TECH TIP

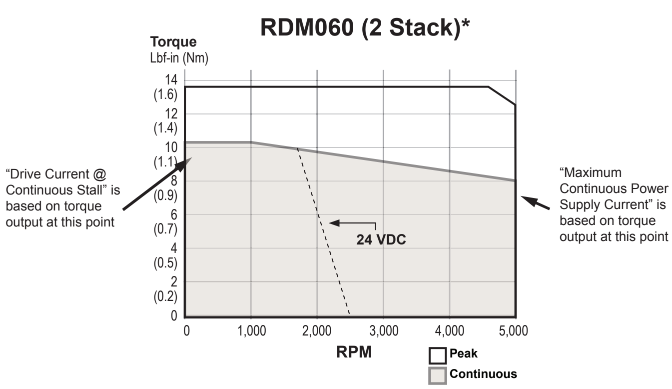
CURTISS-WRIGHT

EXLAR®

Tritex II Input Current vs. Drive Output Current

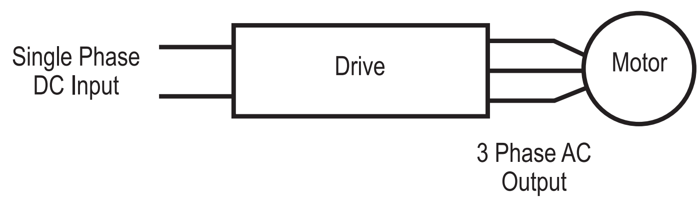
Amps in vs. Amps out
Once you have determined the power supply Amps required (see Tech Ref Note on Power Supply Sizing), the next question likely to be asked is, “How can the Tritex output Amp rating be higher than the input Amp rating?” This is a little more difficult to explain but there are two basic reasons. First, the two current values represent two different torques; one at each end of the speed / torque curve. The second reason pertains to power-in vs. power-out, and in this instance, only considering the drive.

First we need to be sure to understand that the terms in the brochure “Maximum Continuous Power Supply Current” is the continuous drive input current at the max continuous rated power point on the speed torque plot, “Drive Current @ Continuous Stall” is the drive output, or motor current at zero speed. If we look at the RDM060 speed torque below you can see that two torque values are different, therefore motor currents are different at these two points. This is the main reason the Continuous Power Supply Current is significantly lower than the Drive Current @ Continuous Stall for some models.



*Using NEMA recommended aluminum heatsink 10 X 10 X 1/4 inch

Then we have the case of the flat speed torque curve such as the TDM75 2B8-30 below. You might expect that input current would equal output current; however, it’s not quite that simple because the rule is power in = power out / eff.



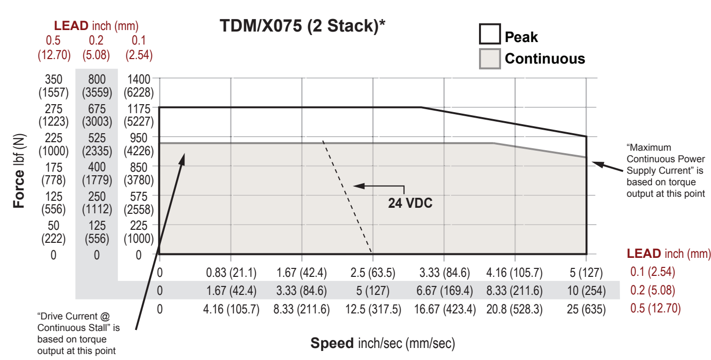
Input Watts = input Volts (dc) x Input Amps (dc).

Output Watts = Output Volts (rms) x Output Amps (rms) x $\sqrt{3}$ (for 3 phase)

Leaving out the algebra, if the drive was 100% efficient and 100% of bus voltage was available to motor and the motor was using it all, Output Current

(Peak of Sine Amps) = Input Current (dc Amps) x $\frac{2}{\sqrt{3}}$

Even at full speed peak of sine, output current will always be a little higher than the DC input current.



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