

WATER & WASTEWATER CHEMICAL TREATMENT PUMPS

PROVEN CHEMICAL METERING PUMP TECHNOLOGY

EFFECTIVE TECHNOLOGY FOR SODIUM HYPOCHLORITE

DESIGN FEATURES

Positive Displacement External Gear	316 Stainless Steel, Hastelloy, or Titanium	5 Bearing Robust Design
Magnetically Coupled	Flow from 1 ml/min to 10 GPM (38 LPM)	Precision Tolerances
Only Two Moving Parts	Pressures to 250 PSI (17 BAR)	Non-Pulsing

METERING BENEFITS

Speed Regulated Flow Control	Large Turn Down Ratio	Metering Accuracy Better Than 1%
Utilizes Standard Motors and Controllers	Flow Meter Compatible	

INSTALLATION, OPERATION, AND MAINTENANCE BENEFITS

Resistant to Vapor Locking	Fast and Easy Field Repairable	Up to 20,000 Hours Long Life
Self-Priming	Simple and Compact Installation	Low Fluid Shear
No Pulsation Dampener Requirement	Low NPSHR	

POTENTIAL ECONOMIC BENEFITS

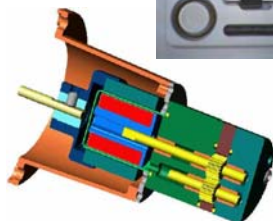
Reduced Chemical Usage	Competitive Price Technology
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SOME TYPICAL WATER AND WASTEWATER TREATMENT CHEMICALS: Alums, Amines, Aqueous Ammonia, Calcium Hydroxide, Calcium Hypochlorite, Copper Sulfate, Ferric Chloride, Ferric Sulfate, Hydrofluorosilicic Acid, Methanol, Polymers, Potassium Permanganate, Sodium Aluminate, Sodium Bisulfite, Sodium Carbonate, Sodium Hydrosulfite, Sodium Hydroxide, Sodium Hypochlorite, Sodium Silicate, Sulfuric Acid, Sulfurous Acid

Magnetically coupled external gear pumps are proven performers for water and wastewater treatment applications. They overcome limitations associated with other pump technologies including pulsating flow, vapor locking, and frequent and lengthy repair cycles. External gear pumps provide smooth flow reducing fluid agitation and eliminating the need for pulsation dampeners. The smooth flow also makes external gear pumps flow meter and residual measurement friendly. They are easily controlled through a signal feedback system such as 4 to 20 mA. The flow through design does not trap gasses associated with vapor locking. The compact design is easily and quickly repaired. Magnetically coupled external gear pumps provide unprecedented life expectancy, up to 20,000 hours, reducing downtime. With all these advantages, magnetically coupled external gear pumps will typically provide improved system performance and substantial economic savings.



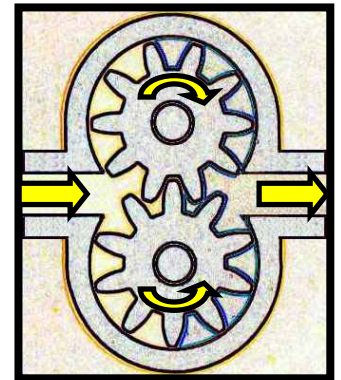
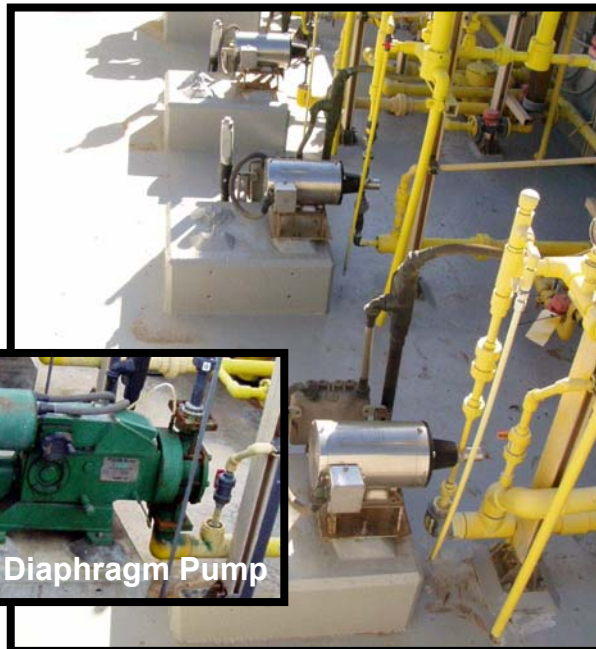
1 ML/MIN to 10 GPM (38 LPM)



Easy Maintenance



Original Diaphragm Pump



TOP: Flow through design resistant to vapor locking.
LEFT: The compact Tuthill design allowed easy replacement of diaphragm pumps in this 12.5% NaOCl installation.

Certified to the ISO 9001-2000 Standard

SODIUM HYPOCHLORITE PUMP INSTALLATION GUIDE

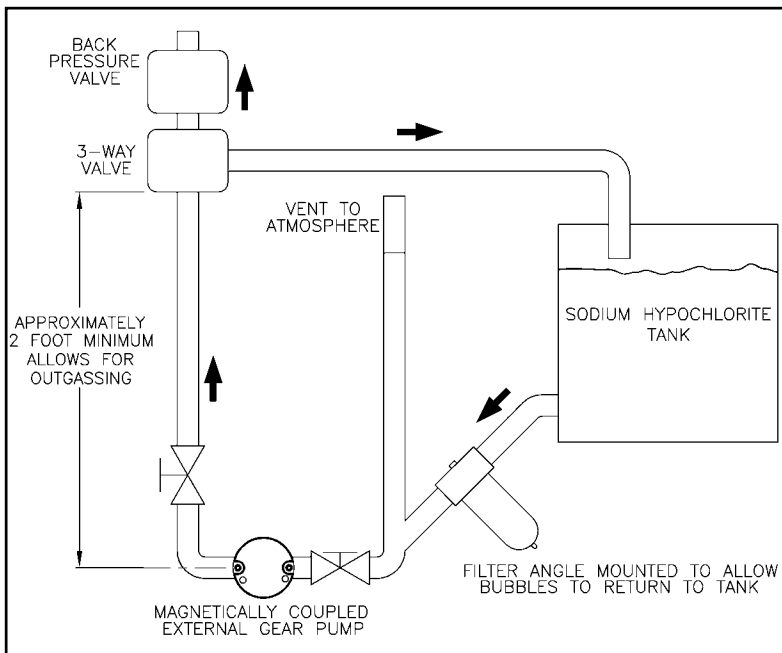
Sodium hypochlorite liquid is much safer to store and handle than chlorine gas. Sodium hypochlorite will outgas when in a concentrated solution requiring special installation considerations. A properly installed magnetically coupled external gear pump will provide long-term trouble free service.

SYSTEM CONSIDERATIONS

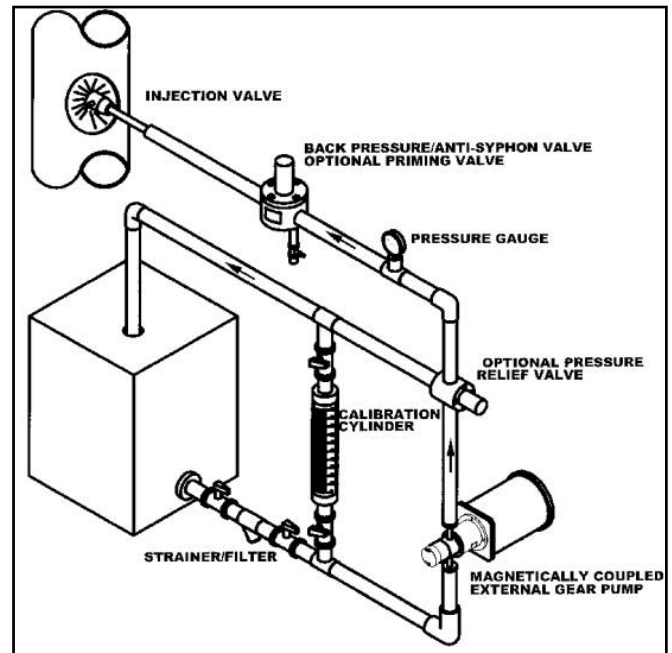
- **FLOW CONTROL:** Install a variable speed motor and controller to regulate flow, such as an AC inverter drive
- **PRIMING:** Install a 3 way valve to bleed the air during the initial start-up
- **FLOW REGULATION / FEEDBACK:** Option 1 - Install a flow meter with an output signal
- **FLOW REGULATION / FEEDBACK:** Option 2 - Install a residual measurement device with an output signal
- **POSSIBLE FOREIGN MATERIALS IN FLUID:** An oversize 10 to 25 micron inlet filter is recommended
- **OUTGASSING:** Slope the inlet line back to the tank and install a vent pipe to limit gas trapping
- **SYSTEM PRESSURE VARIATION:** A backpressure valve maintains a constant discharge pressure for best accuracy
- **FLOW REGULATION:** A calibration column may be installed for periodic pump calibration
- **FLOW VERIFICATION:** A pressure or flow sensor may be installed to verify fluid flow

COMPONENT RECOMMENDATIONS

COMPONENT	RECOMMENDATION
Calibration Cylinder	Optional
Back Pressure or Back Flow Valve	Optional
3 Way Valve / Priming Valve	Preferred
Relief Valve - External	Optional
Injection Valve	Optional
Inlet Strainer/Filter	Preferred
Flow Meter	Optional
Pulsation Dampener	No



**FIGURE 1: EXAMPLE OF SODIUM
HYPOCHLORITE METERING SYSTEM**



**FIGURE 2: TYPICAL EXTERNAL
GEAR PUMP METERING SYSTEM**

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