

Crane panel «DCSS-63»

It is designed for linearly accelerated start, deceleration and reversing as well as for contactless speed regulation of electric drive for movement of overhead traveling crane and frame crane. The foundation of panel's operation principal is based on principally new system of synchronous rotation, developed in DonSTU.



Synchronization of few non-connected mechanically AC electric motors with phase rotor (crane-metallurgical series) is provided at synchronous rotation frequency using current-parametric control method for electro-magnetic moments. It allows to eliminate from the system of synchronous rotation any inverse links and to make this system as self-adjusting. The mentioned detail as well as the absence of rather complex frequency converters in the system greatly increase its reliability and simplify the adjustment of crane control panel. Mode of functioning is described in details in the article *«Reconstruction of electric drives for moving of overhead traveling cranes and frame cranes»* has been published in the magazine *«Metal and casting of Ukraine»*, № 2, 2006 .

Crane panel «DCSS-63» is designed on the request of People's Corporation *«Alchevsk Iron-and Steel Works»* and has been operating for more than three years at overhead traveling cranes together with electric drives with two motors MTH 411-6, 22 kWt, 380 V, 960 revo. The economic effect was obtained due to significant loss decrease of wheels' boron and heads of undercrane rails, increasing the service life of bearings, sleeves and intermediary shaft, decreasing the number of cracks in welded junctions of crane beams. On current value consumed by the rotor circuit of each motor, the mode diagnostics of cinematic circuit of electric drives.

Crane panel is manufactured in two versions (on Customer's request) with contactor (see a photo) and contactless (thyristor) control. DonSTU is carrying out the design project of reconstruction of crane moving electric drive, chief-mounting and adjusting. Manufacturing of non-standard set blocks and installation of panels is provided by specialized contract companies in Kharkov and Alchevsk.

While developing the project they can consider the version of partial reconstruction of crane moving electric drive implicated in replacement of the apparatus only in rotor motor circuits to the system of synchronous rotation (under the condition if contact scheme of stator circuits is in the satisfactory state and no more than three levels of speed regulation is necessary).

For more information contact: DonSTU, 16 Lenin Avenue, Alchevsk, Lugansk reg., Ukraine, 94204, (06442) 2-24-06*22-39, *project manager - Ph.D., ass.prof. Kalyuzhny V.V.* tel/fax (06442) 2-68-87, E-mail: info@dmmi.edu.ua.