The Effect of Welding Process by MIG on The Fatigue Resistance For Steel At Constant And Variable Capacity Stresses

Abstract

This paper aims to study the effect of loading constant and variable capacity on the fatigue resistance of carbon steel AISI 1020 which welded by metal inert gas and comparing it with metal without welding process.

All the fatigue tests for constant capacity were done by rotating bending of mean stress estimated to be zero. The test for variable capacity stress was done at high-low stress, so the amount of high stress was near the maximum ultimate tensile stress for metal before welding which is obtained from tensile test which was done for the metal before and after welding. It has been found equal to 400 MPa for the metal without welding and 450 MPa for welding metal. Low stress which is selected as percent from fatigue resistance for constant capacity stress which is 10-15-20% from fatigue limit.