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EFFECT OF ROTATING BLADES INSTALLED ABOVE THE HEATING SURFACE ON THE NUCLEATE BOILING HEAT TRANSFER ENHANCEMENT

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A study of nucleate pool boiling phenomenon of distilled water on a copper heating surface with rotating blades installed above the heating surface was experimentally investigated. The rotating blades were made from Polylactic acid (PLA), with the number of blade of 4 blades, a diameter of 30 mm, a length of 50 mm, a blade angle of 90o, and a core of 5 mm. The study examined the effect of a varying distance between the heating surfaces and rotating blades (LSB) on the pool boiling heat transfer coefficient. The results show that, the LSB of 5 mm yielded a higher heat transfer coefficient than the LSB of 15 and 25 mm. This is because the decreased LSB provided more chance for the bubbles to strike the rotating blades. Hence, the rotating blades did create a disturbance of the working fluid over the heating surface.

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