D, T, P, & W Series Pumps
Magnetically Coupled External Gear Pumps
Magnetically Coupled External Gear Pump

- Magnet containment
- No dynamic seals
- Magnetic coupling
- Gears: The only moving parts
- Robust five bearing design
# External Gear Product Line

<table>
<thead>
<tr>
<th>Series</th>
<th>Displacement</th>
<th>Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-Series</td>
<td>0.11 to 2.3 mL/Rev</td>
<td>120 GPH @ 3500 RPM, 380 LPH @ 2900 RPM</td>
</tr>
<tr>
<td>T-Series</td>
<td>2.6 to 12 mL/Rev</td>
<td>650 GPH @ 3500 RPM, 2050 LPH @ 2900 RPM</td>
</tr>
<tr>
<td>P-Series</td>
<td>0.38 to 1.2 mL/Rev</td>
<td>60 GPH @ 3500 RPM, 190 LPH @ 2900 RPM</td>
</tr>
<tr>
<td>W-Series</td>
<td>0.11 to 12 mL/Rev</td>
<td>650 GPH @ 3500 RPM, 2050 LPH @ 2900 RPM</td>
</tr>
</tbody>
</table>
## Side-by-Side Comparison

<table>
<thead>
<tr>
<th></th>
<th>P-Series</th>
<th>D-Series</th>
<th>T-Series</th>
<th>W-Series</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Displacement (ML/Rev)</strong></td>
<td>0.23 to 1.2</td>
<td>0.11 to 2.3</td>
<td>2.6 to 12.0</td>
<td>0.11 to 12.0</td>
</tr>
<tr>
<td><strong>Flow, Maximum</strong></td>
<td>1 GPM (3.8 LPM)</td>
<td>2 GPM (7.6 LPM)</td>
<td>10 GPM (38 LPM)</td>
<td>10 GPM (38 LPM)</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>PPS &amp; 316 SS</td>
<td>316 SS</td>
<td>316 SS</td>
<td>316 SS</td>
</tr>
<tr>
<td><strong>Optional Materials</strong></td>
<td>PPS, Hastelloy, or Titanium</td>
<td>Hastelloy C or Titanium</td>
<td>Hastelloy C or Titanium</td>
<td>Hastelloy C or Titanium</td>
</tr>
<tr>
<td><strong>Differential Pressure</strong></td>
<td>150 PSI (10 BAR)</td>
<td>250 PSI (17 BAR)</td>
<td>250 PSI (17 BAR)</td>
<td>250 PSI (17 BAR)</td>
</tr>
<tr>
<td><strong>System Pressure</strong></td>
<td>300 PSI (21 BAR)</td>
<td>500 PSI (34 BAR)</td>
<td>500 PSI (34 BAR)</td>
<td>500 PSI (34 BAR)</td>
</tr>
<tr>
<td><strong>Temperature, Maximum</strong></td>
<td>150ºF (65ºC)</td>
<td>350ºF (176ºC)</td>
<td>350ºF (176ºC)</td>
<td>350ºF (176ºC)</td>
</tr>
<tr>
<td><strong>Ports</strong></td>
<td>⅛ NPT</td>
<td>⅛ NPT &amp; ¼ NPT</td>
<td>⅜ NPT &amp; ¾ NPT</td>
<td>¼, ⅜, &amp; ¾ NPT</td>
</tr>
<tr>
<td><strong>Non-standard Ports</strong></td>
<td>None</td>
<td>Available</td>
<td>Available</td>
<td>None</td>
</tr>
<tr>
<td><strong>Gear &amp; Bearing Matl</strong></td>
<td>PPS</td>
<td>PPS or PEEK</td>
<td>PPS or PEEK</td>
<td>PPS or PEEK</td>
</tr>
<tr>
<td><strong>Optional Gear &amp; Bearing Materials</strong></td>
<td>None</td>
<td>Available</td>
<td>Available</td>
<td>None</td>
</tr>
<tr>
<td><strong>O-ring Materials</strong></td>
<td>VITON</td>
<td>VITON or PTFE</td>
<td>VITON or PTFE</td>
<td>VITON or PTFE</td>
</tr>
<tr>
<td><strong>Optional O-ring Matl</strong></td>
<td>As Required</td>
<td>As Required</td>
<td>As Required</td>
<td>None</td>
</tr>
<tr>
<td><strong>Relief Valve</strong></td>
<td>Optional</td>
<td>Optional</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Typical Expected Life</strong></td>
<td>10,000 Hours</td>
<td>20,000 Hours</td>
<td>20,000 Hours</td>
<td>20,000 Hours</td>
</tr>
</tbody>
</table>
D-Series Features

• 316 Stainless Steel Construction *(Hastelloy and Titanium Options)*
• Flow Range From .11 to 2.3 mL/Rev
• Differential Pressure to 250 PSI *(17 Bar) (Water)*
• System Pressure to 500 PSI *(34 Bar)*
• Temperature Range: -50 to 350º F (-46 to 176º C)
• ⅛ or ¼ NPT Ports
• Several Gear & Bearing Material Options
• Relief Valve Option
• 20,000 Hour Life Expectancy
P-Series Features

- PPS Body and Bearing Construction
- 316 Stainless Steel Trim (*Hastelloy and Titanium Trim Options*)
- Flow Range From .38 to 1.2 mL/Rev
- Differential Pressure to 150 PSI (*10 Bar*) (*Water*)
- System Pressure to 300 PSI (*21 Bar*)
- Temperature Range: -40 to 150º F (*-40 to 66º C*)
- ⅛ NPT Ports
- Relief Valve Option
- 10,000 Hour Life Expectancy
T-Series Features

• 316 Stainless Steel Construction (*Hastelloy And Titanium Options*)
• Flow Range From 2.6 to 12 mL/Rev
• Differential Pressure to 250 PSI (*17 Bar*) (*Water*)
• System Pressure to 500 PSI (*34 Bar*)
• Temperature Range: -40 to 350º F (*-40 to 176º C*)
• ⅜ NPT Ports; 2.6, 5.3 & 7.9
• ¾ NPT Inlet & ½ NPT Outlet Ports (*T12. & T8.0*)
• 20,000 Hour Life Expectancy
W-Series Features

- 316 Stainless Steel, Hastelloy, or Titanium Construction
- Flow Range From .11 to 12 mL/Rev
- Welded Driven Magnet Included in Hastelloy and Titanium
- Differential Pressure to 250 PSI (17 Bar) (Water)
- System Pressure to 500 PSI (34 Bar)
- Temperature Range: -40 To 350º F (-40 To 176º C)
- Metering Accuracy Better Than 1%
- 20,000 Hour Life Expectancy
- External Relief Valve is Recommended
External Gear Pump Features

• Positive Displacement
• Magnetically Coupled
• Only Two Moving Parts
• Non-Sliding Gear Mesh
• Five Bearing Design D, P, & T Series
• Precision Tolerances

• Chemical & Corrosion Resistant Materials
• High Strength Engineered Plastics
• High Rotational Speed Design
• Low Slip to Displacement Ratio
External Gear Pump Benefits

- Self-Priming
- Leak Free Operation
- Up To 20,000 Hour Life
- Smooth Flow Delivery
- No Seal Leakage, Wear, Or Heat

- Metering Capable with Appropriate Drive and Feedback
- Large Turn Down Ratio
- Excellent Efficiency
- Low NPSHR
- Low Heat Generation
More External Gear Pump Benefits

- High Differential Pressure
- High System Pressure
- Wide Temperature Range
- Wide Viscosity Range

- Compact Package Size
- Adaptable to Many Options
- Complimentary to OEM Applications
- Field Repairable
  \((D & T Series)\)
Applications

- Heat Transfer
- Metering
- Chemical Handling
- Fluid Transfer
- Dispensing
- Dosing
- Lubrication
- Sampling
- Circulation
- Cooling
- Cleaning
- Process
More Application Examples

- High G-Load Cooling
- Chemical Metering
- Adhesive Dispensing
- Oil Recycling
- Bakery Release Oil Spray
- Engine Testing
- Biodiesel Manufacturing
- Animal Feed Systems
- Agricultural Antifungal/Bacterial Spray
- Food Flavoring
Slide Staining
Sprays Cleaning Fluids And Staining Dyes

- Pump
- P-Series
- Cleaners
- Fluids
- Stains
- Motor
- DC
- Gears
- PPS
- Bearings
- PPS
Air Conditioner Compressor Lube

Oil and Freon Separation

- Pump D-Series
- Compressor Oil
- Fluid
- Motor AC Reversing
- Gears
- Bearings PPS
Automotive Service Equipment

Fuel Injection Cleaning Machine

- Pump
- Fluid
- Pressure to 100 PSI
- Motor
- Brushed 12V DC Drive
- Gasoline & Diesel w/Cleaning Agents

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Automotive Service Equipment

Transmission Fluid Exchange

- Pump D-Series
- ATF Fluid
- Pressure Up to 20 PSI
- Brushed 12V DC Drive
- Motor

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Ultra Pure Water
Provides Pressurized Water Flow

Pump D-Series
Pure Water
Fluid
Pressure To 50 PSI
AC Motor
Gears PPS
PPS Bearings
Soft Serve Ice Cream Machine

Pumps Heat Transfer Fluid for Sterilization Cycle

- Pump D-Series
- Fluids: Ethylene Glycol, Water
- Motor: AC
- Gears: PPS
- Bearings: PPS

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Kidney Dialysis
Pumps Dialysate Cleaning Fluid

Pump
D-Series

Dialysate

Fluid

Pressure
To 50 PSI

AC
Motor

Gears
PPS

PPS
Bearings
PEM Fuel Cell

Cools the Fuel Cell

PEM (Proton Exchange Membrane)

Fuel Flow Field Plate

Fuel for Recirculation

Low Temperature Electrochemical Process (90°C)

Oxidant Flow Field Plate

Exhaust Water Vapor (No Pullution)

Heat (90°C) Water - Cooled

Air

Fuel (Hydrogen)

Pump

D-Series

T-Series

Water

Fluid

Motor

BLDC

PPS

Gears

Bearings

PPS

Bearings
Flash Chromatography
Dispenses Various Solvents Into Chromatography Columns
Laser – Industrial, Scientific, & OEM

Cools the Laser Head

Diagram showing components: Pump, D-Series, P-Series, Water, Fluid, Motor, BLDC, Gears, PPS, Bearings.
Medical Laser
Cools the Laser Head

- Pump: D-Series
- Fluid: Fluorinert™ FC-770
- Viscosity: 1.9 Cps
- Gears: PPS
- Bearings: PPS
Industrial Ink Jet

Pumping Ink to the Print Head

- Pump D-Series
- MEK Based Ink
- Fluid
- Gears PEEK
- Bearings PEEK
- PEEK
Airport Explosive Detection System

Computerized Tomography (CT) X-Ray Oil Bath Circulation

- Pump T-Series
- Diala X Oil
- Fluid
- Motor AC
- Gears PPS
- Bearings PPS
Semiconductor Thermal Control Chuck

Pumps Heat Transfer Fluid

Flourinert
(-65°C to 60°C)
Waste Water Treatment

Chemical Metering Injection

Replaced Pulsafeeder Diaphragm Metering Pump

- Pump D-Series
- Fluid: Sodium Hypochlorite
- Material: Hastelloy C276
- Motor & Inverter Drive: AC
- Gears & Bearings: PEEK
- Welded Magnet

Waste Water Treatment
Chemical Metering Injection

- Replaced Pulsafeeder Pump
- Pump T-Series
- Sodium Bisulfide
- Fluid
- 316 Stainless Steel
- Motor & Inverter Drive
- AC
- Gears & Bearings
- PPS
Waste Water Treatment

Chemical Metering Injection

- Pump T-Series
- Methanol
- Fluid
- Material 316 Stainless Steel
- Motor & Inverter Drive
- Gears & Bearings
- PPS

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At-The-Pump Dispensing
Dispenses Additives Into the Gasoline During the Vehicle Fueling Cycle

- Hose Selection Manifold
- Calibration Test Port
- Product Flow Meter
- Additive Fill Cap
- Pump
- Additive Storage Tanks

Pump
D-Series

Solvents
Fluid

Motor
AC Motor
Non-Sparking

PPS
Gears & Bearings
Certs
UL Approved
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