

ECO & Isochem[®]
Gear Pumps

Pulsafeeder Technology

Since 1936, Pulsafeeder has been the global leader in fluid handling technology and innovation in chemical dosing. Pulsafeeder has built a foundation of success with thousands of installations in fluid handling applications. Our extensive product breadth enables us to provide the convenience and efficiency of single-source solutions across various industries.

Pulsafeeder ECO® and Isochem® Gear Pumps

Pulsafeeder gear pumps are constructed out of the strongest materials available to provide superior chemical resistance and assure long life. Designed to handle a wide range of viscosities and temperatures, the ECO and ISO-CHEM gear pumps are perfect for most transfer or metering applications. Gearchem pumps offer laminar flows for consistent, continuous, measurable transfer of liquids. With Pulsafeeder's ECO and ISO-CHEM pumps, you can count on years of safe, leak-free service, easy maintenance and a solid reputation for quality.

Product Specifications

- Flows to 55 gpm (208 lpm)
- Pressures to 200 psi (13.8 bar)
- Accuracy of +/-5% of flow with repeatability of +/-2%
- Fluid Temperatures of -40°F to 450°F (-40°C to 232°C)
- Viscosity up to 1,000,000 cPs
- Minimum Suction NPSHR of 1 to 2ft

Materials of Construction

- *Casing/Housing materials:* 316SSL, 316SS, Alloy C, Alloy 20
- *Drive and Idler Gear materials:* 316SSL, 316SS, Alloy C, Alloy 20, TFE (Glass-Filled), PEEK
- *Bearing materials:* Carbon 72, Carbon 92, Glass-filled PTFE, Silicon Carbide
- *Wearplate materials:* Carbon 72, Ceramic, Glass-filled PTFE, PEEK
- *Shaft materials*:* 316SSL, 316SS, Alloy 20, Alloy C

Typical Applications

- Adhesives and Resins
- Catalysts
- Odor Control Additives
- Fertilizers
- Polymers
- Flocculants
- Caustics
- Hydrochloric Acid
- Solvents
- Biocides
- Dyes and Bleaching chemicals
- Detergents
- Many More

*All shaft materials can be hard coated for superior abrasion resistance. Standard with Silicon Carbide bearing selection.

ECO® & Isochem®

Flow and Pressures Specifications

SERIES	MAX FLOW GPM (LPM)	MAX WORKING PRESSURE PSI (BAR)
2	1.5 (6)	200 (14)
4	3 (11)	200 (14)
6	10 (38)	150 (10)
8	22 (83)	150 (10)
H6	10 (38)	250 (17)
H8	22 (83)	200 (14)
12*	28 (106)	200 (14)
16*	60 (227)	200 (14)

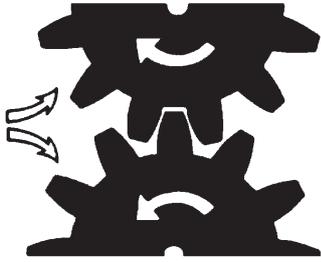
* Consult factory for extended flows and their materials of constructions.

Theory of Operation

Gear pumps are frequently relied upon for product transfer. They can handle both high and low viscosity and high and low temperature fluids including liquefied gasses. Typically they are employed to transfer fluids from vehicles to storage tanks or from tank to tank.

The advantage of utilizing gear pumps in metering is based in its consistency. Feedback from flow meters and sensors can control motor speed to maintain a steady consistent flow regardless of changes in viscosity, pressure or temperature. When you control the motor, you control the output.

Gear Pump Technology



ECO® TECHNOLOGY

At the heart of each ECO Gearchem pump are two tightly toleranced, machine-generated spur gears—a drive and an idler gear. Self priming capability is accomplished by our closely toleranced gears which seal tightly to evacuate air from the suction piping. Gearchem pumps provide linear, laminar flows. The pumps are bidirectional which lets you easily change flow direction.

ECO® & Isochem® CONFIGURATIONS

The ECO family is available in the following models: G2, GA2, G4, GA4, G6, GA6, GH6, G8, GA8, GH8, GA12 and GA16.



GA2



GA4



GA8



ECO GC2
Closed Coupled



ECO GC4
Closed Coupled



ECO GC8
Closed Coupled

The ISOICHEM family is available in the following models: GMC1, GMC2, GMC4, GMC6, GMH6, GMC8, GMH8, GM12 and GM16.



GMC2

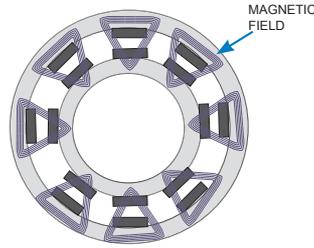


GMC4

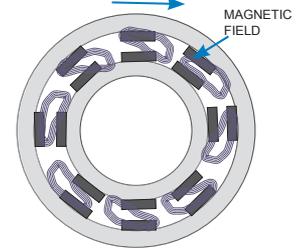


GMH8

MAGNETIC COUPLING (Static-No Load)



MAGNETIC COUPLING (Dynamic Loaded)



Isochem® TECHNOLOGY

The science behind Isochem centers on sealless magnetic technology which results in a completely leak-free pump. The drive magnet is fixed to the motor shaft and works in conjunction with the driven magnet. As the pump is engaged, the drive magnet begins its rotation and pulls the driven magnet along due to the magnetic force. As the shaft is completely contained, there is no possibility of fluid leakage and therefore no need for mechanical seals. The permanent magnet material is available in either neodymium iron or rare earth samarium cobalt. The torque capacity of both are incredibly high and virtually eliminates any possibility of coupling slippage.

Features and Benefits

ECO[®]



Can Handle a Variety of Fluid Viscosities

- Extensive material availability provides versatility for pumping low or high viscosity fluids
- Can handle clear lubricating and non-lubricating fluids including hydrocarbons and polymer 0.8 to 1,000,000 cPs



Three Types of Seal and Packing Arrangements

- Internal mechanical seals (single or double)
- External mechanical seals (for pressure or vacuum service)
- Packing (standard or lantern ring)



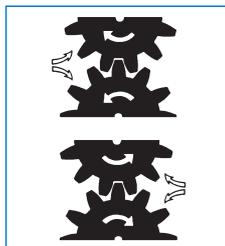
Replaceable Wearplates Restore ECO to “Like New” Performance

- Easily replaceable
- Available in a variety of materials including carbon, PTFE (glass-filled), PEEK and ceramic.
- Prevents gears from coming into contact with the housing



Internal Sleeve Type Bearings

- Lubricated by the process fluid
- No risk of contamination from external lubrication materials
- Offered in glass-filled PTFE, carbon graphite impregnated, carbon graphite impregnated sintered for hardness and to extend life-also available is Silicon Carbide (sintered).



Self-Priming* and Bi-Directional

- Closed running and operating clearances evacuate air from the suction piping
- Pumps are bi-directional for ease of installation
- Suction and discharge ports are dependent upon motor wiring and shaft rotation
- Flow direction can be reversed by changing motor direction

* After initial priming (wetted)

Features and Benefits

Isochem[®]



Magnetic Coupling Eliminates Mechanical Seals

- Magnetic Drive Technology eliminates leakage of hazardous, toxic, and corrosive chemicals
- Downtime and maintenance costs are reduced as there are no worn seals to replace
- Eliminates costly seal flush systems required with all pumps with double mechanical seals



Superior Corrosion Resistance and Long Life

- 316SS, Alloy 20 and Alloy C housing provide maximum chemical resistance
- Alternate gear, bearing, and wearplate materials for maximizing pump life and compatibility



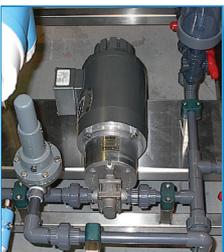
Minimizes Heating

- Reduced eddy heating current with optional Alloy C containment can
- Designed with recirculation wearplates and bearings
- Positive lubrication grooves in bearings help to reduce heat caused by friction
- One piece containment can eliminates any chance for leakage



Closed Coupled Design

- Eliminates the alignment problems that are inherent in long coupled base units
- Close coupled mounting for NEMA C-Face and IEC B14 (B34) motors
- Laser alignment equipment is not required
- Reduce overall pump and motor footprint



Compact and Self-Priming

- Compact size makes pumps ideal for a variety of footprints
- Self-priming and reliable
- Manufactured to close tolerances to assure repeatable performance

Control Options



MPC VECTOR

The MPC Vector is a microprocessor based motor speed control device, for use with all pump technologies and has been designed for simplicity, yet has many advanced features that allow a wide variety of environments and applications. The product is not just a variable speed drive, rather it is a state of the art multifunctional controller.

- Sensorless, vector type drive
- Wide range of flow control
- Infinite turndown with the appropriate motor
- Displays flow in GPH, LPH, GPM, or LPM
- Displays speed in RPM
- Display can be set in one of five programmable languages
- NEMA 4X (IP56) rating on the control and handheld keypad enclosures
- Can be mounted up to 1000ft (304m)
- Security code to lock out unauthorized users
- Input, output processor (4-20 mA and digital)
- PID loop for closed loop flow control

Use the MPC Vector to Monitor:

- Supply tank level
- Pump flow verification
- Remote status indication of pump (on/off)
- Pump alarm status
- Pump auto/manual status

Pump Options

In addition to the material offerings for ECO and Isochem pumps, there are a variety of options that allow you to customize your ECO or Isochem pump to meet the application specifications. Not shown but also available are flush ports and pedestal assemblies.



Base Mounted Units: Both pumps can be mounted on formed bases of heavy-gauge carbon or stainless steel. These complete units provide easy installation.



Close coupled ECO Gearchem pumps provide a compact alternative to limited space requirements. The one piece design affords simple installation, eliminates misalignments, and is inherent safe for rotating components.



Bolt-On Thermal Jackets help to regulate the pumping temperature of the process liquid. The jackets are designed to conform closely to pump contours to transfer heat evenly.



Flanged Ports: Raised faced 150lb ANSI flanges are available on the suction and discharge ports of both Isochem and ECO. They are available in all sizes (excluding GMC1).

Systems



Utilizing ECO GA12 Flanged Pump to pump resin.

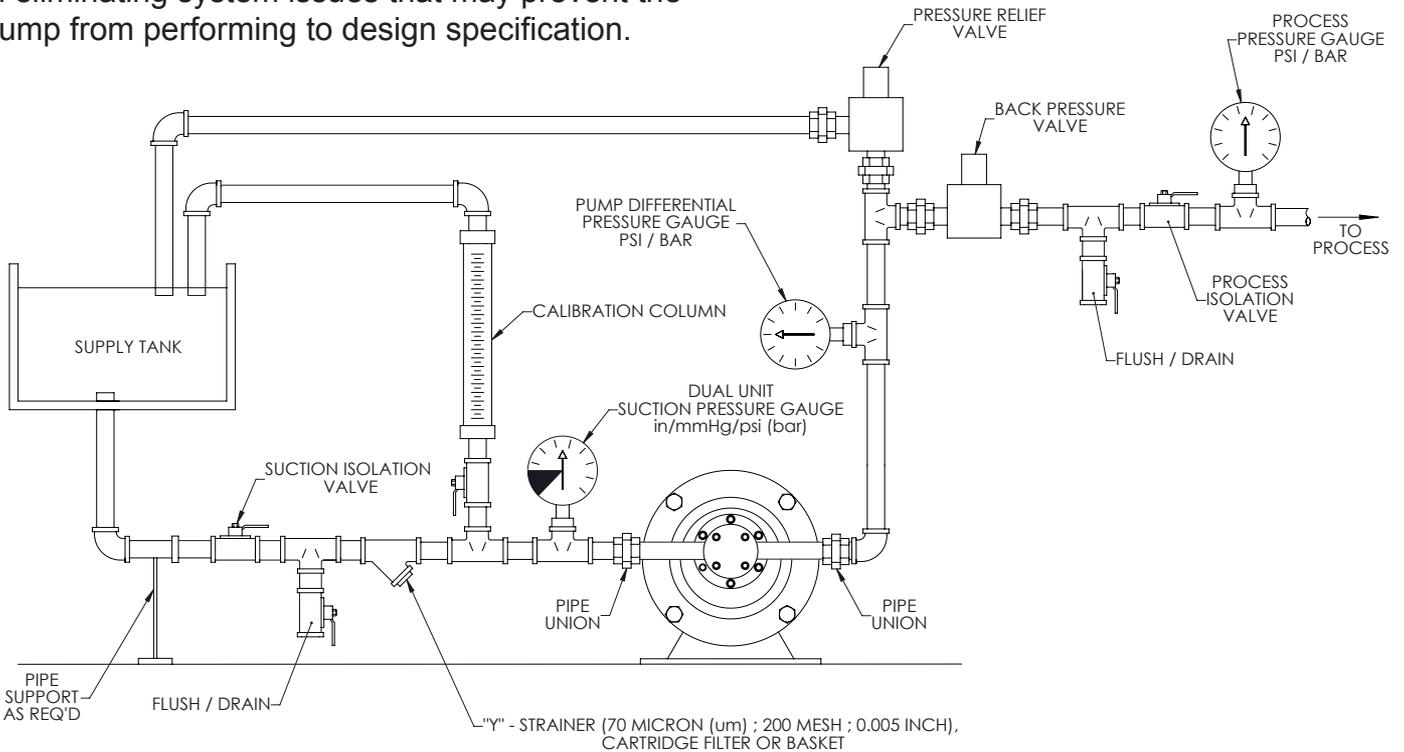


ISOCHEM GMC4

Canadian municipal water treatment plants rely upon Isochem to keep their water supply clean.

RECOMMENDED INSTALLATION

Accessories and instrumentation are essential in eliminating system issues that may prevent the pump from performing to design specification.





A **KOPkit® (Keep On Pumping)** can help you cut downtime and put you back in business fast. Use KOPkits for preventive maintenance and to ensure continuous high performance from your Pulsafeeder metering pump.

Pressure Relief Valves

prevent an overpressurization situation from ever damaging your pumps or pumping system. Overpressurization can occur when a valve is closed or a blockage occurs. They are always recommended equipment for any pump or skid system.



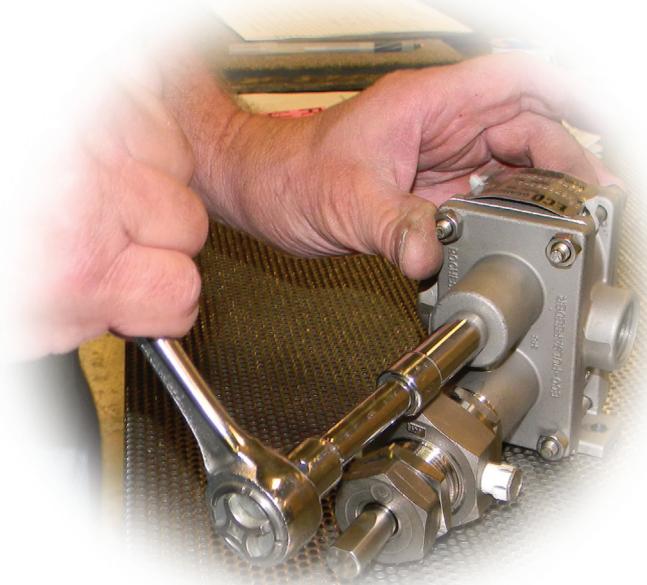
MPC Vector

A state of the art multi-functional controller that utilizes a sensorless vector motor control technology.



Pedestals and Base Mounts

help to provide proper alignment of the pump with the motor. They provide stability, strength, and assure proper positioning.



Y-Strainers arrest out debris in pipelines, protecting equipment and processes. They prevent premature wear of the rotating components within a pump.



Calibration Columns

These columns are constructed of clear PVC tubes with PVC end caps or an option for Borosilicate glass with Teflon end caps and should be sized for a 30-second draw down.



Pressure Gauges are relied on to measure pressure in the system. Proper pressure is necessary to ensure flow. Pulsafeeder Pressure Gauges are accurate and reliable.



Back Pressure Valves provide positive back pressure for systems with less than the minimum required pressure difference between the discharge and suction side of the metering pump. They assure optimum metering performance.