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CALCULATION OF DC CONTACTOR

A contactor is an electrically controlled switch used for switching a power circuit, similar to a relay except with higher current ratings. Contactor is controlled by a circuit, which has a much lower power level than the switched circuit. Unlike a circuit breaker, a contactor is not intended for interrupting a short circuit current. Electromagnetic contactors can be used not only for switching at condition of normal mode, but also for protection against the voltage drop in the network. Direct current contactor is two-positional apparatus with self-reset operation

designed for frequent switchings of direct current power circuits at conditions of normal modes and overload of electrical equipment operation.

I'd like to tell you about calculation of dc contactor. The aim of calculation is to determine the dimensions for cross sections of current-carrying contour, resistances of its material, transient resistances of its contact connections, voltage drop in current-carrying contour, thermal and dynamic resistance under condition that temperature of current-carrying contour of DC contactors elements does not exceed admissible value, and pressure force of switching contacts provides no welding or spontaneous opening under the action of electrodynamics forces

The task of calculation of switching contacts is to determine the contacts pressure force at which the temperature in contacting place does not exceed an admissible one; and at which welding of contacts and its spontaneous opening under action of electrodynamics forces don't occur. Linear wearing of contacts can be determined by given number of circuit openings N_{el} . The materials of flexible coupling are thin copper wires with diameter 0.1 mm, twisted into the wire harnesses. Cross section of the coupling must be close to a bus cross section.

In conclusion I'd like to say that it is very important to calculate any electrical device before start of its exploitation. If you will install device which doesn't match the requirements it can cause serious effects from equipment failure to peoples' injuries up to death. That's why every factory must seriously follow the rules of labor protection.