

Adhesion Test Device for Evaluating Adhesive/Sealant for Lap Joints in Wind Turbine Blades

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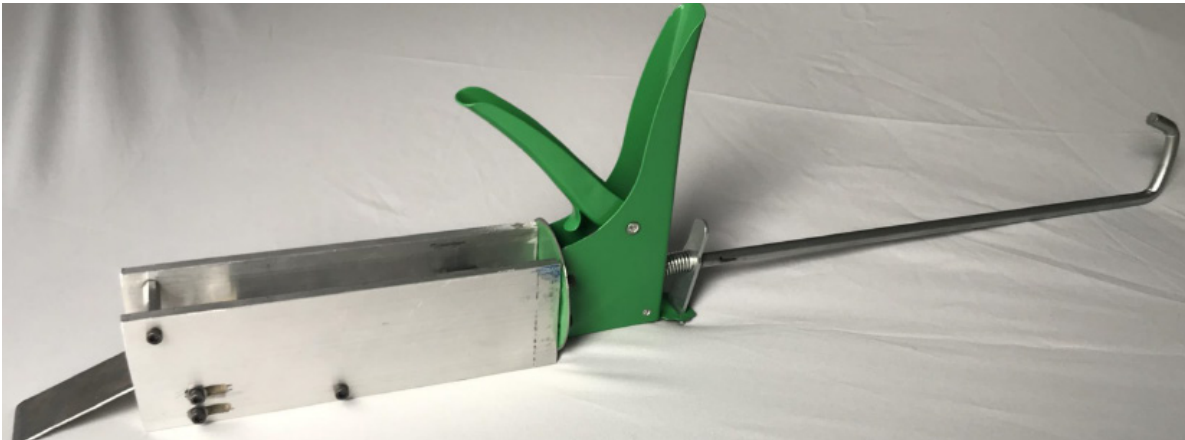
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The size and weight of a wind turbine blade directly affect the power production capabilities of the turbine. Blades with lighter materials can be made larger. During manufacturing, the blade shells are joined together with copious amounts of adhesive. The large volume of adhesive adds weight. Testing potential adhesives is vital in the constant search for a more effective, lighter adhesive. One inexpensive and quick preliminary test method is described in the ASTM standard D3808-01. The student team developed a test device to be used following a procedure comparable to that described in ASTM standard D3808-01. Repeatability and portability have been achieved through a simplistic, all mechanical, light weight design involving few moving parts. The device is handheld and meant to be operated by one researcher. The test is carried out by using the energy created by the compression of a spring to scrape through a dot of adhesive. The test device designed allows for repeatable quantitative data to be collected on the bond strength of adhesives.



Prototype Adhesion Test Device for Evaluating Adhesive/Sealant for Lap Joints.