GATHERING OF ELECTRIC ENERGY WITH WELDING PANELS

Mirzayev Sardorbek

Assistant of Andijan Institute of Agriculture and Agrotechnologies

Abstract. This article provides a theoretical overview of electricity (especially renewable energy sources) and details the collection through solar panels.

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One of the directions of development of all branches of the economy of our republic, improvement and intensification of technological processes is the safe, reliable, effective use of technological devices, full control of operational processes, and automation of technological processes. Currently, all enterprises under construction or reconstruction are equipped with automation tools. Complex technological systems (in hydromelioration systems, energy) have a complex of automation systems. Automation systems are entering our social and household life. The volume of modern reconstruction and new construction requires the use of high-performance manufacturing methods and tools. Automation of technological processes and control of its main parameters imposes increased demands on non-stop (reliable) operation of automation tools and devices. The accuracy of the performed measurements and corrective actions depends on the quality of the assembly (installation) of the bridge devices.

More and more electrified devices and equipment are in use in agriculture and water farms. The amount of electrical equipment * is increasing. They have sets of electrical equipment equipped with high-tech, computer equipment, modern monitoring and measuring instruments and automation tools. An automated reliable power supply system has been developed to provide them with quality electricity. In order to ensure production productivity and

efficiency, it is necessary to organize high-quality electrotechnical service for electrical equipment. At present, the efficiency of electrical equipment, automation equipment, and power supply system of rural and water management is not up to the required level. In order for the electric power system, including electrical equipment, to operate according to technological requirements, it is necessary to properly organize the operation and repair of electrical equipment, to repair and replace old electrical equipment with new ones, to regularly improve the skills of employees and check their knowledge. The level of power utilization of electrical equipment in rural and water management is insufficient. The study guide consists of five chapters. The first chapter presents the characteristics of water management facilities and general issues of operation of electrical equipment. Basic information on performance and electrical equipment is covered. The second chapter describes the installation of automatic system elements, the third chapter describes the adjustment of automatic systems, and the fourth chapter covers the repair of electrical equipment, including the repair of electrical networks, motors and power transformers. The fifth chapter contains the necessary information on the operation of the main electrical equipment in the power system of the power plant and water industry. Solutions to the issues of organizing the operation of electrical equipment have been developed.

Centre plane weakness defects can also occur from metallurgical causes and resemble those sometimes seen in electroslag or even submergedarc welds. They erise from segregation of low melting constituents just as in solidifying ingots, and are exacerbated at higher welding speeds. The explanation of the latter effect is associated with the transient heat flow, which is well understood. At low welding speeds the melted zone approaches the cylindrical but at higher speeds, characterised by the product of speed and weld width, the fused zone develops a long tail so that much of the solidification front is essentially parallel to weld length. Favourable conditions are then created for segregations to

concentrate at the mid-plane. Such effects are best countered by improving the cleanliness of the parent metal, and avoiding high welding speeds, although the latter are relative; the optimal values are always much higher than for comparable welding processes because of the narrowness of the zone fused by the collimated electron beam. Width/thickness aspect ratios are of the order 50 even for steel butt welds of 150mm thickness. In comparison with these now well understood and avoidable defect occurrences the advantages of electron beam welding are substantial. For instance, hydrogen cracking problems are minimal because of the vacuum operation. The process is exceptionally productive and single pass welds can be made in large thicknesses at welding speeds in the range 0.1-1 metre/minute, or nearly 2 orders of magnitude faster than electroslag welding. Circumferential welds can be made with impeccable quality at slope-out where the finished weld returns to the starting position. Coarse grain heat-affected zones are eliminated by the combination of high welding speed and small weld width. Residual stress and distortion effects are also minimised by the narrow heated zone; indeed, it might be claimed that they are eliminated for practical purposes. It is debatable whether heavy section electron beam welds need post-weld heat treatment. The minimisation of heat degradation effects can be illustrated in a striking manner in terms of overal heat input; it is possible to electron beam weld for an hour on a heavy component, which is only hand warm when it emerges from the vacuum chamber. (Considerable use of this property at a smaller scale has been made in electron beam closing welds for the cases of vehicle automatic transmissions containing precision machined and finished gear components. The principal requirement for a vacuum chamber to enclose large workpieces is for it to be pumpad down in a short time so that the equipment as a whole is productive. For instance, the lOOm^ chamber at The Welding Institute is pumped down to 10" 3 Torr in about 40 minutes. Once this facility is provided the sealing of leaks ceases to be a problem. Again, the TWI facility makes use of a 4 metre square door, for

which it proved to be unnecessary to machine the mating and sealing faces. The significance of this experience is that it would be fully practicable to employ temporarily constructed vacuum spaces under shop or site conditions for the joining of large assemblies, and the comparative success with which various forms of sliding seal have been employed, notably in France and Japan, bear out this assertion. Figure 1 shows an elaboration of the system first developed and used experimentally by Sciaky in France, which could be employed for the construction on site of large, vertical axis cylindrical high pressure reaction vessels for energy conversions if it became necessary to do so. Successive ring sections would be added at the bottom, the vessel being progressively lifted within the framework which would support it during service. Each ring would first be formed from petals by vertical-up EB welding, and the practicability of this would be enhanced by the freedom from distortion exhibited by the welding method.

The most prevalent problems association with this situation has been the increased costs of generating electricity and a rise in the environmental effect. These issues have compelled most of the power plants to focus on continuous developments with the aim of improving their energy efficiency. This step has been necessary because increase in efficiency can tremendously bring about the reduction of the overall costs of electricity generation and the environmental effect caused by the power plants. There is a need to have a model can help in the analysis of the electric generation in the power plants, which must derive from the data that is gathered on electricity. Therefore, this thesis seeks to propose methods that can be used collect the data that can help in improving efficiency in power plants as a solution to the identified problems. We often call renewable energy technologies “clean” or “green” because they produce few if any pollutants. Burning fossil fuels, however, sends greenhouse gases into the atmosphere, trapping the sun’s heat and contributing to global warming. Climate scientists generally agree that the Earth’s average temperature

has risen in the past century. If this trend continues, sea levels will rise, and scientists predict that floods, heat waves, droughts, and other extreme weather conditions could occur more often. Other pollutants are released into the air, soil, and water when fossil fuels are burned. These pollutants take a dramatic toll on the environment—and on humans. Air pollution contributes to diseases like asthma. Acid rain from sulfur dioxide and nitrogen oxides harms plants and fish.

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