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Product News & Reviews

XLerator – The Electric Hand Dryer Reinvented

In public lavatories, I've always reached for paper towels instead of using the electric dryer, feeling satisfied that I'm conserving energy. Another motivation, though I wasn't so quick to admit it, is that I'm too impatient to wait around while my hands dry. Now Excel Dryer, Inc., has me reconsidering. Its new XLerator hand dryer gets hands dry in one-third the time, and uses about one-third the energy, of conventional dryers. We were skeptical at first, too. Read on.

With a new approach to hand drying, XLerator makes electric dryers a green choice.

When Denis and Nancy Gagnon bought Excel Dryer four years ago, they entered an industry that hadn't seen significant innovation, aside from automatic sensor controls, in decades. Determined to create a better mousetrap, they commissioned some research and learned that wet hands have water in two forms: loose droplets and an adherent film. They realized that by blowing the droplets off with a high-velocity air stream, they could eliminate most of the water in just a few seconds. Providing this air at a higher temperature than that of standard dryers 135˚F (57˚C) results in quicker removal of the water film as well, so hands are dried in 12 to 15 seconds– about the same amount of time it takes to use a paper towel. The Gagnons' claim, which we have verified, is that conventional dryers take 30 to 45 seconds.

In addition to more effective drying, the XLerator is redesigned to draw only 1,500 watts, instead of the usual 2,200. This lower power requirement makes it easy to install the machines in older buildings, where it contributes to the overall energy savings (see chart and table). The XLerator is not the first to use high-speed air to dry hands, but competing products–used mostly in industrial settings–do not heat the air, so they feel cold and leave a wet film on the skin. If there is a downside to this approach, it may be in the noise generated by this airflow, which approaches 90 decibels. Tony Caputo, who installed XLerator hand dryers at his Red Rose Pizza restaurant in Springfield, Massachusetts, does not consider noise to be a problem. "I haven't had anyone complain about the noise," he told EBN, though he acknowledged that his restrooms are somewhat isolated from customer tables. Our own observations are that the noise is primarily from the airflow deflection; when we held our hands further from the dryer it became much quieter, but the drying time also increased.

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Quote of the Month:

"It just doesn't make sense to put in a $10,000 heating system to provide $100 worth of heat per year."

Marc Rosenbaum, P.E.
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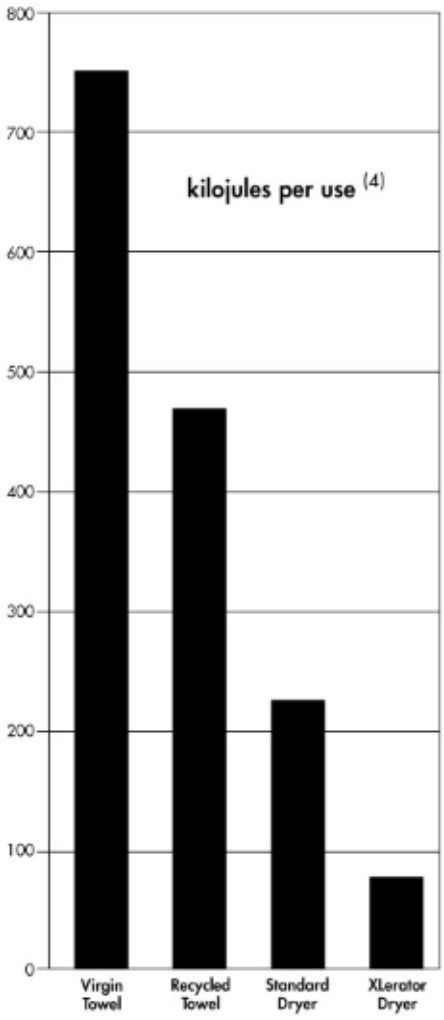
Energy Use Comparison of Paper Towels and Electric Hand Dryers

Description	Mj/kg [1]	towels/kg [2]	kW draw	time(sec) [3]	kJ/use [4]	Cost per 1,000 uses [5]
Virgin Towel	131	352	---	---	743	$23.00
Recycled Towel	81	352	---	---	460	$23.00
Standard Dryer	---	---	2.2	30	222	$1.47
XLerator Dryer	---	---	**1.5**	**15**	**76**	**$0.50**

1. *Estimate from database developed by Franklin Associates, Ltd. of Prairie Village, Kansas and used in the SimaPro LCA software. Includes energy used to harvest raw materials and manufacture paper towels.*
2. *Based on pre-folded towels from a national distributor.*
3. *Based on data from Excel Dryer and informal EBN testing.*
4. *Assumes two towels per use. For dryers, includes energy used to produce and transmit electricity, based on U.S. average of 11,470 Btu/kWh. Energy for disposal of paper towels is not included. Energy for additional cooling to compensate for dryer use is not included – adding that load would increase dryer energy burden by about 1/3 when space is mechanically cooled.*
5. *Assumes two towels per use, and national average electricity cost of 8¢/kWh. Administrative and maintenance costs for paper towel use (ordering, receiving, storing, refilling dispensers, disposal) and additional cooling load from dryer use are not included.*



The XLerator clearly outperforms conventional electric hand dryers, but how does it compare to paper towels? At our request, LCA experts Greg Norris of Sylvatica, Inc. and Bev Sauer of Franklin Associates, Ltd. consulted data from Franklin Associates as used in the SimaPro LCA software. The results, as shown in the table above, show that just on the basis of energy use electric hand dryers are far better, without even considering the many other environmental impacts of the manufacture and disposal of paper, including resource depletion, water pollution, and solid waste. A recent study commissioned by Airdri in the U.K and performed by Environmental Resources Management reached the same conclusion.

For Tony Caputo the biggest advantages to the XLerator dryers are the labor savings in his restrooms and the speed of drying. When they used paper towel dispensers, he had to have someone clean the restrooms every two hours because of the heavy usage (up to 2,100 customers on a typical Friday, including lots of kids). And as for the speed of drying, he didn't believe the dryers would actually dry hands in as little as 10 seconds and was willing to accept 20. "It really is under 10 seconds," he said. Interestingly, the dryers have become a topic of conversation in his restaurant, with customers telling each other that they just have to check them out. "It's something that people have never seen," he said.

While we've examined a lot of products at EBN, I don't think we've ever talked to anyone quite as enthusiastic as Caputo. "Wow! just wow!" he told us, "I couldn't be happier." The company is currently shipping a 110-volt unit and awaiting UL approval on the 208-volt model. A 277-volt unit is also in the works. The 110-volt model lists for $550. - *NM*

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