

February 21, 2011

Maximum Starting Current

The Starting Code Letter on the nameplate of an AC induction motor can be used to estimate the maximum starting current of the motor. To determine the starting current use the following formula:

$$I_{LR} = \frac{(Rated\ HP) * (Code\ Letter\ Factor\ from\ table) * 1000}{\sqrt{3} * V}$$

A Code letter table and corresponding factors can be found in National Electrical Manufacturers Association (NEMA) Motor and Generators Standards MG1, beginning in Section 2 Part 12.

This information is very useful for determining which current probe to use for capturing in-rush current on a low voltage application where the probe will be placed directly on the cable running to the motor.

Example:

A 100 HP, 460V motor, Code Letter H (Locked Rotor KVA/HP Factor is 6.30-7.10), would have the following maximum starting (Locked Rotor) current:

$$I_{LR} = \frac{(100\ HP) * (7.10) * 1000}{\sqrt{3} * 460V} = 891\ Amps$$

You are invited to submit an Electric Motor Testing Tip of your own and receive a free PdMA mug or hat if we publish it! Contact Lou at 813-621-6463 ext. 126 or lou@pdma.com.