RESULTS ANALYSIS ON BUTT JOINT SMAW WELDING OF AISI 1020 STEEL WITH PLATE THICKNESS VARIATIONS

Name : Kusmayadi
NRP : 2706 100 044
Department: Materials and Metallurgical Engineering
FTI-ITS
Advisors : Budi Agung K.,ST., M.Sc.,
Ir. Rochman Rochiem, M.Sc

ABSTRACT
Failure on the weld metal could be due to many factors, for example a residual stresses that occur in the specimens after welding process. This stresses can be caused during the welding process, metal heat unevenly received. Propagation of heat during welding could be influenced by the thickness of the plate.

In this study, AISI 1020 steel used as the welded specimens with butt joint. Welding techniques used are shielded Metal Arc Welding (SMAW) with various thickness 5mm, 10mm and 15mm.

After welding, samples were tested by using XRD (X-Ray Diffraction) and further analysis through modeling rietveld measurement using rietica program Test carried out for each variation of thickness.

From this study show that highest residual stress on welding result obtained at the 15 and 15 mm thickness of the plate, that is equal 103,2 Mpa (same thickness Variations), and on 15 and 15 mm, that is equal 88,5 Mpa (different thickness variation). Furthermore, the data obtained can be used as reference to analyze the materials failure in construction applications.

Keywords : SMAW, Low Carbon Steel, Plate Thickness, XRD, Residual Stress.
(Halaman ini sengaja dikosongkan)