ABSTRACT

THE EFFECT OF DEPTH FLOW OPPONENT WELDING (CHIPPING BACK) ON ELECTRIC WELDING (SMAW) MEDIUM CARBON STEEL (AISI 1045) TO THE TENSILE STRENGTH TEST

by

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Medium carbon steel can be assembled in various ways, one of them by welding. On the implementation of welding using SMAW welding type which is one method of welding is used widely in construction grafting techniques. In welding, there’s common defects such as imperfections of root penetration, hardened and cracked. Back chipping or welding opponent needs to be done to avoid or fix things that often occur in the root weld. SMAW welding is one method which is widely used in construction grafting techniques.

This study aims to determine the different test results with the depth of groove weld seam treatment chipping back to the tensile strength test also to determine micro structure. The depth of groove seam using a variation of 2 mm, 3 mm and 4 mm, then the welding results of each treatment were divided into three tensile test specimens and one photo micro specimen. Upon completion of the test specimens and then tensile test performed and photo micro to acknowledge changes in mechanical properties.

From the testing that has been done, the result from tensile strength at back chipping welding with 3mm depth is higher than treated back chipping welding with 2mm and 4 mm depth. The largest maximum tensile strength were found in the back chipping welding groove with 3mm depth is 683.3 MPa, while the untreated back chipping weld the largest maximum tensile strength is 591.7 MPa. Microstructure of root steel welding was welded without back chipping has dominant ferrite grain area.

Keywords: Medium carbon steel AISI 1045, SMAW, back chipping, tensile strength, photo micro.