

**Flow Variation Analysis Of Structural Welding Micro, Macro Structure and
Tensile Strength Las SMAW (Shield Metal Arc Welding) On Steel Plate SS
400**

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ABSTRACT

Developments in the field of construction can not be separated from the welding process used for the connection material. Welding is a process of switching between two or more materials using heat (heat) or pressure (pressure). Mechanical welding groove has an important role in the characteristics of the weld. In this study aims to determine the effect of variations in the welding groove technique that groove spirals, triangles and zig-zag on tensile strength and microstructure, as well as the macro-structure. Use of the welding grooves affect structural changes in certain zones as a result of hot fill. Effect of heat that resulted in a change in microstructure and tensile strength of the steel SS 400. Based research has been conducted on the testing of low-carbon steel SS 400 that the technique of welding grooves significant effect on the value of the tensile test. Zigzag grooves have a high of 1460.33 N / mm² this is due to zigzag grooves provide heat input greater than a spiral groove and a triangular groove because the contact area of the tip electrode to a larger parent metal so that the tensile strength of the resulting too the higher it is. Fragments of SS 400 steel welding SMAW(Shield Metal Arc Welding)is a ductile fracture. SS400 steel classified as low-carbon steel and cooling slowly so as not to form martensite that is very hard and brittle. Onmagnification 500 X shows the composition of the steel SS 400 in the form of ferrite (light colored) and pearlite (dark) due to the heat input of the welding process structures of low carbon steel is transformed into bainite which has properties stronger than perlite, tougher and more resilient in the pillar shape formed in the welding area.

Keywords: *Flow Welding, SMAW Welding, Tensile Test, microstructure.*