

**STRENGTH PROPERTIES OF SINGLE DOWEL JOINT USING
KELEMPAYAN WOOD AND OPT**

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Abstract

STRENGTH PROPERTIES OF SINGLE DOWEL JOINT USING KELEMPAYAN WOOD AND OPT

T-shape joints are widely used in furniture part installation, commonly applied in chair or desk for its rail and stretcher. The strength structural of furniture depends on how strong that joint can hold the load for some period of time. It is necessary to identify the potential of joints with a specified strength to enhance the weakest joint system. This study was undertaken accordingly to obtain the strength of single dowel pin joint with different diameter sizes and length of straight dowels (6mm x 35mm, 8mm x 40mm, 10mm x 40mm) and Poly Vinyl Acetate (PVAc) as glue. The dowel pin joint will be tested on two different wood; kelepayan wood and oil palm trunk (OPT). This is to determine either the three sizes of dowel have significant effect on the two types of wood. If these sizes are significant, it will save the furniture production in terms of its cost. The testing result was analyzed using SPSS. The result analyzed using ANOVA through Least Significant Differential (LSD) with confident interval 95%. The data shows for both species have significant value for three testing. It was determined when P-value is < 0.05 . According to ANOVA, OPT recorded their P-value are $P=0.025$ for Maximum Load, $P=0.030$ for Tensile at Break and $P=0.000$ for Load at Break. For Kelepayan wood, it P-value are $P=0.036$ for Maximum Load, $P=0.011$ for Tensile at Break and $P=0.000$ for Load at Break. Based on this result, all dowel sizes have a significant strength for all testing. The gradual increasing of dowel size will affect the joint strength by big contact between two adherents.