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Preliminary Investigation of Delamination Factor for Drilling Wood Plastic Composites (WPC)

Abstract

This study examines the effect of the delamination factor on wood composite drilling. Drilling is one of the most important machining operations in the manufacturing process, operating in a variety of ways to make life better every day. The preliminary experiment focuses on the implementation of three drilling strategies to determine the most appropriate for drilling composite and to identify the effect of the machining parameters of wood plastic composite (WPC) drilling. The CNC machining centre is used at the factory of the local company to assist them in the provision of certain production inputs. It is observed that the single step drill peck is the best suited strategy for drill WPC with less delamination at the entrance and exit holes compared to the other two methods, 2-peck and 4-peck drills. Hole tends to create a peel-up and to force the delamination down heavily along the hole edge when using the 4-peck process while the least peel-up pattern happens when using a single-step method. The findings also show a large amount of peel-up delamination as the feed rate increases. Therefore, the final results are also useful in understanding the relationship between the drilling parameters and the cutting experiments.