

Contactor and Starter Ratings

Contactors are electrically controlled switches, used for switching a power circuit at high current ratings. They are controlled by a circuit that has a much lower power level than the circuit being switched. They are not designed to interrupt short circuit currents but to open or close electrical loads, such as electric motors, lighting, heating, capacitor banks and so on.

North American and European ratings for contactors follow different philosophies. North American motor control devices are generally known for their heavy-duty construction and are physically large because of their rugged design.

On the other hand, European devices are rated for maximum operational current as specified by the International Electro technical Commission in publication IEC 60957-5-1. Choice of IEC contactors is based on running current, motor application and required contact life since European philosophy emphasises design for the intended life cycle of the application.

Magnetic starters are devices designed to provide power to electric motors with a contactor as an essential component, while also providing power-cut-off, under-voltage, and overload protection.

Contactors and motor starters (contactor +protection device) are devices designed to provide power to electric motor; the protection device provides for power cut-off, under voltage and overload safeguard. They are rated according to the size and type of load they are designed to handle.

A contactor is an essential component of the motor starter while ratings are given according to the load current per pole, maximum fault withstand current, coil voltage and classified by the utilisation categories, as follows:

In alternating current:

- AC1 - Non-inductive or slightly inductive loads
- AC2 - Starting of slip-ring motors
- AC3 - Starting of induction motors (squirrel-cage) and switching off only after the motor is up to speed. (Make Locked Rotor Amps (LRA), Break Full Load Amps (FLA))
- AC4 - Starting of induction motors (squirrel-cage) with inching duty and plugging duty. Rapid Start/Stop. (Make and Break LRA)
- AC5A - Switching of electric discharge lamp controls
- AC5b - Switching of incandescent lamps
- AC6A - Switching of transformers
- AC6B - Switching of capacitor banks

In direct current:

- DC1 - Non-inductive or slightly inductive loads, (resistive loads) such as resistance furnaces
- DC3 - Shunt-motor, starting, plugging, jogging, inching
- DC4 - Series motors, starting, plugging, and switching off motors while running.
- DC5 - Series motors, starting, plugging, jogging, inching.

Switch Disconnector Ratings

Switch disconnectors are used to make sure an electrical circuit is completely de-energised and isolated from the electrical system of the power source for service or maintenance. These switches are also found in electrical distribution systems and industrial applications where machinery requires switching for adjustment or repair, including fault isolation, transfer loads from one source to another, isolation of line segments for purpose of maintenance or new construction, and in some instances for shedding loads. Switch disconnectors are frequently used to switch low level line or cable charging currents and parallel load currents. They are manually operated switches, which are used for isolating high-voltage equipment, so that this equipment may be worked on safely.

LOVATO Electric switch disconnectors have been developed to satisfy requirements according to IEC, UL and CSA standards and have been tested and certified accordingly. Switch disconnectors meet requirements of IEC 60947-3 standards and have been designed primarily for use in inductive applications such as switching motors and as main control panel utilisation categories, listed as follows:

In alternating current:

- AC21A - Resistive loads including moderate overloads (frequent operation)
- AC22A - Switching of mixed resistive and inductive loads including moderate overloads (frequent operation)
- AC23A - Switching of motor loads or other highly inductive loads (frequent operations) (This category includes occasional switching of individual motors)
- AC23B - Switching of motor loads or other highly inductive loads (Infrequent operations) (This category includes occasional switching of individual motors).

In direct current:

- DC21 B - Switching of resistive loads including moderate overloads (Infrequent operations).