

# Extend the Life and Strengthen the Efficiency of Your Industrial Pump

As a critical component of industrial operations, pumps require proper installation, regular monitoring, routine maintenance, and systematic repairs to ensure maximum efficiency and performance longevity.

To help you get the most out of your investment, the team at GPM put together a comprehensive guide for maintaining the effectiveness and longevity of industrial pumps in the toughest applications. Complete with insider tips on installation, repair standards, and more, this guide is your key to efficient, reliable pump operation that minimizes unplanned downtime and costly failures.

## 1. SELECTING THE RIGHT PUMP FOR YOUR APPLICATION

### CONSIDER THE SPECIFIC APPLICATION

The materials you're processing play a major role in determining the pump's materiality and liquid-end metallurgy. Incompatible liquid-end configurations can cause wear on critical components, leading to inefficiencies, increased energy use, and costly repairs.

If your system handles abrasive or corrosive fluids, opt for pumps with wear-resistant materials and schedule more frequent inspections. For larger solids that cannot be processed, introduce additional screening to prevent clogging and sediment buildup.

### SIZE THE PUMP FOR YOUR SYSTEM

When sizing the pump, your existing piping system and the Total Dynamic Head (TDH) must be considered. Selecting the correct pump size for your TDH measurement will help ensure your pump operates at its Best Efficiency Point (BEP), with optimized performance and minimized wear in your application. For sump pump sizing, other critical considerations will include the flow-in vs. flow-out, starts per hour, run-dry requirements, and sump size.

Struggling to find a pump tough enough for your application? Explore the [GPM-Eliminator™](#), the world's toughest, most reliable slurry pump that's engineered to provide years of trouble-free service, or [learn more](#) about specifying the right pump.

## 2. INSTALLING WITH PRECISION AND CONFIDENCE

### START WITH A STRONG FOUNDATION

Mounting your pump on a solid base will significantly reduce vibration across your applications. For non-submersible configurations, firmly secure the pump to a heavy-duty, level base capable of supporting its weight and operating forces.

For standard horizontal pump configurations, a misaligned motor and pump can also cause excessive vibration on bearings and seals. Use precision tools for exact alignment to avoid premature failure.

### WATCH FOR WIRING

One of the most common errors with industrial pump installation is electrical wiring. If wired incorrectly, the pump's internal components will rotate backward, causing immediate failures and performance issues. Have a trained, knowledgeable technician assist with installation to ensure the pump is wired for the correct rotation direction.

### PREVENT CAVITATION

It's also important to confirm that your suction piping is properly matched to the pump configuration. Cavitation occurs when the pump cannot get enough pressure at the eye of the impeller. Review that the system was installed as intended: Additional valves, smaller piping, or additional elbows can create more back pressure on the pump, causing it to run "back" or left on its performance curve. Alternatively, if the pressure is decreased due to fewer valves, larger piping, fewer elbows, etc., the system pressure can cause the pump to run "out" or right on the curve. A post-installation system review can confirm that the pump is running as intended.

### 3. MAINTAINING YOUR SYSTEM'S HEALTH

#### REGULARLY INSPECT CRITICAL COMPONENTS

Schedule regular inspections to detect early signs of wear on critical components like wear plates and impellers. Use visual inspections and tools such as borescopes to identify and replace worn components based on wear patterns and manufacturer-recommended clearances.

#### FOLLOW MANUFACTURER LUBRICATION RECOMMENDATIONS

Proper lubrication is crucial for the longevity of bearings and seals. If you're operating a GPM-Eliminator pump, there's no action needed—all GPM-Eliminators are permanently lubricated. For all other pumps, follow the manufacturer's recommended schedule and lubricants.

#### PAY ATTENTION TO HYDRAULICS

Evaluate both the hydraulic and mechanical aspects, such as the Net Positive Suction Head (NPSH) and pump curves, to ensure the system is well-balanced and the pump is not operating under adverse conditions.

Reciprocating pumps run the risk of pulsation surges, or pressure variations caused by the fluid's changing inertia. Suction-end stabilizers can help prevent these surges, ensure even flow, and provide energy savings. If pulsation persists after installing suction-end stabilizers, consider installing discharge stabilizers to further reduce pipe vibration and valve and gauge wear.

#### NOTICING EXCESSIVE WEAR?

Consider upgrading to higher-grade materials, such as chrome iron, stainless steel, or CD4MCu. Protective coatings like ceramic or rubber can further reduce wear on the pump's liquid-end components, significantly extending their service life in harsh slurry or acidic environments.

*Remember, your pump is a crucial component of a much larger system. Regularly check the entire system for proper valve operation, piping blockages, and leaks to ensure continuous optimal pump performance.*



### 4. MONITORING FOR OPTIMAL PERFORMANCE

#### UNDERGO AN ENERGY AUDIT

If you know improvements can be made but aren't sure where to start, hire a professional energy auditor to compare your current system's production, water consumption, and energy usage to similar facilities in the industry. Through this audit, your organization will receive detailed, quantified data identifying problem areas and recommendations for improvement, enabling you to reduce raw materials waste, lower energy costs, and enhance operational efficiency.

#### KEEP TABS ON FLOW AND TEMPERATURE

Continuously monitoring for system anomalies will help you identify and respond to potential failures before they disrupt operations.

Use sensors to monitor pump and motor temperatures, which can indicate issues with bearing wear or improper lubrication. Additionally, regularly confirming that your system is operating within its designated flow rate and TDH will prevent damage from over- or underloading the pump.

#### IMPLEMENT VIBRATION MONITORING

Regular vibration analysis will help detect imbalances, misalignments, and bearing failures before they disrupt operations. Employ vibration monitoring equipment and software for continuous monitoring and analysis.

### 5. ALIGNING STANDARDS AND SERVICE

#### LEVERAGE PREDICTIVE MAINTENANCE CAPABILITIES

Using historical data to implement predictive maintenance strategies enables your team to analyze trends and predict when certain components are likely to fail, allowing for preemptive replacements while minimizing downtime risk.

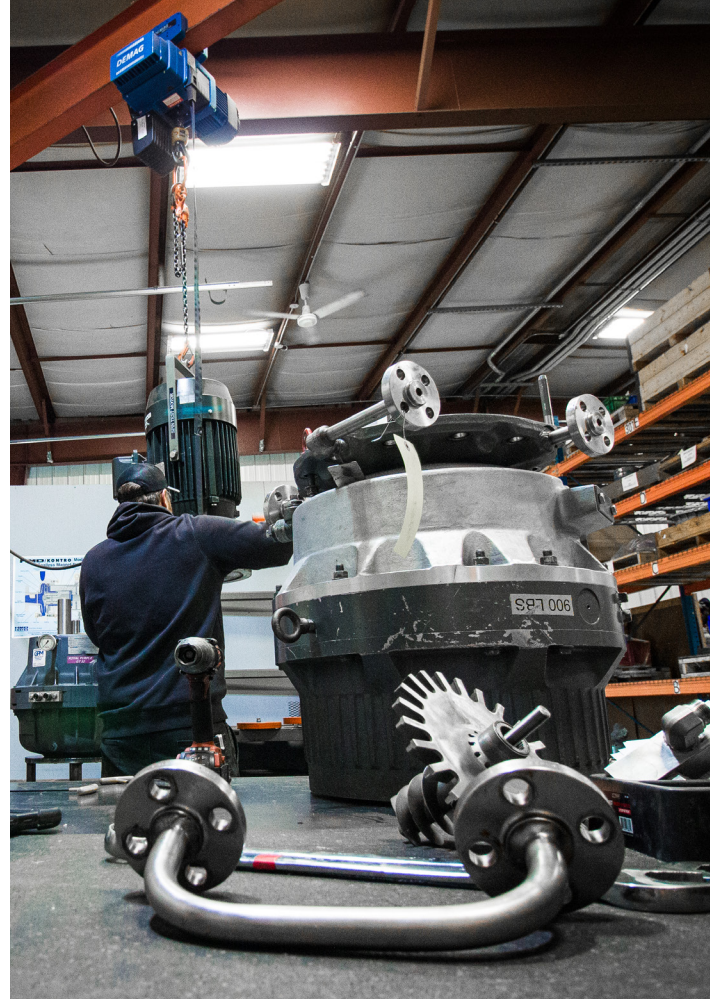
#### KEEP A DETAILED REPAIR RECORD

Maintain comprehensive records of all repairs and maintenance activities. Use software systems to log details, including parts replaced, maintenance actions performed, and any anomalies observed.

#### TRUST THE EXPERTS

Substandard service and repairs can lead to repeated failures, increased downtime, and higher-than-necessary costs. Ensure all service technicians are factory-trained and certified by reputable organizations, and provide regular training updates to keep team members informed of the latest technological advancements and best practices.

When repairs are needed, choose service shops that adhere to high standards and Original Equipment Manufacturer (OEM) specifications—like [GPM Service & Repair](#), where good as new really means good as new. We repair all pumps to OEM specifications and tolerances, provide comprehensive documentation to help you make the most cost-effective decisions, and our dedicated team acts quickly to keep you up and running.



### WANT TO EXPLORE FURTHER?

Download our [helpful tip sheet](#) for more information on how not to murder your pump, and [get in touch](#) with GPM's friendly experts for assistance with your pump application.

### Contact GPM for More Information

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