Web of Discoveries: Journal of Analysis and Inventions
webofjournals.com/index.php/3

MECHANISATION AND AUTOMATION IN CONTACT WELDING

Turdiyev Abdurasul Khalilovich,
Abdullayev Jura Khudoyorovich
Termez Institute of Engineering and Technology, Faculty of Mechanics,
Department of Metrology and Technological Machines.Teacher

Abstract
The main task of control devices in contact welding is to implement the given program in a certain time by transmitting control signals in analog or discrete form to the functional nodes of the control devices.

Keywords: Contact welding, analog or discrete, passive and active control, welding equipment, mode cycle and parameter control unit.

Introduction

In addition to welding cycloframes, parts of auxiliary operations (pushing, stamping, placement, electroplating, etc.) can be included. They provide complex mechanization of one or several machines, passive and active control of the most important parameters of the welding process, analysis and diagnosis of the welding process and the quality of welding equipment.

In accordance with the above-mentioned tasks of the control devices, the following blocks can be distinguished in the structural diagram of the control of contact welding equipment operating on the basis of a fixed program: control block of the welding mode cycle and parameters [1]. It ensures the given consistency and continuity of all or part of the welding cycle operations by influencing the operations of the machine M, controlling and adjusting the main mechanical and electrical parameters of the welding mode according to a fixed program; mechanization of auxiliary and combined operations of the technological process of welding node preparation and control unit of automation tools (MAV) [2]; unit for controlling information about the welding process coming from the sensors installed on the machine [3]; the unit for diagnosing the condition of the equipment, the quality and quantity of welding [4].processes the information coming from the sensors and outputs it to the general system for analyzing and controlling the work of the welding department.

In the selection and construction (construction) of control devices, a certain peculiarity of the contact welding mode is taken into account, in particular, the strict requirements for its repeatability stability, synchronization of welding current pulses with the electrical network frequency, the need for all operations of the program to be performed without the participation of a person.This is a distinctive feature, which requires fastness, high sensitivity, accurate and reliable operation from parts of the lateral control apparatus, which is achieved through the use of apparatus with the latest component base. Contact programmers (adjusters) of type PKC, KKC, RVI are used to control welding cycle time. These use transistor microcircuits, discrete parts of programming.

The current is connected and disconnected by means of thyristor contactors of type KT-1, KT-03, KT-04, KT-07, KT-11, KT-12. They had a control pulse voltage of 15-30 V with a nominal

Web of Discoveries: Journal of Analysis and Inventions
webofjournals.com/index.php/3

current of 250, 850, 1400, 480 and 1750 A respectively (UM=20% as well as a continuous running time of 0.5 s).

Control devices that use exposure have even greater capabilities (accuracy speed and operability). Such apparatus allows you to implement complex algorithms for auxiliary Assembly-Transport control of the welding cycle and control of information operations, use the same methods of annealing the parameters of the welding mode, speed up the processes of software restructuring, updating, and automatically understand the properties of the welding site in order to select the optimal program stored in the EHM memory.To stabilize or change the welding mode and process parameters, the adjacent automatic adjustment systems are applied ART (both interchangeable connectors will be connected to S1 and S2). Modern straighteners are made up of electronic nodes.

For the operation of ART, sensors D are installed in the machine, the incoming three-tone signals are changed in the information processing block AIB after the comparison scheme TS da the signals of the block of charters are compared with UD, and if the inconsistency ±Δ it is the process is automatically adjusted with the corresponding block exposure The results of measuring welding mode parameters or other generalizing pararmeters of welding quality can be written or reflected in the indicator Block IB.

Devices have been implemented that share the initial connection and disconnection of contact welding machines and the supply of energy (electricity, under pressure, compressed air or liquid, cooling liquid). Machines are also provided with work control signaling systems, interlockers, and protective devices to prevent machine node breakage or weld detail burns in cases where the consistency given in machine operation is not observed. For example, the operation of the welding transformer without pinching the details, and the plate sliding operation without connecting the transformer (in three-by-three welding machines) are obtained from the production extimole, etc.k

The control apparatus of modern contact welding machines is operated in the form of block structures constructed from uniformized separate functional nodes, which facilitates the maintenance and repair of hardware.

The technological processes of contact welding can be controlled using computational techniques and the automatic control systems can be broken down into kuy systems:

1) welding quality control and single machine control systems;
2) machine group control systems;
3) Automatic control systems of division, Line, sex and welding technological processes of the enterprise.

To improve the reliability of welded joints, it is advisable to carry out contact welding processes using Active Control and various mathematical models. The basis of the exposure is the information processing device – processor, which is implemented according to the program. The program is dialed on the keyboard. The KQ device ensures that the data is entered into the EHM and that they are released into the executive devices as well as the indicator Kurile IQ.

The required cyclogram of the welding process is dialed using the KQ device in the disconnected position of the S1 and S2 alamash connectors and is carried out in EHM: KMl (amplifier) – EPK (functional apparatus) – PU (pneumocuritma); FR (phase adjuster) – KM2 (amplifier) – K (functional apparatus) – PTr (welding transformer).

In place of the conclusion, unlike disconnected (open) systems of welding process control using PSR or RVI adjusters, the disconnected (open) system of control using EHM has the ability to quickly replace the process cyclogram, in which the mode parameters are changed differently during welding. But in all disconnected systems of process control, no adjustments are made to the previously selected modification of the parameters of the welding mode (for example, in point welding, the diameter of the casting node d) at the time of welding, and at the end of the process there is no information about the obtained quality of the seam.

REFERENCES

1. Sindo Kou. Welding Metallurgy-N.Y.: John Wiley and Sons Ltd, 2002-480p.
2. Sh.Yuldashev. Payvandlash robotlari. O`quv uslubiy majmua. Andijon - 2020 yil.
3. Abralov M.A., Abralov M.M. Payvandlash jarayonlarning nazariyasi. Darslik – T.: Noshirlik yog'dusi, 2015 – 280 b.
4. Абралов М.А, Дуняшин Н.С., Эрматов З.Д., Абралов М.М. Технология и оборудование сварки плавлением. Учебник – Т.: Komron press, 2014 – 460с
5. Дуняшин Н.С. Автоматизация сварочный процессов. УМК Ташкент – 2016 год.

Web of Discoveries: Journal of Analysis and Inventions
webofjournals.com/index.php/3