



Tip Of The Week

November 2, 2009

Volt/Hz Ratio

When testing AC motors that are being powered by VFDs technicians should keep in mind the Volt/Hz ratio and its relationship to a motor's speed. The Volt/Hz ratio is calculated by taking the rated voltage of the drive (such as 460 Volts) and dividing by the line frequency (typically 60 Hz or 50 Hz). For example, a 460 Volt drive running on 60 Hz has a ratio of: $460 \text{ V} / 60 \text{ Hz} = 7.67 \text{ V/Hz}$. If a 460 V, 60 Hz, motor with a rated speed of 1785 RPM were running at 40 Hz the expected voltage would be: $40 \text{ Hz} * (460 \text{ Volts} / 60 \text{ Hz}) = 306.67 \text{ Volts}$. The approximate speed of the motor would be calculated as follows: $40 \text{ Hz} * (1785 \text{ RPM} / 60 \text{ Hz}) = 1190 \text{ RPM}$.

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.

Copyright 2009 PdMA Corporation. All rights reserved. The PdMA Tip of the Week is produced by PdMA. PdMA shall not be liable for any errors or delays in the content, or for any actions taken in reliance thereon.