



LOAD FACTOR

Load Factor describes how much extra horsepower is built into a particular motor at its nameplate RPM that is beyond its nameplate HP rating. It is the ratio of tested horsepower to nameplate horsepower. The following is a more detailed explanation.

Load Factor is arrived at by the following sample calculations. For example:

A stock condenser fan motor has a nameplate rating of 1/4 HP (0.25 HP) and 1075 RPM. If we test the motor on a dynamometer, we find that the torque produced at 1075 is 19.05 in. lbs.

We next calculate the horsepower using the test data.

We find,

$$\begin{aligned} \text{HP} &= N \times T/K \\ &= (1075 \times 19.05)/63025 \\ &= 0.325 \text{ HP} \end{aligned}$$

This is almost 1/3 HP!

Now to calculate the Load Factor, we simply divide the ratio of tested horsepower to nameplate horsepower.

$$\begin{aligned} \text{Load Factor} &= 0.325 / 0.25 \\ &= 1.3 \end{aligned}$$

The Fasco catalog would show a Load Factor of 1.3 in the chart.

Load Factor should not be confused with the common motor term called Service Factor. Service Factor pertains to self-cooled motors, such as the ones designed in accordance to NEMA. Service Factor is the percentage over nameplate horsepower that a particular motor can be operated at while being sufficiently self-cooled. For example, a 1.3 rating relates to a 30% reserve in horsepower that can be drawn on if needed. This is useful when intermittent overloads will be encountered.

Fasco motors designed with a Load Factor provide value to your customers since you are promoting a motor with extra margin to handle tough applications. A tough application, for example, is where an OEM used a marginally designed motor with just enough horsepower to get by. By selling a Fasco replacement with a Load Factor, you can promote the installation of a motor better suited for the job.