

Underwater hydraulic shock shovel control system(PDF)

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Title: Underwater hydraulic shock shovel control system

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摘要: The control system determines the effectiveness of an underwater hydraulic shock shovel. This paper begins by analyzing the working principles of these shovels and explains the importance of their control systems. A new type of control system's mathematical model was built and analyzed according to those principles. Since the initial control system's response time could not fulfill the design requirements, a PID controller was added to the control system. System response time was still slower than required, so a neural network was added to nonlinearly regulate the proportional element, integral element and derivative element coefficients of the PID controller. After these improvements to the control system, system parameters fulfilled the design requirements. The working performance of electrically-controlled parts such as the rapidly moving high speed switch valve is largely determined by the control system. Normal control methods generally can't satisfy a shovel's requirements, so advanced and normal control methods were combined to improve the control system, bringing good results.

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Memo

备注/Memo: -