FLA and RLA

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Full load amperage (FLA) is the amount of current (in amperes), which a motor draws from an electrical system when to produce the rated horsepower (output). Run Load Amperage is the current drawn by the motor from the electrical system under normal load conditions (Whitman et al., 2012). When the RLA is almost equal to the full load condition, the RLA is denoted as the FLA (Silberstein, 2012). The run load amperage is considered as full load amperage when the motor is operating loading at rated speed (Brittian, 2012). For some of the motors, the RLA is almost the same as the FLA. From the datasheet or data plate of the motor, the value of RLA and FLA is noted. It is then multiplied by the power factor of 1.73 (in case of 3 phase) and voltage. The result is approximate value of electrical power used in watts. The differences in FLA and RLA is of measuring method. For the value of FLA, the rating of the motor is considered while load of the system is considered for the RLA value. FLA is the amount of current that is drawn by a motor when running on full load, and the full load torque and horsepower are attained. While depending upon model and other conditions, RLA is usually about twenty or thirty percent lower than FLA.

For calculation of the Full load amperage value, different formulas can be used depending upon several phases, and if the value of power is in Horsepower or Kilowatt.

In case of single-phase AC motor:

FLA (Amperes) = $\frac{P (in kW) × 1000 }{V × cos ϕ}$ = $\frac{P (in HP) × 746 }{V × cos ϕ×η}$

In case of three-phase AC motor:

FLA (Amperes) = $\frac{P (in kW) × 1000 }{V ×1.732× cos ϕ}$ = $\frac{P (in kW) × 746 }{V ×1.732× cos ϕ×η}$

To calculate the RLA value the maximum continuous current value is divided by the 1.56.

References

Brittian, L. W. (2012). *Audel Electrical Trades Pocket Manual*. John Wiley & Sons.

Silberstein, E. (2012). *Residential Construction Academy HVAC*. Cengage Learning.

Whitman, B., Johnson, B., Tomczyk, J., & Silberstein, E. (2012). *Refrigeration and Air Conditioning Technology*. Cengage Learning.