

Matching Calculation of Pump-Motor in Hydraulic System of Crawler Walking Mechanism of Coal Loader

ABSTRACT: Typical faults of caterpillar walking mechanism of fully hydraulic coal loader are expounded, such

as insufficient traction and slippage of caterpillar.

These faults are mainly caused by the mismatch of the flow and pressure of the pump-motor in the hydraulic system of the crawler mechanism of the coal loader.

In view of this factor, the matching calculation of the flow and pressure of the pump-motor in the hydraulic system of the walking mechanism is carried out.

It is concluded that the flow and pressure of the existing hydraulic pumps are well-off,

And the reasonable matching of the hydraulic motor with the hydraulic pump can be achieved through re-selection.

The whole matching calculation process provides a reference for optimum design of hydraulic system of crawler mechanism of coal loader.

Key words: [hydraulic pump](#); crawler mechanism; pump-motor; matching calculation

The caterpillar walking device of coal loader is the supporting part of the whole equipment.

On the one hand, it bears the self-weight of the coal loader, on the other hand, it bears the reaction force when the working device executes the action.

It plays the function of supporting the equipment and driving the coal loader to walk.

In the course of using the walking mechanism, there will be some faults such as insufficient traction and slippage of the track.



The main reason is that the flow and pressure of the pump-motor mismatch in the hydraulic system of the caterpillar walking mechanism of the coal loader.

It is necessary to optimize the design of the hydraulic transmission system, calculate the pump-motor matching of the hydraulic system of the walking mechanism.

And achieve a reasonable matching in pressure and flow,.

So as to give full play to the transmission efficiency of the hydraulic system of the walking mechanism and effectively reduce the walking mechanism.

Failure rate:

With MSP430 as the central control unit, a new intelligent integrated protection system is designed, which has the functions of fault detection, serial communication and weak current signal output.

The common faults of mine low-voltage power grid are analyzed, and the electrical characteristics of the circuit when leakage and short-circuit faults occur are obtained.

The hardware implementation scheme of selective leakage protection is designed. Phase detection is used to judge three-phase short-circuit fault and improve the reliability of mine power supply.

Through the analysis of the characteristics of the interference source in the circuit, the corresponding anti-interference measures are specified to enhance the stability of the system.

