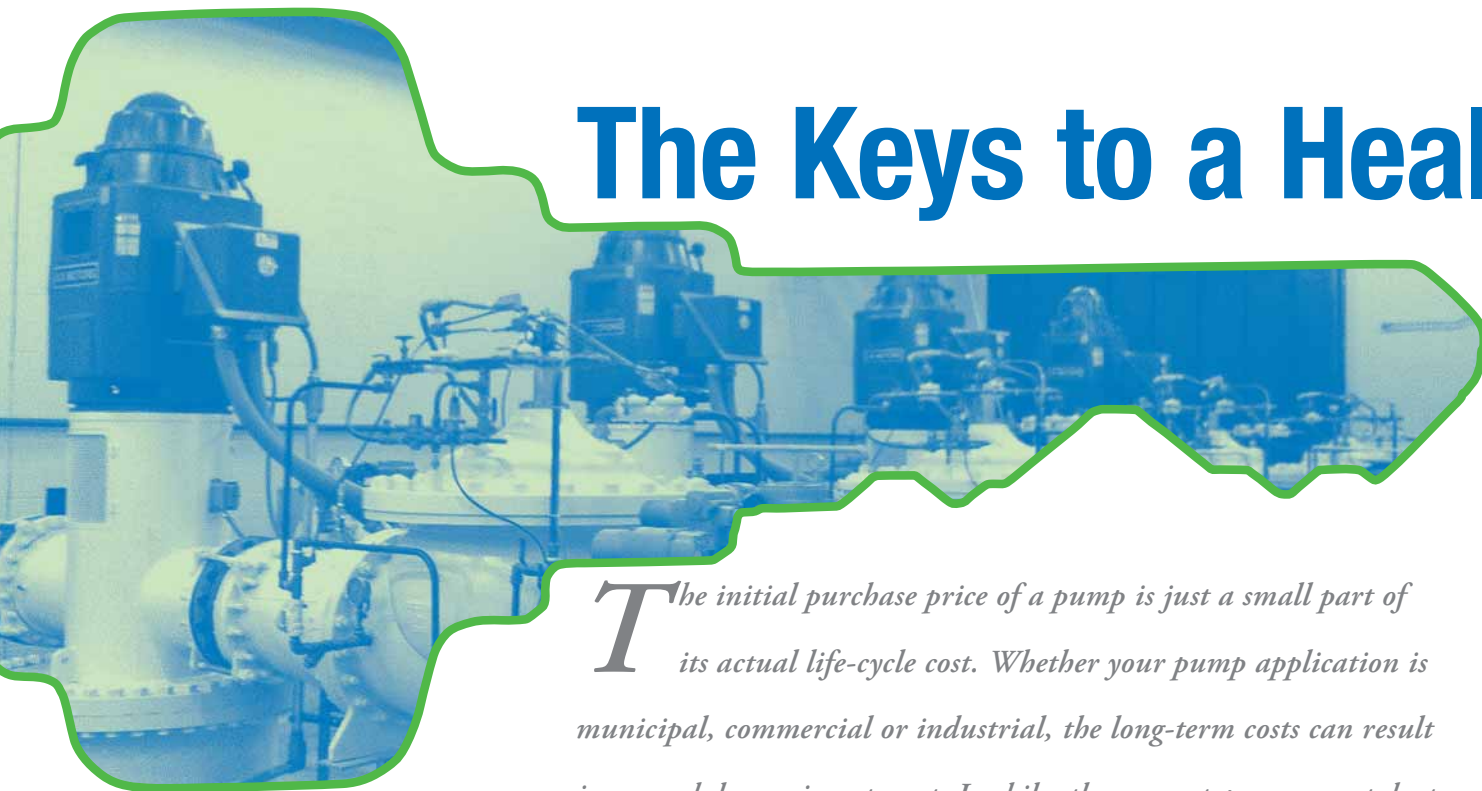


The Keys to a Healthy Pump



The initial purchase price of a pump is just a small part of its actual life-cycle cost. Whether your pump application is municipal, commercial or industrial, the long-term costs can result in a much larger investment. Luckily, there are steps you can take to minimize this investment and increase your pump's life expectancy by following proper installation and maintenance procedures.

By Brian Daschner

Proper procedures
increase a pump's
life expectancy

Life Expectancy

The three most important factors affecting a pump's life expectancy are the material being pumped, pump speed and frequency of use. Pumping a liquid like water has a different effect than pumping a corrosive material or liquid laden with silt. Environmental factors, such as sediment levels, corrosiveness and the pH value of the liquid, also have an impact on lifespan. For example, in a high-sediment environment, a pump may have a lifespan of five to six years, whereas a pump in a low-sediment environment may last up to 15 years. Pumping clean, fresh water with no sediment at 1,760 rpm could allow a pump to last 20 to 25 years.

The materials comprising the pump also impact longevity. Bronze is traditionally one of the most common metals used in pump manufacturing, but its use is declining. New legislation passed by Congress limits the amount of lead allowed in plumbing products, so manufacturers are looking for alternative materials containing less lead. Stainless steel, which contains no lead, has begun to fill this need and is proving capable of withstanding the damaging effects of chemicals such as chlorine.

Casting also plays a role in pump life expectancy. Sand castings are cost-effective but produce pumps more susceptible to wear. Lost-wax investment castings have a smoother surface finish, allow water to pass through the impeller with less friction and improve pump performance.

Proper Installation

Increasing pump life expectancy begins with installation, so qualified installation professionals are a must. The installation of a pump or turbine is a delicate process that can have negative repercussions if done incorrectly. The well must be properly drilled and developed. Transportation of the pump from manufacturer to installation site must be monitored closely to avoid damage. The pump also must be handled with care, as certain parts are precisely aligned. There should be exact concentricity and alignment between the column, shaft and discharge head. If anything is bumped out of place, the pump will not work properly.

Additionally, consider packing, impeller and electrical needs. Packing must be tightened properly and replaced by a professional when necessary. Impellers should be set to the proper height and adjusted correctly. Electrical considerations, such as applying the correct phase and voltage during installation, also must be noted.

Once the pump has been safely transported to the site and all electrical, packing and impeller requirements have been accounted for, ensure that the installation professionals check the shaft alignment and coupling, the faceplate leveling and rigidity, the alignment to the discharge piping, and the proper setting of the rotating assembly of the impellers. This will ensure that your pump is ready for operation.

Regular Maintenance

Once a pump is up and running, regular maintenance can add years to its life. An inspection every three months is advisable. Check regularly for leaks, excessive noise and damage, and always check the electrical system for high or low amperage.

Pump efficiency over time can be gauged by recording the flow and pressure of a pump's outflow the first day. Regular inspections will reveal whether it is working at full capacity. When changes do occur in amperage, flow or pressure, consider replacing parts instead of the whole system. Sometimes a system failure means a part needs to be replaced, not that the entire pump needs to be rebuilt.

When replacing a turbine, look for high-quality, abrasion resistant materials for parts such as bearings, bushings, shaft, impeller and bowl; and keep in mind the availability of compatible parts for easy replacement. Consider keeping critical spare parts on hand to minimize downtime.

If you must replace the turbine, dismantle from the top down and reassemble from the bottom up. During the dismantling and reassembly processes, check for fractures or cracks in castings and assess the column and head for damage. Replace any cracked or broken parts as necessary.

Never forget safety. Even routine maintenance can lead to an accident if basic rules are not followed. Accidents can happen even with the most experienced professionals. Be sure to switch pumps off before maintenance and drain liquids before servicing.

Properly caring for a pump throughout its life-cycle will reduce downtime, energy use, environmental impact and costs, as well as increase efficiency and ultimately the lifespan of the pump. Following proper installation procedures and a schedule of routine maintenance is a wise investment. *wqp*

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