



IN THE MIX

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Performance Characteristics of Industrial Mixer Impellers (Part 3 of 3)

Does Your Industrial Mixer Need More Power?

In our last post, we talked about why you should evaluate industrial mixer designs based on process requirements as opposed to pumped flow. Our example showed, among other things, that two mixers can pump the same but require very different power levels. This raises the question: all else being equal, does more power mean you are getting more mixer?

Is an Industrial Mixer with More Power Better?

The answer is "maybe." To illustrate, consider this analogy comparing two motor vehicles. Vehicle A has a 300 HP motor and Vehicle B has a 400 HP motor. Vehicle A costs \$220,000, and vehicle B costs \$50,000. Is Vehicle B a real bargain compared with Vehicle A? Not if Vehicle A is a Caterpillar D8 and Vehicle B is a Chevy Corvette - and you want to move dirt. It depends on the application.

The same is certainly true of industrial mixers. ProQuip has installed some very large helix mixers for polymer applications. A "big one" has a solid shaft over 8 inches in diameter but only requires a 20 HP motor (and that includes a good service factor). These are high torque mixers that turn relatively slowly.

On the other hand, ProQuip has installed a number of 20 HP industrial mixers with 2 1/2 inch shafts for short blend-time formulations of adhesives. These relatively low torque units turn much faster than 20 HP helix units. The 20 HP helix mixer weighs 20 times more than the adhesive mixer. It also costs 20 times more.

This example clearly demonstrates more motor power does not necessarily get you more of an industrial mixer, nor is it a good indicator of the relative size or cost of a mixer.



Two mixers can pump the same but require very different power levels. All else being equal, more power may not mean you are getting more mixer.

How to Best Determine the Power Requirements for Your Industrial Mixer?

If you request a quotation from different industrial mixer companies, you'd expect them to quote comparable mixers based on the same process specifications. If the quotations are drastically different, someone didn't understand your specifications. However, many times the quoted motor outputs are only marginally different (e.g., 15 HP vs 20 HP).

If this is the case, should you just pick the mixer with the higher horsepower, especially if the price is comparable or even lower? Not necessarily. When you get recommendations for industrial mixers with different size motors, you need to look at torque to determine the most effective solution.

For the bigger mixer, compare torque ratings. This is simple to do. Torque is horsepower divided by shaft RPM. Compare the respective ratios between the two. A higher torque mixer is actually a more substantial unit even if it requires less horsepower. Although it costs more initially, the total cost of ownership is less because the lower horsepower motor consumes far less energy.

For More Information

When talking about any machine application, including industrial mixers, all else being equal is not as simple as it sounds. If you need assistance determining the right horsepower for your industrial mixer, or any of its other specifications, contact ProQuip at 330-468-1850 or sales@proquipinc.com.

