddah, Saudi Arabia

**Conference Dates :** January 26-27, 2016