

# REVITALIZATION OF HORIZONTAL BORING MILL MACHINE USING PLC CONTROLLER AND DC CONVERTER

Igor Kocic<sup>1\*</sup>, Goran Mladenovic<sup>2</sup>, Sasa Nikolic<sup>1</sup>, Darko Mitic<sup>1</sup>, Nikola Dankovic<sup>2</sup>, Petar Djekic<sup>3</sup>

<sup>1</sup>University of Nis, Faculty of Electronic Engineering, 18000 Nis, Serbia

<sup>2</sup>University of Belgrade, Faculty of Mechanical Engineering, 11000 Belgrade, Serbia

<sup>3</sup>The Academy of Applied Technical and Preschool Studies-Niš, 18000 Niš, Serbia

\*Corresponding author e-mail: [igkocic@gmail.com](mailto:igkocic@gmail.com)

## Abstract

*In this paper is presented revitalization of the horizontal boring mill machine Stankoimport 2620B using a PLC controller manufactured by Schneider Electric and a DC converter manufactured by SSD Parker. As the machine is of an earlier production date, this method of feedrate regulation in today's time is a problem because it is difficult to get the components in order to perform the maintenance or repair of the machine. The old control system was based on the use of electron tubes and an electromechanical amplifier. For this reason, a reconstruction was made using modern components for the control and regulation of the speed of the DC motor for feedrate moving. During the reconstruction, all AC motors and a DC motor with a tachogenerator were retained. All motors are tested and the brush holders was replaced on the DC motor and new brushes were installed. For the new part of the control system, which was built into the old control system, PLC software was developed and written, and new DC motor control hardware was installed. After revitalization, the machine was successfully tested in metal machining and the functionality of the installed components was proven. This revitalization was useful because the control panel on the machine remained the same as original state and it was not needed additional training of machine operator and also the electricity consumption and noise was reduced.*

## Keywords

Horizontal boring machine, DC convertor, PLC controller, speed regulation.

## Acknowledgement

The research work is funded by the Ministry of Science, Technological Development and Innovation of Republic of Serbia. Project Contract 451-03-47/2023-01/200105.