ABSTRACT

The conducted research was the fatigue testing of HQ 760 (AISI 1045) steel with the chemical compounds of 0.50% C, 0.60% Mn and, 0.30% Si. It was aimed to find out the age of HQ 760 (AISI 1045) steel as the load function, in which this testing was carried out by using HT-8120 Rotary Bending Fatigue Testing Machine.

The methods of the testing was conducted by composing the testing specimens first with the measures of L = 184 mm, l = 44 mm, D = 13 mm and, d = 10,5 mm. Then, these specimens were put into the rotary bending fatigue machine that was given by the different load and the researcher also recorded the rotating cycles printed in the digital counter of the machine.

The results of the research were presented in the S-N diagram (Wohler's diagram), which is the comparative diagram between the stress (S) and the amount of cycles (N). The obtained results were the amount of the maximum stress in the maximal load 44 kg was 42.131 kg/mm^2 with 28,860 cycles. Besides in the minimal load 36,5 kg, the minimal stress was 32.132 kg/mm^2 with 6,262,993 cycles (10^6 cycles). The research also resulted the HB average of specimen was 170.135 kg/mm^2.