

## MOTOR CONTROL

**MOTOR CONTROL RESISTORS** are used to control the torque and speed of AC and DC motors, by limiting in-rush current. To avoid confusion it should be noted that these resistors are used to control power input into motors while Dynamic Braking Resistors are used to brake and drain energy.

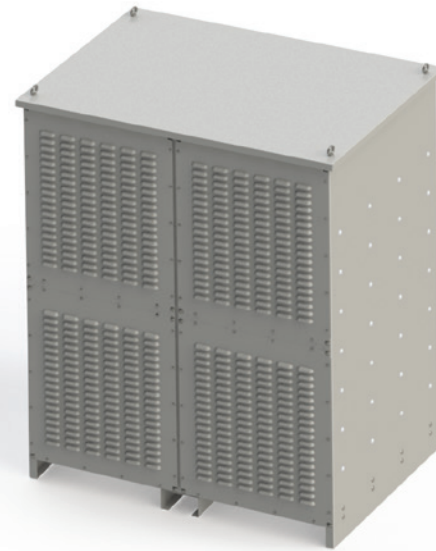
These resistors are commonly used with wound-rotor motors as an external resistor circuit. Conductors in the rotor are connected to slip rings, these slip rings provide the contact to the resistor circuit. By changing the level of resistance in the circuit speed and torque can be adjusted. In other words, higher resistance means reduced torque and speed.

For multiple levels of torque and speed control, Motor Control Resistors use “steps” or “speeds”. Steps/speeds essentially provide intervals for levels of resistance. For most applications, a 4-step/5-speed Motor Control Resistor is recommended. 1-step/2-speed resistors are available, all the way up to 10-step/11-speed. In general we recommend that you use a higher number of steps if the motor is powerful and used for large-scale purposes. Usually there will always be one more speed level than resistor steps, because the maximum speed is achieved with all steps cut out; exceptions occur when a permanent slip resistor is required to reduce internal heating of the motor.

To enable manufacturers to test resistors under the same conditions, NEMA has defined resistor classes based on duty and the type of application. We use these classes to conform to standards and making it easier for you to order your product. You can refer to the NEMA Resistor Applications and then the NEMA Resistor Classes to configure the resistor required for your motor.

### Advantages

- ✓ Limit torque and speed of wound rotor motors to safe levels.
- ✓ Keep motor voltages within safe levels.
- ✓ Reduce overheating.
- ✓ Reduce wasted time during braking.
- ✓ Increase life of the equipment.
- ✓ Improved service reliability.



### Features

- Very wide range of power and resistance ratings.
- Stainless steel bolts and nuts.
- Rating, design, manufacturing and testing according to national and international standards.
- 24 month guarantee.

### Optional Features

Resistive Elements	Enclosure Materials
Wirewound	Galvanized Steel**
Edgewound	Stainless Steel
Stamped Grid	Anodized Aluminum
Enclosures	
NEMA 1**	
NEMA 3R	

\*\* Standard Models

