

## **A Study on the Pulse Transformer Design Considering Inrush Current in the Welding Machine**

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**Abstract :** An Inverter type arc-welding machine is inclined to be designed for higher frequency in order to reduce the size and cost. The need of the core material reconsideration for high frequency pulse transformer is more important since core loss grows as the frequency rises. An arc welding machine's pulse transformer is designed using an Area Product (Ap) method and is considered margin air gap core design in order to prevent the burning of the IGBT by the inrush current. Finally, the reduction of the core weight and the core size are compared according to different materials for 30kW inverter type arc welding machine.

**Keywords :** pulse transformers, welding, inrush current, air gaps

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