

Design, Analysis and Construction of a 250vac 8amps Arc Welding Machine

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Abstract : This article is centered on the design, analysis, construction, and test of a locally made arc welding machine that operates on 250vac with 8 amp output taps ranging from 60vac to 250vac at a fixed frequency, which is of benefit to urban areas; while considering its cost-effectiveness, strength, portability, and mobility. The welding machine uses a power supply to create an electric arc between an electrode and the metal at the welding point. A current selector coil needed for current selection is connected to the primary winding. Electric power is supplied to the primary winding of its transformer and is transferred to the secondary winding by induction. The voltage and current output of the secondary winding are connected to the output terminal, which is used to carry out welding work. The output current of the machine ranges from 110amps for low current welding to 250amps for high current welding. The machine uses a step-down transformer configuration for stepping down the voltage in order to obtain a high current level for effective welding. The welder can adjust the output current within a certain range. This allows the welder to properly set the output current for the type of welding that is being performed. The constructed arc welding machine was tested by connecting the work piece to it. Since there was no shock or spark from the transformer's laminated core and was successfully used to join metals, it confirmed and validated the design.

Keywords : AC current, arc welding machine, DC current, transformer, welds

Conference Title : ICECEME 2020 : International Conference on Electrical, Computer, Electronics and Mechatronics Engineering

Conference Location : Toronto, Canada

Conference Dates : September 21-22, 2020