

PROCESS PARAMETERS OF THE WELDING WITH STORED ENERGY IN CAPACITORS OF NI-BASED AMORPHOUS RIBBONS

LAZAR (VINATU) Ramona-Mihaela, CODREAN Cosmin, BURCA Mircea, MITELEA Ion,
SERBAN Viorel-Aurel

Politehnica University of Timisoara, Timisoara, Romania

Abstract

Amorphous alloys are characterized by high values of hardness and tensile strength, great corrosion stability and also favorable soft magnetic properties. Industrially, they are produced as ribbons with thicknesses below 60 μm ; many technical applications require the joint of the ribbons from such alloys by welding or soldering processes. Due to their low thermal stability, the welding process becomes a critical issue because of the need to avoid the crystallization of the welded joint. One of the welding methods where the temperature of the components remains under the solidification scale point is the welding with stored energy in capacitors. The characteristic of this method is that energy absorbed by the AC network is not used directly in the welding process but is converted by the power circuit in a current pulse. The paper sets of the process parameters and values that ensure the formation of welded joints between Ni-based amorphous ribbons with thicknesses of 35 μm and respectively 50 μm , without the solidification phenomena being involved.

Keywords: Stored energy in capacitors, amorphous alloys, Ni-based ribbons

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