Post Glover Resistors

Dynamic Braking Resistors

Rely On The Industry's Most Innovative Resistor Manufacturer with Over 125 Years of Industry Experience

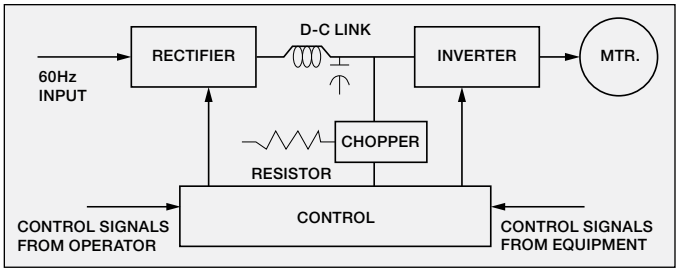
Post Glover designs their DB resistors with the minimum resistance specified by the drive manufacturer in mind. Tolerance is maintained at ± 10% of rated ohms to prevent overloading the drive and/or chopper.

All resistors are factory tested before shipping. This includes a hi-pot and resistance test on all designs, ensuring a reliable product for drives systems from 240 to 600V.

Standard features include:

- NEMA 1, mill-galvanized enclosure with powder-coated, NEMA 3R, and stainless-steel options
- Thermal overloads
- Two Point terminal block (or landing pad for higher currents)
- Convenient conduit knockouts or wiring hubs

How Dynamic Braking Resistors Work



Dynamic Braking Resistors are used with AC Variable Frequency Drives to produce a braking torque in the motor during overhauling or braking conditions. The dynamic braking resistor is connected across the DC bus and will see voltages as high as 1000 volts.

A three-phase variable frequency drive (VFD) consists of three basic components – rectifier, DC line, and inverter. The rectifier converts the three-phase 60Hz AC input to a DC signal, which can then be transformed by the inverter to a variable frequency AC voltage to control the speed of the induction motor. During braking, the VFD ramps the frequency to zero, and the rotational energy of the motor and load are driven back through the inverter to the DC bus. This energy is then dissipated through the resistor.

Important Facts To Know When Choosing Dynamic Braking Resistors

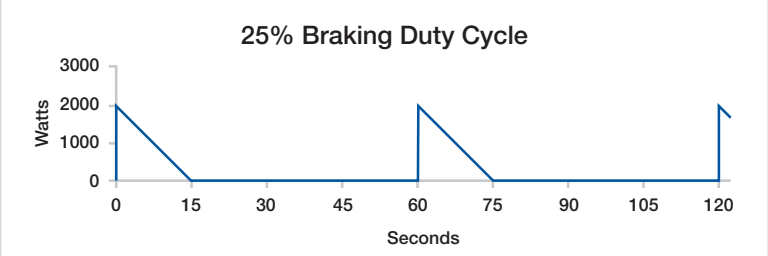
The minimum ohm value is given by the manufacturer of the VFD and is important to keep the VFD from tripping on overcurrent. This number varies depending on the manufacturer, voltage, and HP of the VFD. Post Glover will make sure the dynamic brake is above this minimum ohm value, but below the calculated maximum ohm value.

Wattage is determined by the application (braking or overhauling), duty cycle (as shown on page 2) and horsepower of the VFD. Choosing the correct wattage is important to prevent overheating during operation.

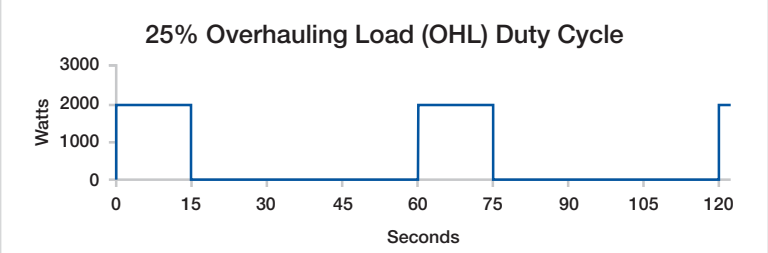
Duty cycle is usually stated as a percentage, however, the actual times on and off can be used to offer the optimal resistor package, while minimizing size and cost. It is always best, when possible, to provide the braking time and time between operations in seconds as opposed to a percentage. This gives our engineers a better snapshot of the true application and provides a better end product for the customer.

Examples – Duty Cycle and Power

An example of dynamic braking is when a motor is stopping, and the load is decelerating. Since the load is decelerating during the braking cycle, only 50% of the maximum power is needed (or the average of full power and 0% power). For instance, if this load needs to come to a controlled stop in 15 seconds once per minute, this means the VFD will be diverting energy to the resistor ¼ of the time during a two-minute cycle, as shown by the graph on the right. This equates to a 25% duty cycle. Thus, the minimum resistor wattage necessary would be: 2000 (peak watts) x 50% (decelerating) x 25% (duty cycle) = 250 watts.



If the motor is maintaining a set speed and not decelerating, this is an overhauling load. Since the load is not decelerating, this is graphically shown as a horizontal line in the adjacent graph. If the duty cycle is the same as the above example, the resistor wattage necessary is twice as much as the braking example, as is represented by the area under the curve. Thus, the minimum resistor wattage necessary would be: 2000 (peak watts) x 25% (duty cycle) = 500 watts



How Post Glover makes your life a little simpler

Post Glover is the OEM supplier of choice for drive manufacturers the world over. As such, we have an extensive library of dynamic braking resistors pre-engineered and available to you. Please contact us with the particular drive model you are using, and we will match to it to the appropriate resistor. Alternately, we can size a resistor for your particular needs based on one of the two methods below:

1. Ohms and watts
2. HP, voltage, and duty cycle

The Post Glover Resistors team of engineers are available to respond to any inquiry.

To receive a no cost proposal or for engineering assistance, call 1-800-537-6144 or email sales@postglover.com for all of your resistor needs.

Post Glover™
"The Resistor Specialists"
Serving the Electrical Industry Since 1892

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