

Saving Water & Money in Lab Operations

With drought ravaging much of the country, there may be a small device in your lab that is wasting a lot of water: the water-jet vacuum pump. Water-jet devices are still used to provide point-of-use vacuum in many laboratories, though they are prohibited in some states. Because they are inexpensive to buy, many people overlook the resource impact and operating cost of these units.

Water-jet pumps use from 1 to 2 gallons of water per minute to create lab vacuum. At 1.5 gpm for 10 hours a week, 50 weeks a year, that amounts to 45,000 gallons of water per year to produce vacuum at each location. Making matters worse, the water-jet vacuum pump sucks vapors into the water stream, so the wasted water is contaminated with solvents used in your lab work.

Apart from the sheer waste and pollution of the water, it can cost between \$200 and \$1000 a year for that much water, depending on your local water and sewer rates. And that's for each water-jet pump. Multiplied across several labs, a science building can waste 1,000,000 gallons of water per year or more – water that could remain in reservoir for crops or residential supply – and incur tens of thousands of dollars in water charges.

Consider that a quiet, compact, oil-free vacuum pump suitable for typical lab filtration applications can be purchased for less than \$1000 – maybe considerably less. Such a pump would consume power at about 40 W, implying 20 kWh per year. Local power rates vary but, in Chicago, that's about \$3 per year for electricity.

By using a motor-driven vacuum pump or local vacuum network instead of water-jet pumps, you could save \$200 to \$1000 a year in water costs per workstation, avoid the waste and pollution of thousands of gallons of water, improve the quality of your lab vacuum, and pay as little as \$3 for the power to run the pump for a year. In short, in most locations you can pay for a vacuum pump with water savings in just a few years, and reap the environmental and cost savings for many years thereafter.



Product appearance, catalog numbers, prices, specifications, and technical information are subject to change without notice.

Approx. Annual Water/Sewer Cost for 45,000 gallons

City	Approx. Annual Water/Sewer Cost for 45,000 gallons
Atlanta	\$1,138
Boston	\$590
Chicago	\$300
Houston	\$410
New York	\$525
San Diego	\$225
San Francisco	\$310
Washington, D.C.	\$430