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DEVELOPMENT AND RESEARCH OF INFORMATION
AND MEASURING SYSTEM FOR CERTIFICATION TESTING
EQUIPMENT OF ARC WELDING

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The Center for Certification and Testing of the State Educational Institution of Higher Professional Education "Belarusian-Russian University" has developed an installation that allows measuring and recording electrical characteristics of arc welding power sources, such as supply voltage, power consumption, supply current, idling voltage, welding current, load voltage. The installation makes it possible to conduct thermal tests in order to determine the maximum heating of the windings and the external surfaces of the sources.

Steps for obtaining high quality welded products are:

- a) optimum welding technologies;
- b) quality welding materials;
- c) certified welding machines;
- d) qualified welders.

A welding machine must have a passport. Buying a welding machine in Belarus, this machine must confirm "Technical Regulation Customs Union 004/2011" on the safety of low-voltage equipment. For the application of welding machines at especially dangerous objects, the Certificate of Conformity of Welding Properties is needed. The Information and Measuring System is a specialized system of data collection and processing representing a computer which performs the functions of controlling the processes of recording data from two sensors:

- current sensor LT 1000-SI;
- voltage sensor LV 100.

The software part of the Information and Measuring System is implemented in the LabVIEW graphic programming environment. The oscillograms of welding current and arc voltage are displayed for a specified time interval. In the process of signal analysis, the following parameters characterizing the welding technological properties of the welding source are used:

- a) average arc current;
- b) average voltage of the arc process;
- c) average frequency of short circuit;
- d) average short circuit current;
- e) rate of short circuit current increase.

Currently, the Information and Measuring System is being improved to increase the number of parameters to be determined for different modes of operation of welding power sources.