

## ABSTRACT

The objective of this research is to investigate the fatigue strength of HQ 760 steel on 300 °C temper as the load function. The materials were obtained from P.T. TIRA AUSTENITE, Tbk., Semarang. The research method covered Brinell testing, stretch testing, micro and macro structure, and fatigue testing. The fatigue testing used Rotary Bending Fatigue Testing Machine.

The data research of the fatigue testing is presented in S – N diagram. The observation result of the fatigue testing for the 45 kg maximum load with 40,24 kg/mm<sup>2</sup> stress occurred at 41.361 cycles and the 36,5 kg minimum load with 32,64 kg/mm<sup>2</sup> stress occurred at 6.643.452 cycles. The material with 36,5 kg didn't get fracture and it could be concluded that the material was on the safe cycles, because it was considered that it could reach > 10<sup>7</sup> cycle. Therefore using the data of the fatigue testing, it could be identified the safe condition for the use of the material which is suitable an intended condition. The hardness average value of HQ 760 steel on 300 °C temper were 185 kg/mm<sup>2</sup>.