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DC CONTACTOR SELECTION DEPENDING ON NOMINAL VOLTAGE AND CURRENT VALUES

A contactor is an electrically controlled switch used for switching a power circuit, similar to a relay except for higher current ratings. A contactor is controlled by a circuit, which has a much lower power level than the switched circuit. Contactors come in many forms with varying capacities and features. Contactors range from those having a breaking current of several amperes to thousands of amperes and from 24 V DC to many kilovolts. The physical size of contactors ranges from a device small enough to pick up with one hand, to large devices approximately a meter on a side. Unlike a circuit breaker, contactor is not intended to interrupt a short circuit current. Contactors are useful in commercial and industrial applications, particularly for controlling large lighting loads and motors. One of their hallmarks is reliability.

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.

Electromagnet cannot keep a contactor in moving system with voltage decreasing and it is spontaneously switched off.

Direct current contactors switch direct current circuits and have as a rule also direct current electromagnets.

But what we must know if we need to select contactor for our purposes?

You need to choose a device depending on where you will use it. Here, the main role is played by the required voltage and current magnitude of the main circuit. The voltage of the main circuit of the contactor is the highest rated voltage for which the contactor is designed. The rated operating voltage is equal to the mains voltage in which the contactor can operate under the given conditions. According to the rated voltage of the main circuit, the contactors are divided into 2 groups: with a voltage of 220 and 440V. Contactors can have from 1 to 5 main poles. The rated current of the contactor is the current that is determined by the heating conditions of the main circuit when the contactor is not turned on or off. Moreover, the contactor is able to withstand this current of three closed main contacts for 8 hours, and the temperature rise of its various parts should not be more than the permissible value. By rated current of the main circuit contactors have following values 4; 6,3; 10; 16; 25; 40; 63; 100; 160; 250; 400; 630 A.

In conclusion it may be said that it is necessary to select contactor for each working process separately. You can substitute contactor designed for high voltage circuits by contactor developed for low voltage circuits (even though it will not be economically feasible), but in no case vice versa. Not only because it's not profitable, but also because it can cost the most expensive thing in the world - human life.