**ABSTRACT**

**FATIGUE STRENGTH ANALYSIS ALUMINIUM 7075 T7351 WITH VARIATON OF SHAFT ROTATION ON ROTARY BENDING MACHINE**

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Fatigue is the one of the main cause from of the material failure. The main of cause failure 90 % caused fatigue. Fatigue is material sructure process changes that is caused by repeatly load (stress or shear) in a long period of time so it occured crack or break. The reason of this research is to analyze of the fatigue strength aluminium type 7075 T7351 with variaton of shaft rotation on rotary bending machine

Fatigue test applied on aluminium type 7075 T7351 without heat treatment. This research was conducted with variation of shaft rotation 2880 rpm and 1990 rpm and continued with load variation 30%, 40%, 50%, 60% and 70 % from material UTS. Specimen that used according ASTM E466 spesimen made by lathe machine. Fatigue test is using by rotary bending machine type fatigue test machine.

From the test that done, we collected value for fatigue cycle for each load variation and shaft rotation. On shaft rotation 2880 rpm at 30% load from UTS we get 634920 cycle. While for 70% from UTS we get 86580 cycle. Different with first test, on shaft rotation 1990 rpm at 30 % load from UTS we get 723638 cycle, while for 70 % from UTS we get 29950 cycle. Fatigue cycle presented in form of S-N curve than using to predict fatigue endurance of aluminium 7075 T7351 every each shaft rotation. That result showed shaft rotation 1990 rpm have a good fatigue endurance than shaft rotation 2880 rpm.

Keyword: Fatigue test, rotary bending, aluminium 7075 T7351