

BULETINUL INSTITUTULUI POLITEHNIC DIN IAȘI  
TOMUL LIV (LVIII), FASC. 4, 2008  
ELECTROTEHNICĂ, ENERGETICĂ, ELECTRONICĂ

## CURRENT AND HEAT FLOW DISTRIBUTION IN THE CUTTING HOLLOW DURING THE PLASMA ARC CUTTING OF METALS

BY

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**Abstract.** In the present work are given the results of the experimental study of the current and the heat flow distribution in the cutting hollow depth during the plasma arc cutting of metals for direct and opposite polarities. It is shown that for the opposite polarity of the arc the current and the heat flow distribution in the cutting hollow depth is more uniform than for the direct polarity. The total heat flow in edges of the cutting hollow for the opposite polarity of the arc is about 1.5 times greater than for the direct polarity. Thus, during plasma arc cutting for its opposite polarity it is provided a high quality of kerfs and more important productivity of the process. At the same time, in this case it is possible to cut more thick metals.

**Keywords:** cutting of metals, plasma arc, plasma torch, cutting hollow, current and heat flow distribution.