Hickey Custom Pools, Inc.

Just Add Water™

Energy-efficient Swimming Pool/Spa Motors – What's the Deal?

As your pool equipment ages and you find yourself needing to replace your current pool/spa motor, you'll be faced with a new decision in part mandated by the State of Arizona and the federal government – replacing your pool/spa motor with an energy-efficient, two-speed or variable-speed model.

What's the Deal? Why is this new mandate a "good way to go?"

In general, two-speed motors function the same way as your older single-speed motor. No motor runs completely efficiently. In fact, both single- and two-speed motors "waste" 30% of their energy. (For those interested in the technical reason, energy is expended when a magnetic field is induced into the rotor so the stator has something to push against. This then causes the rotor or motor shaft to turn.)

Two-speed

Even though it may seem counter-intuitive, running your two-speed pump and motor for nearly twice as long, albeit at low speed, will increase your energy savings by 45 percent.

In place of the old standard "eight-hours-a-day" filtration cycle, you can run your two-speed pump for two hours on high and 12 hours on low. The two hours on high will allow your automatic pool cleaner to complete a cleaning cycle while providing enough movement at the pool surface to adequately skim the pool. Your automatic cleaner will not work on the "half flow" low speed setting. The remaining 12 hours of runtime on low speed will allow the pool to finish filtering and circulating the water. Slower flow always results in better filtration.

ENERGY SAVINGS	8 Hour Runtime (HIGH Speed)	14 Hour Runtime 2 hours – HIGH / 12 hours – LOW
Single Speed **High speed only**	-- Please note this option is no longer available to retrofit for circulation pumps	N/A
Two-Speed (HIGH & LOW) Motor	No savings over single speed	45%
TEFC Variable Speed Motor	30% savings over single speed	60 to 90%

Running your two-speed pump and motor on the 14-hour schedule shown above will filter the same number of gallons per day as you previously did using your single-speed running eight hours, but with a 45 percent reduction in energy costs, and an increase in filter efficiency.

Variable-speed

Another option to consider is the TEFC (Totally-Enclosed Fan Cooled) variable-speed motor. The TEFC variable-speed will add a minimum of 30 percent to the savings mentioned above with a motor that runs cooler, quieter, and longer than either a single- or two-speed motor. Another benefit of TEFC motors is their sealed nature, which keeps both dust and moisture, along with critters, out of the critical motor parts. There are also fewer motor components to fail because these motors convert our single-phase power to industrial three-phase power, eliminating the need for starting circuits in the motor. They allow better tailoring of flow to requirements for regular operation, water features, and backwashing, due to the added flexibility provided by having more than two speeds.

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How much will I save?

Most pool pumps draw between one and two kilowatts. Using a $0.10 per kW hour cost as an estimate, your pump and motor will cost between $0.10 and $0.20 per hour to run. So, using an average cost of $0.15 per hour, if the pump runs the "standard" eight hours a day, the electrical cost will be $1.20 per day, $8.40 per week, $36.50 per month, or $438.00 per year. A 45% annual savings is $197.10; 60% is $262.80, and 90%, though rare, would be $394.20 in savings per year. If we estimate savings of $200 per year with a two-speed pump and motor, and its purchase price is $600 more than a single-speed, break-even occurs in three years. If we estimate savings of 60% or $250 per year with a TEFC variable-speed, and its purchase price is $750 more than a single-speed, again we will break-even in three years.

Which option is best for me?

TEFC variable-speed pumps/motors have the longest lifespan combined with the lowest cost to run, but they are also the most expensive to install. How long do you expect to stay in your home? Will you be there long enough to "break-even?"

On the other hand…when you sell your home an efficient pump is an attractive feature to potential buyers.

Still have questions?

Give us a call at 520.403.4306

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