When it comes to lubrication, Graco has the answers!

While critical bearings are hard at work on your machine tool, production and press equipment, Graco’s line of centralized and automatic lubrication systems is delivering precise amounts of lubricant at frequent intervals to every lube point—even if they’re hard to reach.

**Advantage:**
- Extend Equipment Life
- Maximize Performance
- Minimize Downtime

With Graco automatic lubrication systems you get:
- Increased productivity—Longer machine life and reduced downtime
- Reduced operating costs—Reduced repair labor and component costs
- More efficient lubrication—Small, carefully controlled amounts when needed

**Graco Automatic Lubrication Systems apply the correct amount of lubrication in the right place at the right time**

<table>
<thead>
<tr>
<th>Manual Lubrication</th>
<th>Automatic Lubrication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Over Lubrication</strong></td>
<td></td>
</tr>
<tr>
<td>• Excess heat build-up</td>
<td></td>
</tr>
<tr>
<td>• Wasted lubricant</td>
<td></td>
</tr>
<tr>
<td>• Unnecessary labor cost</td>
<td></td>
</tr>
<tr>
<td><strong>Optimal Lubrication</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Under Lubrication</strong></td>
<td></td>
</tr>
<tr>
<td>• More component wear</td>
<td></td>
</tr>
<tr>
<td>• Higher energy usage</td>
<td></td>
</tr>
<tr>
<td>• Increased operating costs</td>
<td></td>
</tr>
</tbody>
</table>

**EXAMPLE:** Infrequent filling of the bearing results in periods of over and under lubrication

**EXAMPLE:** Maintain optimal lubrication by replenishing only the lubricant that is used, with small amounts at frequent intervals.
Choosing the Right Lubrication System

System Components

**Metering is the heart of the system**

Accuracy, reliability and durability—all designed into Graco metering devices. Long-runs, high psi, continuous lube... whatever your lubrication requirements, we’ve got you covered.

**Monitoring and detection accessories to complete your system**

Graco supplies a wide variety of high quality accessories to complete your system. Choose from simple shut down devices, low level switches, blow out discs for high pressure detection or performance indicators.

**Pumps with muscle to do the job right**

If you need a pump, Graco makes it! Our line-up includes pumps for grease and oil with a wide variety of outputs to handle everything from your smallest to your largest jobs.

Which system is right for you?

1) How many lube points are there?  
2) What kind of power source do I have?  
3) How long is the lube line run length?  
4) What type of lubrication material do I use?  
5) What kind of feedback do I want?  
6) Indoor or outdoor use?

---

### System Selection Considerations

<table>
<thead>
<tr>
<th></th>
<th>Single Line Resistive</th>
<th>Single Line Parallel</th>
<th>Series Progressive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Materials</strong></td>
<td>Oil</td>
<td>Fluid Grease</td>
<td>Grease</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Metering Device</strong></td>
<td>Orifice</td>
<td>Piston Distributor/Injector</td>
<td>Divider Valve</td>
</tr>
<tr>
<td><strong>Run Line Length</strong></td>
<td>Typically Short</td>
<td>Typically Short</td>
<td>Varies*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*to ensure proper pressure relief after each lubrication cycle</td>
<td>*based on individual system zoning needs</td>
</tr>
<tr>
<td><strong>Typical Machine Size</strong></td>
<td>Small</td>
<td>Small to Medium</td>
<td>Small to Large</td>
</tr>
<tr>
<td><strong>Output Adjustment</strong></td>
<td>Basic</td>
<td>Small to Medium</td>
<td>Small to Large</td>
</tr>
<tr>
<td><strong>Feedback</strong></td>
<td></td>
<td>Pressure Switch or Visual</td>
<td>Visual/Electronic</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dispense Volume/Cycle</strong></td>
<td>Time Dependent</td>
<td>Small</td>
<td>Small to Medium</td>
</tr>
</tbody>
</table>
Simple Solutions to Tight Spaces and Budgets

Single line resistive systems keep small to medium machine tools running smoothly. The most basic of automatic lubrication systems, also known as an orifice system, is easy to design, install and operate. Graco offers a complete range of orifices, pumps, controllers and accessories to meet your application needs.

Time and Flow are the Key

The Graco Thrif-T-Luber system meters the amount needed to each bearing point for a set amount of time. Once complete, the timer counts down to the next cycle. It’s really that simple.

Benefits

- Wide range of metering and connection options gives you freedom to design a system to meet your requirements
- Low pressure requirement and simple threaded connections make installation fast and easy
- Few basic components are required for a complete system, keeping you within budget
- Easily expandable—quickly remove a plug or change a block to a tee and begin to add metering with minimal effort

System Considerations

- Designed for oil only
- Limited number of points
- No system monitoring
- On/off only system
- System cannot function with a broken line
More Precision, More Fluids, More Lube Points

Graco’s single line parallel systems include piston distributors and injectors to deliver the right amount of lubricant at the right time to your multiple axis machine tools, bottling lines or injection molding machines. Basic system monitoring helps protect your hard-working machine from heat, damaging friction and unexpected breakdowns.

Precision Dispensing Using Pressure

In single line parallel systems, the pump builds pressure to trigger the metering piston and deliver the precise amount of lubricant to the bearing. Once the pressure switch or system run time is complete, the system vents the pressure and resets for the next cycle.

Benefits

- Basic monitoring ensures the system is operating properly
- Designed for higher pressures to handle a wide variety of lubricants up to NLGI #1
- Different sized injectors give you a wide output range to lubricate any size bearing
- One-to-one relationship between the metering device and the lube point for precision dispensing

System Considerations

- System requires venting for metering device reset
- Blocked or pinched lines allow the system to continue to work, but those bearings will not receive lubricant
- Provides basic system monitoring

Graco Equipment Solutions

Metering Devices
- Injecto-Flo II Piston Distributors
- LubriSystem Injectors
- GL-1 Injectors

Pumps
- Injecto-Flo II
- LubriSystem
- EO-1, EO-3
- AO-1

Controllers
- Solid State Timer
- TC-1000
- DC-Timer
- LC-1000
- Maxi-Monitor
- Multi-Purpose Controller
Maximum Performance and Flexibility

Graco’s series progressive systems give you the most advanced centralized lubrication with numerous metering and accessory options available. Ideal for machining centers, forming presses or any application requiring precise lubrication. Get the information you need to ensure your machine is functioning at peak performance with the right amount of lubrication.

How it Works

As the lubricant flows through the passages of each block, the metering pistons move to one side in sequence from inlet to end, each time “dosing” the precise amount of lubricant. As long as the lubricant is flowing, the pistons are moving. If there are blocks or too much pressure for the system to overcome, the cycling stops and the system controller lets you know.

Benefits

- Large number of outputs to handle a full range of oils and greases
- Most advanced and precise monitoring with overall system diagnostics plus troubleshooting at the lube point
- Flexible to dispense lubricants in multiple zones—you decide where and when to lubricate
- Covers the broadest range of small to large applications
- Most series available with NPSF, SAE or BSPP threads for worldwide adaptability

System Versatility

- Highly customizable
- Multiple zoning options
- Configure to any application
- Many pump choices
- Multiple feedback and controller options

Graco Equipment Solutions

Metering Devices

- MD Divider Valves
- MJ Divider Valves
- MSP Divider Valves
- MXP Divider Valves
- MX Divider Valves
- MGO Divider Valves

Pumps

- Modu-Flo
- Tri-Lube
- Miniature Meterflo
- EO-1
- Injecto-Flo II
- Lubemaster

Controllers

- LC-1000
- Maxi Monitor
- Multi-Purpose Controller
**Metering Solutions**

**Single Line Resistive System**

**Thrif-T-Luber® Orifices**

- Fast payback—easily pays for itself!
- Easy system design and modification
- Full range of metering amounts for lubricating almost any machine
- Available in three types and ten flow ranges to meet lube requirements
- Quality sintered bronze filters won’t shred or clog like felt filters

**Technical Specifications**

<table>
<thead>
<tr>
<th>Cracking Pressure</th>
<th>2 psi (0.1 bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Pressure</td>
<td>150 psi (10 bar)</td>
</tr>
<tr>
<td>Filter Rating</td>
<td>40 micron</td>
</tr>
<tr>
<td>Orifice Type A</td>
<td>Direct to bearing</td>
</tr>
<tr>
<td>Orifice Type B</td>
<td>Manifold</td>
</tr>
<tr>
<td>Orifice Type C</td>
<td>Direct to bearing or Tee</td>
</tr>
</tbody>
</table>

**Single Line Parallel System**

**Injecto-Flo® II**

- Piston distributor style single line meters known world-wide for fast simple installation
- Seven different groups with two different mounting types, thread to manifold or cast manifold to serve a broad range of lube point requirements
- Metering nipples can be changed to fine-tune your dispense volumes

**Technical Specifications**

<table>
<thead>
<tr>
<th>3200 Series</th>
<th>3400 Series</th>
<th>3410 Series</th>
<th>3500 Series</th>
<th>3510 Series</th>
<th>3900 Series</th>
<th>3910 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil/Fluid Grease</td>
<td>Oil</td>
<td>Oil</td>
<td>Fluid grease</td>
<td>Oil</td>
<td>Fluid grease</td>
<td>Oil</td>
</tr>
<tr>
<td>Reset Pressure</td>
<td>150 psi (10 bar)</td>
<td>150 psi (10 bar)</td>
<td>150 psi (10 bar)</td>
<td>150 psi (10 bar)</td>
<td>150 psi (10 bar)</td>
<td>150 psi (10 bar)</td>
</tr>
<tr>
<td>Maximum Operating Pressure</td>
<td>650 psi (45 bar)</td>
<td>650 psi (45 bar)</td>
<td>650 psi (45 bar)</td>
<td>650 psi (45 bar)</td>
<td>650 psi (45 bar)</td>
<td>650 psi (45 bar)</td>
</tr>
<tr>
<td>Output Range</td>
<td>.0006 – .009 in³ (0.01 – 0.16 cm³)</td>
<td>.0006 – .009 in³ (0.01 – 0.16 cm³)</td>
<td>.0006 – .006 in³ (0.01 – 0.16 cm³)</td>
<td>.006 – .036 in³ (0.1 – 0.6 cm³)</td>
<td>.006 – .019 in³ (0.1 – 0.6 cm³)</td>
<td>.012 – .09 in³ (0.2 – 1.5 cm³)</td>
</tr>
<tr>
<td>Metering Nipple Options</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Thread to Manifold</td>
<td>Available</td>
<td>N/A</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>Cast Manifold Outlets</td>
<td>N/A</td>
<td>2, 3, or 5</td>
<td>2, 3, or 5</td>
<td>2, 3, or 5</td>
<td>2, 3, or 5</td>
<td>2 or 3</td>
</tr>
</tbody>
</table>
Single Line Parallel System

Features
- Convenient cycle indicator option allows for simple visual system troubleshooting
- Two piece compression fitting included for fast, easy installation
- Bundled system tubing for easy installation
- Threaded outlet allows for manifold or direct-to-bearing mounting
- Adjustable output volume

Technical Specifications

<table>
<thead>
<tr>
<th>Fluids Allowed</th>
<th>Oil to NLGI #0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset Pressure</td>
<td>160 psi (11 bar)</td>
</tr>
<tr>
<td>Maximum Pressure</td>
<td>2,500 psi (172 bar)</td>
</tr>
<tr>
<td>Output Range</td>
<td>0.002 – 0.26 in³ (0.033 – 0.426 cm³)</td>
</tr>
<tr>
<td>Metering Output Options</td>
<td>6</td>
</tr>
<tr>
<td>Cycle Indicator</td>
<td>Optional</td>
</tr>
</tbody>
</table>

Rugged, medium-pressure metering system for pumping grease; ideal for heavier-duty applications such as cement batch plants or material processing equipment.

GL-1™ Injectors

Features
- Easy to change output volume in the field—no need to remove plumbing
- Standard TFE seals for compatibility with a wide range of lubricants and operating temperatures
- Visual indicator pin for quick and easy system diagnostics

Technical Specifications

<table>
<thead>
<tr>
<th>Recommended Fluids</th>
<th>NLGI #1 or lighter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset Pressure</td>
<td>450 psi (11 bar)</td>
</tr>
<tr>
<td>Maximum Pressure</td>
<td>3,000 psi (207 bar)</td>
</tr>
<tr>
<td>Output Range</td>
<td>0.008 – 0.08 in³ (0.13 – 1.31 cm³)</td>
</tr>
<tr>
<td>Cycle Indicator</td>
<td>Visual</td>
</tr>
</tbody>
</table>
Metering Solutions

Series Progressive System

**Trabon® MD Series**

**Features**
- The most compact, simple series progressive solution to get to those tough to reach lube points
- Pre-configured to dispense two to six points for a simple installation
- Available with a cycle indicator and/or a cycle switch for a complete, off-the-shelf series progressive solution

**Technical Specifications**

<table>
<thead>
<tr>
<th>Series</th>
<th>MD-2</th>
<th>MD-3</th>
<th>MD-4</th>
<th>MD-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output per Outlet, in³ (cm³)</td>
<td>0.04 (0.66)</td>
<td>0.04 (0.66), Outlet 1 0.02 (0.33), Outlets 2 &amp; 3</td>
<td>0.02 (0.33)</td>
<td>0.01 (0.16)</td>
</tr>
<tr>
<td>Maximum Pressure, psi (bar)</td>
<td>3,000 (207)</td>
<td>3,000 (207)</td>
<td>3,000 (207)</td>
<td>3,000 (207)</td>
</tr>
<tr>
<td>Cycle Indication</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Series Progressive System

**Trabon MJ Series**

**Features**
- Space-efficient—up to 16 points from one modular block
- Up to six different output amounts in three single or twin output block sizes
- Modular design for easy customizing—features include cross porting for larger volumes, cycle indication and simplified troubleshooting with performance indicators

**Technical Specifications**

<table>
<thead>
<tr>
<th>Series</th>
<th>MJ5</th>
<th>MJ10</th>
<th>MJ15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Pressure</td>
<td>2,000 psi (138 bar)</td>
<td>2,000 psi (138 bar)</td>
<td>2,000 psi (138 bar)</td>
</tr>
<tr>
<td>Output Twin Outlet, in³ (cm³)</td>
<td>0.005 (0.08)</td>
<td>0.01 (0.16)</td>
<td>0.015 (0.26)</td>
</tr>
<tr>
<td>Output Single Outlet, in³ (cm³)</td>
<td>0.01 (0.16)</td>
<td>0.02 (0.33)</td>
<td>0.03 (0.49)</td>
</tr>
<tr>
<td>Cycle Indication</td>
<td>N/A</td>
<td>Optional</td>
<td>Optional</td>
</tr>
</tbody>
</table>
Series Progressive System

**Trabon MSP Series**

**Features**

- The industry standard for complete modularity, Graco’s Trabon MSP series is our most customizable series progressive platform.
- Porting options of NPSF, SAE or BSPP allow for worldwide adaptability.
- Minimize down-time with quick change-out of the working section and a broad choice of performance indicators to help provide assurance that the lubrication is done right.
- Precision matched piston fit ensures the system is delivering highly accurate amounts of lubricant repeatedly.
- Optional TFE seals for maximum lubricant compatibility.

**Technical Specifications**

<table>
<thead>
<tr>
<th></th>
<th>MSP5</th>
<th>MSP10</th>
<th>MSP15</th>
<th>MSP20</th>
<th>MSP25</th>
<th>MSP30</th>
<th>MSP35</th>
<th>MSP40</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum Pressure</strong></td>
<td>3,500 psi (241 bar)</td>
<td>3,500 psi (241 bar)</td>
<td>3,500 psi (241 bar)</td>
<td>3,500 psi (241 bar)</td>
<td>3,500 psi (241 bar)</td>
<td>3,500 psi (241 bar)</td>
<td>3,500 psi (241 bar)</td>
<td>3,500 psi (241 bar)</td>
</tr>
<tr>
<td><strong>Output Twin Outlet in³ (cm³)</strong></td>
<td>0.005 (0.08)</td>
<td>0.01 (0.16)</td>
<td>0.015 (0.26)</td>
<td>0.02 (0.33)</td>
<td>0.025 (0.41)</td>
<td>0.03 (0.49)</td>
<td>0.035 (0.57)</td>
<td>0.04 (0.66)</td>
</tr>
<tr>
<td><strong>Output Single Outlet in³ (cm³)</strong></td>
<td>0.01 (0.16)</td>
<td>0.02 (0.33)</td>
<td>0.03 (0.49)</td>
<td>0.04 (0.66)</td>
<td>0.05 (0.82)</td>
<td>0.06 (0.98)</td>
<td>0.07 (1.15)</td>
<td>0.08 (1.31)</td>
</tr>
<tr>
<td><strong>Cycle Indication</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
</tbody>
</table>

**Series Progressive System**

**Manzel® MH Series**

**Features**

- Ideal for compressor and engine application or anywhere high pressure lubrication is required.
- TFE seals standard in MHH valves for temperature and material compatibility.
- SAE, NPSF or metric threading for worldwide compatibility.
- Provides all the features and associated benefits of Graco’s MSP series, at pressures up to 7,500 psi (517 bar).

**Technical Specifications**

<table>
<thead>
<tr>
<th></th>
<th>MH6</th>
<th>MH9</th>
<th>MH12</th>
<th>MH18</th>
<th>MH24</th>
<th>MH30</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum Pressure</strong></td>
<td>6,000 psi (413 bar)</td>
<td>6,000 psi (413 bar)</td>
<td>6,000 psi (413 bar)</td>
<td>6,000 psi (413 bar)</td>
<td>6,000 psi (413 bar)</td>
<td>6,000 psi (413 bar)</td>
</tr>
<tr>
<td><strong>Maximum Pressure MHP Valve</strong></td>
<td>7,500 psi (517 bar)</td>
<td>7,500 psi (517 bar)</td>
<td>7,500 psi (517 bar)</td>
<td>7,500 psi (517 bar)</td>
<td>7,500 psi (517 bar)</td>
<td>7,500 psi (517 bar)</td>
</tr>
<tr>
<td><strong>Output Twin Outlet, in³ (cm³)</strong></td>
<td>0.006 (0.098)</td>
<td>0.009 (0.148)</td>
<td>0.012 (0.197)</td>
<td>0.018 (0.295)</td>
<td>0.024 (0.393)</td>
<td>0.030 (0.492)</td>
</tr>
<tr>
<td><strong>Output Single Outlet, in³ (cm³)</strong></td>
<td>0.012 (0.197)</td>
<td>0.018 (0.295)</td>
<td>0.024 (0.393)</td>
<td>0.036 (0.590)</td>
<td>0.048 (0.787)</td>
<td>0.060 (0.983)</td>
</tr>
<tr>
<td><strong>Cycle Indication</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
</tbody>
</table>
Metering Solutions

Series Progressive System

Trabon MXP Series

Features
- Able to customize with greater output volumes to meet those large machine lubrication requirements
- Delivers lubricant to up to 20 points from a single assembly—combine assemblies for a maximum of 400 lubrication points
- SAE, NPSF or metric threading for worldwide compatibility
- Up to six different output amounts in three single or twin output block sizes

Technical Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>MXP25</th>
<th>MXP50</th>
<th>MXP75</th>
<th>MXP100</th>
<th>MXP125</th>
<th>MXP150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Pressure</td>
<td>3,000 psi (207 bar)</td>
<td>3,000 psi (207 bar)</td>
<td>3,000 psi (207 bar)</td>
<td>3,000 psi (207 bar)</td>
<td>3,000 psi (207 bar)</td>
<td>3,000 psi (207 bar)</td>
</tr>
<tr>
<td>Output Twin Outlet, in³ (cm³)</td>
<td>0.025 (0.41)</td>
<td>0.05 (0.82)</td>
<td>0.075 (1.23)</td>
<td>0.1 (1.64)</td>
<td>0.125 (2.05)</td>
<td>0.15 (2.46)</td>
</tr>
<tr>
<td>Output Single Outlet, in³ (cm³)</td>
<td>0.05 (0.82)</td>
<td>0.1 (1.64)</td>
<td>0.15 (2.46)</td>
<td>0.2 (3.28)</td>
<td>0.25 (4.1)</td>
<td>0.3 (4.92)</td>
</tr>
<tr>
<td>Cycle Indication</td>
<td>N/A</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
</tbody>
</table>

Series Progressive System

Trabon MX Series

Features
- Compact design able to lubricate large bearings
- Delivers up to 0.3 in³ (4.92 cm³) per cycle and has a wide range of accessories to monitor critical lubrication points

Technical Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>MX25</th>
<th>MX50</th>
<th>MX75</th>
<th>MX100</th>
<th>MX125</th>
<th>MX150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Pressure</td>
<td>3,000 psi (207 bar)</td>
<td>3,000 psi (207 bar)</td>
<td>3,000 psi (207 bar)</td>
<td>3,000 psi (207 bar)</td>
<td>3,000 psi (207 bar)</td>
<td>3,000 psi (207 bar)</td>
</tr>
<tr>
<td>Output Twin Outlet, in³ (cm³)</td>
<td>0.025 (0.41)</td>
<td>0.05 (0.82)</td>
<td>0.075 (1.23)</td>
<td>0.1 (1.64)</td>
<td>0.125 (2.05)</td>
<td>0.15 (2.46)</td>
</tr>
<tr>
<td>Output Single Outlet, in³ (cm³)</td>
<td>0.05 (0.82)</td>
<td>0.1 (1.64)</td>
<td>0.15 (2.46)</td>
<td>0.2 (3.28)</td>
<td>0.25 (4.1)</td>
<td>0.3 (4.92)</td>
</tr>
<tr>
<td>Cycle Indication</td>
<td>N/A</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
</tbody>
</table>
## Metering Solutions

### Trabon MGO Series

#### Features
- Designed to handle the largest and most demanding applications by delivering up to 1.2 in$^3$ (19.7 cm$^3$) of lubrication per cycle
- Largest output available with 22 outlets and 11 working sections
- SAE porting allows for a sealed outlet to ensure leak-free life
- TFE standard seals allow for maximum fluid compatibility and high temperature applications

#### Technical Specifications

<table>
<thead>
<tr>
<th></th>
<th>MGO150</th>
<th>MGO300</th>
<th>MGO450</th>
<th>MGO600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Pressure*</td>
<td>Up to 6,000 psi (413 bar)</td>
<td>Up to 6,000 psi (413 bar)</td>
<td>Up to 6,000 psi (413 bar)</td>
<td>Up to 6,000 psi (413 bar)</td>
</tr>
<tr>
<td>Output Twin Outlet, in$^3$ (cm$^3$)</td>
<td>0.15 (2.46)</td>
<td>0.3 (4.92)</td>
<td>0.45 (7.37)</td>
<td>0.6 (9.83)</td>
</tr>
<tr>
<td>Output Single Outlet, in$^3$ (cm$^3$)</td>
<td>0.3 (4.92)</td>
<td>0.6 (9.83)</td>
<td>0.9 (14.7)</td>
<td>1.2 (19.7)</td>
</tr>
<tr>
<td>Cycle Indication</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
</tbody>
</table>

*Dependent upon number of working sections in final assembly

---

Field-proven design keeps the largest hydraulic presses running trouble-free

We keep them lubricated so you can keep them running.

Optimal Lubrication from Graco.
Metering Solutions

System Accessories

Air-Lube Spra-Control Valves

Features
• Conserves air—air required only during spray interval
• Versatile—can be used with any centralized lube system or mechanical oiler and will handle grease or oil
• External mix nozzle purges itself and prevents clogging
• Saves lubricant—by spraying smaller amounts at frequent intervals, provides better film, no waste

Technical Specifications

<table>
<thead>
<tr>
<th>Minimum Air Pressure</th>
<th>20 psi (1.4 bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Air Pressure</td>
<td>150 psi (10.3 bar)</td>
</tr>
<tr>
<td>Spray Patterns</td>
<td>4 in or 8 in (10.2 cm or 20.3 cm)</td>
</tr>
</tbody>
</table>

Performance Indicators

Reset Indicator
• Provides quick troubleshooting tool with visual indication
• No tools for reset or parts to replace after indication
• Easy information on blocked lines, high system pressure or blocked bearings

Technical Specifications

<table>
<thead>
<tr>
<th>Reset w/ Memory psi (bar)</th>
<th>250 (17)</th>
<th>500 (35)</th>
<th>750 (52)</th>
<th>1000 (69)</th>
<th>1500 (103)</th>
<th>2000 (138)</th>
<th>2500 (172)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MJ</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>MSP</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>MXP</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<td>MX</td>
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<tr>
<td>MGO</td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Automatic Relief Indicator
• Allows machine to continue to run while non-critical bearings are lubricated
• No time or effort required for reset after blockage is cleared
• Easy information on blocked lines, high system pressure or blocked bearings

Technical Specifications

<table>
<thead>
<tr>
<th>Auto Relief psi (bar)</th>
<th>750 (52)</th>
<th>1000 (69)</th>
<th>1250 (86)</th>
<th>1500 (103)</th>
<th>2000 (138)</th>
<th>2500 (172)</th>
<th>3000 (207)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>MSP</td>
<td>✔</td>
<td>✔</td>
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<td>✔</td>
<td>✔</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
### Performance Indicators

#### Rupture Indicator
- Pop out pin provides quick troubleshooting tool with visual indication
- Compact design and required part change out to assure blockage is cleared
- Easy information on blocked lines, high system pressure or blocked bearings

<table>
<thead>
<tr>
<th>Rupture to Atmosphere psi (bar)</th>
<th>2800 (193)</th>
<th>3700 (255)</th>
<th>4600 (317)</th>
<th>5500 (379)</th>
<th>6400 (441)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MJ</td>
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<tr>
<td>MXP</td>
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</tr>
<tr>
<td>MX</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

#### Rupture to Atmosphere Indicator
- Used in conjunction with system pressure switch—can warn of a fault while allowing lube system to continue to deliver to critical bearings
- Compact design and required part change out to assure blockage is cleared
- Easy information on blocked lines, high system pressure or blocked bearings

<table>
<thead>
<tr>
<th>Rupture to Atmosphere psi (bar)</th>
<th>1450 (100)</th>
<th>1750 (121)</th>
<th>2050 (141)</th>
<th>2350 (162)</th>
<th>2950 (203)</th>
<th>3250 (224)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MJ</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MSP</td>
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<td>✓</td>
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</tr>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Broken Line Indicators

#### Features
- Monitors lube line integrity to ensure lubricant is delivered to critical bearings
- Provides a visual or electronic indication
- Works with terminating oil or grease systems as well as recirculating systems

#### Technical Specifications

<table>
<thead>
<tr>
<th></th>
<th>BL500</th>
<th>BL1000</th>
<th>BL11500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simulator Pressure</td>
<td>60 psi (4.1 bar)</td>
<td>100 psi (6.9 bar)</td>
<td>150 psi (10.3 bar)</td>
</tr>
<tr>
<td>Maximum Pump Pressure</td>
<td>1000 psi (69.0 bar)</td>
<td>1500 psi (103.4 bar)</td>
<td>2500 psi (172.4 bar)</td>
</tr>
</tbody>
</table>
Metering Solutions

System Accessories

Features
• Monitors piston movement to ensure completed lubrication cycle
• Provides positive feedback based on actual metering piston movement
• Mounts to MJ, MSP, MXP, or MX divider with cycle pin option with simple install
• Able to be set for normally open or normally closed operation

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Amp rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>125/250/480VAC</td>
<td>15 A</td>
</tr>
<tr>
<td>125 VDC</td>
<td>1/2 A</td>
</tr>
<tr>
<td>250 VDC</td>
<td>1/4 A</td>
</tr>
<tr>
<td>24 VDC</td>
<td>6 A*</td>
</tr>
</tbody>
</table>

*Non-inductive

Integrates to controllers, starters or PLCs

Cycle Switches

System Accessories

Features
• Available in 115 VAC or 12-32 VDC
• Available for all series progressive families to provide cycle rates up to 200 CPM
• Pressure ratings up to 10,000 psi (690 bar)
• Variety of electrical connections and voltages with or without LED indication
• Select models available with UL and CSA approvals

<table>
<thead>
<tr>
<th>Voltage</th>
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<td>6 A*</td>
</tr>
</tbody>
</table>

*Non-inductive

Integrates to controllers, starters or PLCs

Proximity Switches

System Accessories

Features
• Available in 115 VAC or 12-32 VDC
• Available for all series progressive families to provide cycle rates up to 200 CPM
• Pressure ratings up to 10,000 psi (690 bar)
• Variety of electrical connections and voltages with or without LED indication
• Select models available with UL and CSA approvals

Get more from your equipment!

Keep your equipment running at peak performance with an automatic lubrication system.
Excess heat build-up, faster component wear and wasted lubricant adds up to unnecessary labor costs and higher energy consumption. With Graco lubrication equipment you’ll be sure to get the most from your manufacturing equipment and more productivity per operator by reducing unplanned down-time.

Contact us today!
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ABOUT GRACO

PROVEN QUALITY. LEADING TECHNOLOGY.

Founded in 1926, Graco is a world leader in fluid handling systems and components. Graco products move, measure, control, dispense and apply a wide range of fluids and viscous materials used in vehicle lubrication, commercial and industrial settings.

The company’s success is based on its unwavering commitment to technical excellence, world-class manufacturing and unparalleled customer service. Working closely with qualified distributors, Graco offers systems, products and technology that set the quality standard in a wide range of fluid handling solutions. Graco provides equipment for spray finishing, protective coating, paint circulation, lubrication, and dispensing sealants and adhesives, along with power application equipment for the contractor industry. Graco’s ongoing investment in fluid management and control will continue to provide innovative solutions to a diverse global market.

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