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论文

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### RTM工艺工字梁构件的模拟与实验研究

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### Study on Simulation and Experimentation of H Wallboard for RTM Processing

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摘要

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**摘要** 采用自主开发的RTM(树脂传递模塑)工艺3D模拟系统对航空用典型工字梁平板构件进行了模拟分析。确定中心点注射为最佳注射方式,并确定了8个合理溢料口位置,详细研究了预成型体渗透率不均匀问题对工艺的影响。对构件进行了模具制造和实验验证,实验结果与模拟结果基本吻合。计算机RTM工艺模拟对于模具开发、构件制造具有较好的指导意义。

**关键词:** 复合材料 树脂传递模塑(RTM) 模拟 渗透率 工字梁

**Abstract:** Resin Transfer Molding(RTM) filling process of an H wallboard is simulated in 3D using the simulation system. This system was developed by Beijing University of Aeronautics and Astronautics independently. After analysis of the simulation results, the optimal injection way is set as center point injection and 8 reasonable vents are settled. Also, the effects of preform inhomogeneous permeability on RTM process are studied particularly. Mould manufacture and filling experiment are operated, the experiment results coincide with the simulation results basically. RTM process simulation gives veracious guidance to mould development and component manufacture.

**Keywords:** composite resin transfer molding(RTM) simulation permeability H-wallboard

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