

T.I.P.S.

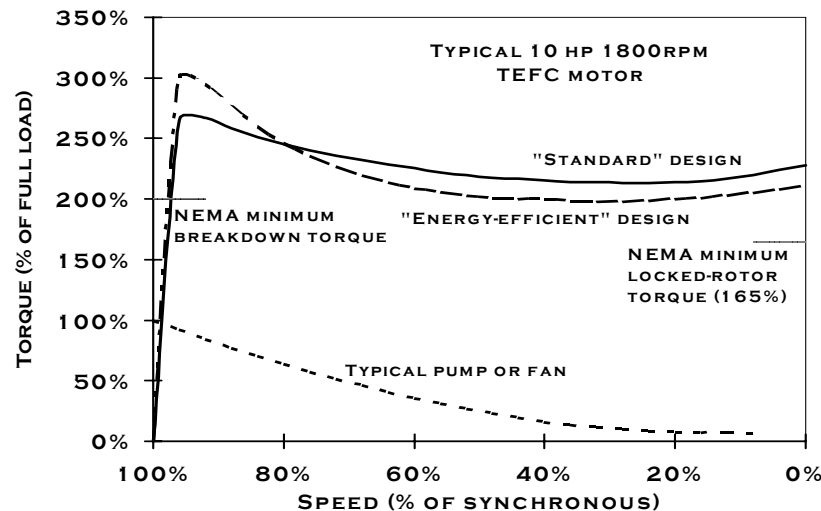
TECHNICAL INFORMATION AND PRODUCT SHEETS

HEM SELECTION AND APPLICATION – STARTING TORQUE

One of the most common myths concerning high-efficiency motors is that they have lower starting torques than the equivalent standard motors. Although reducing the resistance in the rotor, a common method of improving efficiency, tends to lower the starting torque, it is not the only influence. As a result, not all HEMs have a lower locked-rotor torque – it is one of many parameters that varies depending on the design.

The problem is usually one of improper motor selection and application rather than the technical limitations of the high-efficiency motor itself. The starting torque required by some applications is just as important as the brake horsepower.

STARTING TORQUE

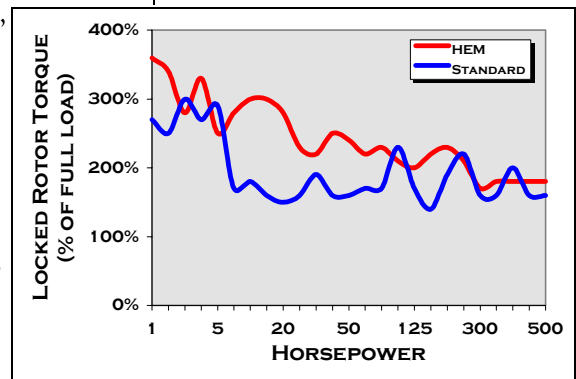


VARIES BY SIZE AND MANUFACTURER

As mentioned above, the starting torque for both standard and high-efficiency designs varies greatly depending on motor size and the manufacturer. In fact, some HEMs even have a higher starting torque than the equivalent standard model (see chart at right). Additionally, high-efficiency motors usually have a higher breakdown torque, which allows them to withstand periodic overloads.

Even in cases where energy efficient motors have lower starting torques, the torque output is well above published standards and the motors should still be able to accelerate most loads. Since HEMs have a

greater thermal capacity, they are better suited to handle severe starts. Problems arise only for high inertia loads such as loaded conveyors, which need extremely high starting torques. But, these are poor applications for Design B motors anyway.



This graph shows data for a line of severe duty motors from a major manufacturer. In this case, the HE models have higher starting torques for most sizes.

PROPER SELECTION AND APPLICATION ARE THE KEYS

In the final analysis, it is irrelevant whether a HEM provides more or less torque than a standard motor – it varies vary by motor and manufacturer. The issue is proper motor selection and application. When a new or replacement motor is required, care must be taken to ensure the it can supply the required torque output over the entire speed-torque curve, whether it be HEM, standard, severe duty, Design A, B, C or D.