

Frequent Cycling Of A Regenerative Blower Motor

In an effort to reduce power costs, cycling the blower motor on/off, rather than allowing the motor to run continuously is becoming more common. As noted below in the NEMA standard for Electric Motors, a maximum of two (2) starts is specified. If a higher start/stop frequency is likely, the manufacturer should be contacted to verify how many starts/stops are permissible.

Due to the high inrush current of an ac motor during starting (normally 650% of full load current), frequent starting can substantially increase the temperature of the motor to the point of (1) dramatically reducing the insulation life of the motor or (2) insulation failure.

NEMA (National Electrical Manufacturers Association) MG1-1998, 12.55 Number of Starts, cites the following:

12.55.1 Normal Starting Conditions

Design A, B and E squirrel-cage induction motors having horsepower ratings given in 10.32.4 and performance characteristics in accordance with this Part 12, shall be capable of accelerating without injurious heating load WK2 referred to the motor shaft equal to or less than the values listed in Table 12-6, under the following conditions:

- a. Applied voltage and frequency in accordance with 12.45
- b. During the accelerating period, the connected load torque is equal to or less than a torque which varies as the square of the speed and is equal to 100% of the rated load torque at rated power.
- c. Two starts in succession (coasting to rest between starts) with the motor initially at the ambient temperature or one start with the motor initially at a temperature not exceeding its rated load operating temperature.

12.55.2 Other Than Normal Starting Conditions

If the starting conditions are other than those in 12.55.1, the motor manufacturer should be consulted.

It is recommended that all applications be referred to All Star™ Products that are subject to frequent start/stop cycling.

Variable Frequency Drives (VFD's)

VFD's offer an alternative choice to energy savings - and without starting/stopping the blower. All Star motor insulation is suitable for use with VFD's and we can also supply a VFD with our blowers. Purchasing the VFD with the blower assures you of single source responsibility for both the VFD and the blower motor.