



# Automatic Lubrication Equipment Buyer's Guide

Fluid Handling Equipment for Industrial and Commercial Applications



Construction | Fleets and Transportation | Industrial | Mining | Energy | Agriculture

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## Off-Road Mobile Lubrication

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# Graco Pumps-at-a-Glance

## Selecting the Right Pump is Easy!

Choose your pump based on the system metering device, power source and fluid type.



= Series Progressive



= Single Line Parallel



= Single Line Resistive

| Graco Pump           | Metering Device |     |     | Power Source |    |           |           |        |            | Fluid Type          |
|----------------------|-----------------|-----|-----|--------------|----|-----------|-----------|--------|------------|---------------------|
|                      | SP              | SLP | SLR | AC           | DC | Pneumatic | Hydraulic | Manual | Mechanical |                     |
| Dyna-Star®           | •               | •   |     | •            | •  |           | •         |        |            | Grease              |
| E-Series™            | •               |     |     |              |    | •         |           |        |            | Oil or grease       |
| G-Mini®              | •               |     |     |              | •  |           |           |        |            | Grease              |
| G1™                  | •               |     |     | •            | •  |           |           |        |            | Oil or grease       |
| G3™                  | •               | •   |     | •            | •  |           |           |        |            | Oil or grease       |
| Injecto-Flo®         | •               | •   |     | •            |    | •         |           |        |            | Oil                 |
| Injecto-Flo® II      |                 | •   |     | •            |    |           |           |        |            | Oil or fluid grease |
| Lube Master®         | •               |     |     | •            | •  |           |           |        | •          | Oil or grease       |
| LubePro™             | •               | •   |     |              |    | •         |           |        |            | Oil or grease       |
| LubriSystem®         |                 | •   |     |              |    | •         |           | •      |            | Oil or grease       |
| Manual Grease Gun    | •               | •   | •   |              |    |           |           | •      |            | Oil or grease       |
| Maxi-Flo®            | •               |     | •   | •            |    |           |           |        |            | Oil                 |
| Meter-Flo®           | •               |     |     | •            |    |           |           |        |            | Oil                 |
| Miniature Meter-Flo® | •               |     | •   | •            |    |           |           |        |            | Oil                 |
| Modu-Flo®            | •               |     |     | •            | •  | •         | •         |        |            | Oil or grease       |
| MSA™                 | •               |     |     |              |    | •         |           |        |            | Oil or grease       |
| PH Pump              | •               |     |     |              |    |           |           | •      |            | Oil or grease       |
| Thrif-T Luber®       |                 |     | •   | •            |    |           |           | •      |            | Oil                 |

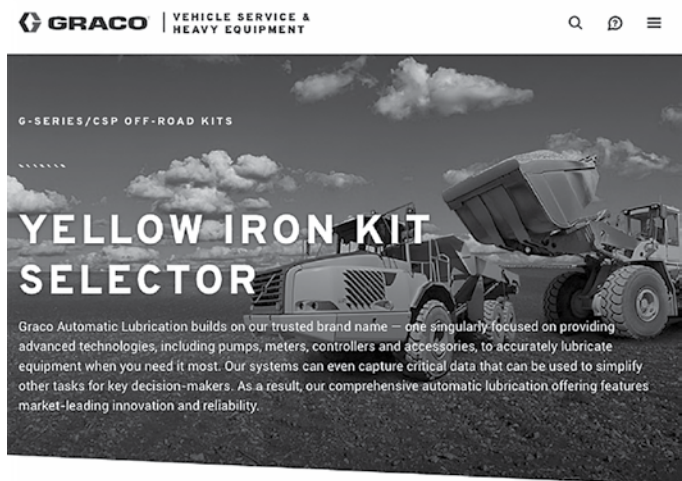
# Mobile Equipment Kits

## Yellow Iron Selector Tool



Graco mobile equipment kits provide the latest technology from Graco, including the G-Series pumps, solid-state proximity switches, CSP divider valves, and hoses and fittings. Each kit will include all of the components necessary for model-specific customizations.

In order to eliminate system design and streamline the sales process, we have created a quick-to-spec, quick-to-quote and quick-to-sell solution. Scan the QR code below or visit [www.graco.com/offroadselector](http://www.graco.com/offroadselector) to find an automatic lubrication kit for your piece of heavy equipment.



### THIS SELECTOR IDENTIFIES KITS AND THE INSTALLATION MANUAL.

**EQUIPMENT MANUFACTURER** Manufacturer Not Listed?

Please Select One

**EQUIPMENT TYPE**

Please Select One

**MODEL NUMBER** ⓘ

Please Select One

**SYSTEM MONITORING** ⓘ

Please Select One

**PUMP RESERVOIR SIZE** ⓘ

Please Select One

**PUMP CONTROL TYPE**

Please Select One

# Electric Pumps

## G-Mini® Compact Pumps

### Small size. Big value. Huge impact.

Make the most of your space, budget and machines. The new full-featured G-Mini offers reliable lubrication in a small footprint to fit more types of machines. Use it to simplify everyday maintenance, extend life cycles and optimize uptime. It's rugged and tough, perfect for handling the 24/7 rigors of any job, big or small. Best of all, it comes with a modest price tag – boosting your productivity and profitability.



#### **Follower Plate and Stir Paddle**

This unique combination combats oil separation while ensuring the pump element "loading chamber" is always full.

#### **Multiple Reservoir Options**

Comes in both 0.5 liter and 1 liter sizes.

#### **Patent-Pending Heater Option**

Built-in heater option automatically turns on at 23°F (-5°C), allowing NLGI #2 grease to pump down to -40°F (-40°C).

#### **Up to Two Pump Elements**

0.18 in<sup>3</sup>/min (3 cm<sup>3</sup>/min)  
4,100 psi (280 bar)

#### **M12 Input**

M12 cycle or proximity switch input standard on all pumps with a controller.

#### **Optional Controller**

**No Controller:** Pair with either an external controller or a PLC.

**Controller:** Easy-to-program controller can be utilized for both time-based and cycle-based systems and provides low-level alert and alarm.

#### **5-Wire CPC Power Cable**

Multifunction cable supplies power to the pump, pairs with a remote manual run button, and provides low level or cycle fault output.

#### **Rugged Construction**

Designed to withstand the harshest of environments; IP69K rated.

### Typical Applications

- Wind energy
- Industrial
- Off-road mobile equipment
- On-road mobile equipment

### Technical Specifications

|                             |  |
|-----------------------------|--|
| Power source.....           | 12 VDC or 24 VDC                                   |
| Fluids handled .....        | Grease NLGI 000 to #2                              |
| System.....                 | Pump to point or series progressive                |
| Operating temperature ..... | -40°F to 158°F (-40°C to 70°C)                     |
| Reservoir size .....        | 0.5 L / 1 L  |
| Control option .....        | No control, controller (time or cycle)             |
| Pump elements.....          | Up to 2  |
| Output pressure.....        | 4,100 psi (280 bar)                                |
| Pump output.....            | 0.18 in <sup>3</sup> /min (3 cm <sup>3</sup> /min) |
| Pump outlet.....            | 1/4-18 NPSF, mates with 1/4-18 NPT male fittings   |
| Protection grade .....      | IP69K  |
| Instruction manual .....    | 3A6714   |



# Electric Pumps

## G-Mini® Compact Pumps

### Ordering Information

#### G-Mini Pumps

G-Mini pumps **do not** come with power cables. See Accessories below for power cable options.

| Controller Option | Voltage | Reservoir Size | Heater | Part Number | Part Description  |
|-------------------|---------|----------------|--------|-------------|---|
| No Controller     | 12V     | 0.5L           | No     | 25R809      | 0.5 Liter, 12 Volt G-Mini Pump                          |
|                   |         | 1L             | No     | 25R802      | 1 Liter, 12 Volt G-Mini Pump                            |
|                   | 24V     | 0.5L           | No     | 25R807      | 0.5 Liter, 24 Volt G-Mini Pump                          |
|                   |         | 1L             | No     | 25R800      | 1 Liter, 24 Volt G-Mini Pump                            |
| Controller        | 12V     | 0.5L           | No     | 25R810      | 0.5 Liter, 12 Volt G-Mini Pump with Controller          |
|                   |         |                | No     | 25R803      | 1 Liter, 12 Volt G-Mini Pump with Controller            |
|                   |         | 1L             | Yes    | 25R806      | 1 Liter, 12 Volt G-Mini Pump with Controller and Heater |
|                   | 24V     | 0.5L           | No     | 25R808      | 0.5 Liter, 24 Volt G-Mini Pump with Controller          |
|                   |         |                | No     | 25R801      | 1 Liter, 24 Volt G-Mini Pump with Controller            |
|                   |         | 1L             | Yes    | 25R804      | 1 Liter, 24 Volt G-Mini Pump with Controller and Heater |

#### Accessories

|         |   |
|---------|---|
| 127783* | 3-Wire CPC Power Cable  |
| 127780* | 5-Wire CPC Power Cable  |
| 25C981  | 12V Manual Run Button (5-Wire CPC power cable required)   |
| 25C982  | 24V Manual Run Button (5-Wire CPC power cable required)   |
| 26C825  | Direct Mount CSP Bracket (allows for drop-in replacement of competition)  |
| 26C826  | Universal Mounting Bracket (allows for drop-in replacement of competition)  |
| 17L879  | Graco CSP Solid State Proximity Switch (DC PNP)   |
| 17R703  | 1 ft Proximity Switch Cable, M12 female straight to M12 male straight cable   |
| 26A910  | 4,000 PSI Pressure Relief Kit (1/4 NPT to 1/8 NPT reducer bushing, 1/8 NPT branch T-fitting, 4,000 PSI Pressure Relief Valve) |
| 25N827  | Pump Element Kit (add a second pump element or replace existing)  |

\*G-Mini pumps do not come with power cables. Power cables needed for installation.

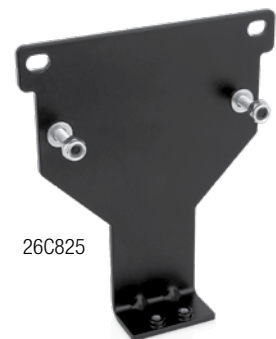
See the G-Series Pump Accessories section (pages 18-20) for additional G-Mini accessories.



25R802



25R803



26C825



26C826

# Electric Pumps

## G1™ Pumps

### Simple Solution. Sophisticated Results.

Choose the user-friendly Graco G1 Pump where you need a reliable, simple alternative to manual lubrication. Work smarter and get better productivity from your equipment and maintenance staff with G1 Series lubrication pumps.

### Features and Benefits

- Choice of 2, 4, or 8 liter reservoirs for oil or grease. Size to match your system needs.
- Connect to DC (12 or 24v) and AC (90-240v) power sources with CPC or DIN-style connectors for easy, no hassle installations
- Available with stirring paddle and wiper arm to keep material from separating. Optional follower plate ensures grease stays level for extreme angle installations.
- G1 comes with one pump element installed that reliably delivers lubricant when you need it
- G1 Standard™ has no internal controller for a low cost solution. G1 Plus™ has built-in on/off timer with optional low level feature that shuts down the pump when empty. Manual run initiates lube cycles on-demand with the option for remote control.

### Typical Applications

- On-Road Lubrication
- Off-Road Lubrication
- Series Progressive Lubrication

### Lubrication Used

- Oil
- NLGI #000 to NLGI #2

### Technical Specifications

|                                   |   |
|-----------------------------------|---|
| Max Pressure . . . . .            | 5,100 psi (352 bar)                             |
| Power . . . . .                   | 12 VDC, 24 VDC, 90-240 VAC                      |
| Operating Temperature . . . . .   | -40°F to 158°F (-40°C to 70°C)                  |
| Reservoir Size . . . . .          | .2, 4 or 8 liter                                |
| Maximum Run Time . . . . .        | 30 minutes                                      |
| Control Options . . . . .         | Standard or Plus                                |
| Output per Element /Min . . . . . | 0.25 in <sup>3</sup> (4 cm <sup>3</sup> ) / min |
| IP Rating . . . . .               | IP69K   |
| Instruction Manual . . . . .      | 332316  |



G1 Standard



G1 Plus

# Electric Pumps

## G1™ Pumps and Accessories



### G1 Standard

Comes standard with no controller for use with separate or existing machine control for a low cost solution. Capable of sending a low level signal to your external controller or PLC with the low level option.

|             | Voltage    | Reservoir Size |         |         | Wiper Arm | Follower Plate | External Low Level | Power Connection |     |
|-------------|------------|----------------|---------|---------|-----------|----------------|--------------------|------------------|-----|
|             |            | 2 liter        | 4 liter | 8 liter |           |                |                    |                  |     |
| Application | Grease     | 12 VDC         | 94G006  | 94G007  | 94G008    | •              |                    | CPC              |     |
|             |            |                | 94G009  | 94G010  | 94G011    | •              |                    | •                | CPC |
|             |            |                | 94G079  | –       | –         |                | •                  | •                | CPC |
|             |            | 24 VDC         | 94G018  | 94G019  | 94G020    | •              |                    |                  | CPC |
|             |            |                | 94G021  | 94G022  | 94G023    | •              |                    | •                | CPC |
|             |            |                | 94G036  | 94G037  | 94G038    | •              |                    |                  | DIN |
|             | 90-240 VAC | 94G039         | 94G040  | 94G041  | •         |                | •                  | DIN              |     |
|             |            | 94G063         | 94G064  | 94G065  | •         |                |                    | DIN              |     |
|             |            | 94G066         | 94G067  | 94G068  | •         |                | •                  | DIN              |     |
|             | Oil        | 24 VDC         | 94G069  | 94G070  | 94G071    |                | •                  | •                | DIN |
|             |            |                | 94G042  | 94G043  | 94G044    |                |                    |                  | DIN |
|             |            | 90-240 VAC     | 94G045  | 94G046  | 94G047    |                |                    | •                | DIN |
| 94G072      |            |                | 94G073  | 94G074  |           |                |                    | DIN              |     |
|             |            | 94G075         | 94G076  | 94G077  |           |                | •                  | DIN              |     |

### G1 Standard Power Cables (sold separately)

| Part Number | Description               | Length        |
|-------------|---------------------------|---------------|
| 127783      | 3 wire with CPC connector | 15 ft (4.6 m) |
| 16U790      | DIN connector             | 15 ft (4.6 m) |

# Electric Pumps

## G1™ Pumps and Accessories



### G1 Plus

Built-in controller with selectable pump on/pump off timer comes with local manual run and password protection. Optional low level sensing and shut-down available, as well as remote manual run when adding the 5 wire CPC cable and remote push button accessories.

|             | Voltage    | Reservoir Size |         |         | Wiper Arm | Follower Plate | Remote Manual Run/Monitor Light* | Low Level | Power Connection |            |
|-------------|------------|----------------|---------|---------|-----------|----------------|----------------------------------|-----------|------------------|------------|
|             |            | 2 liter        | 4 liter | 8 liter |           |                |                                  |           |                  |            |
| Application | Grease     | 12 VDC         | 94G000  | 94G001  | 94G002    | •              |                                  |           | 5 Wire CPC       |            |
|             |            |                | 94G003  | 94G004  | 94G005    | •              |                                  | •         | •                | 5 Wire CPC |
|             |            |                | 94G080  | –       | –         | •              |                                  |           |                  | DIN        |
|             |            | 24 VDC         | 94G012  | 94G013  | 94G014    | •              |                                  |           |                  | 5 Wire CPC |
|             |            |                | 94G015  | 94G016  | 94G017    | •              |                                  | •         | •                | 5 Wire CPC |
|             |            |                | 94G024  | 94G025  | 94G026    | •              |                                  |           |                  | DIN        |
|             | 90-240 VAC | 94G027         | 94G028  | 94G029  | •         |                |                                  | •         | DIN              |            |
|             |            | 94G048         | 94G049  | 94G050  | •         |                |                                  |           | DIN              |            |
|             |            | 94G051         | 94G052  | 94G053  | •         |                |                                  | •         | DIN              |            |
|             | Oil        | 24 VDC         | 94G054  | 94G055  | 94G056    |                | •                                |           | •                | DIN        |
|             |            |                | 94G030  | 94G031  | 94G032    |                |                                  |           |                  | DIN        |
|             |            | 90-240 VAC     | 94G033  | 94G034  | 94G035    |                |                                  |           | •                | DIN        |
| 94G057      |            |                | 94G058  | 94G059  |           |                |                                  |           | DIN              |            |
| 94G060      |            |                | 94G061  | 94G062  |           |                |                                  | •         | DIN              |            |
|             |            |                |         |         |           |                |                                  |           |                  | DIN        |

\*Remote Manual Run and External Low Level indication require a 5 wire cable with CPC connector and a Remote Manual Run/Monitoring Light Device to provide external low level indication. Choose part number 571030 for 12 VDC pumps or 571031 for 24 VDC pumps.

### G1 Plus Power Cables (sold separately)

| Part Number | Description               | Length        |
|-------------|---------------------------|---------------|
| 127783      | 3 wire with CPC connector | 15 ft (4.6 m) |
| 127780      | 5 wire with CPC connector | 15 ft (4.6 m) |
| 127781      | 5 wire with CPC connector | 20 ft (6.1 m) |
| 127782      | 5 wire with CPC connector | 30 ft (9.1 m) |
| 16U790      | DIN connector             | 15 ft (4.6 m) |

# Electric Pumps

## G3™ Pumps

### Versatile Design Helps Solve Today's Lubrication Challenges

Temperature changes, changing grease types and challenging installation requirements are no problem for the G3 electric lubrication pump. With its flexible design, including adjustable pump elements and an ability to work with both injector-based and series progressive systems, G3 is a rugged, cost-effective pump designed to serve multiple markets and applications. The pump features three control choices, which means added flexibility for easy lube system set-up, operation and troubleshooting. The pump extends machinery life, reduces operating costs and increases productivity for usage in a wide variety of markets, including in-plant manufacturing, mobile and wind turbines.

### Features and Benefits

- Advanced flow dynamics – helps to prevent grease separation
- Load minimizing drive – for longer life
- Adjustable stroke pump – ensures a custom fit
- Five reservoir sizes to select from – provides a custom fit
- The most advanced user controls in its class – allows you to customize for your unique needs

### Typical Applications

- On-Road
- Off-Road
- In-Plant Machine and Conveyor Lubrication
- Wind Energy

### Lubrication Used

- Oil
- NLGI #000 to NLGI #2

### Technical Specifications

|  |   |
|--|---|
| Max Pressure . . . . .                             | . . . . . 5,100 psi (352 bar)   |
| Power . . . . .                                    | . . . . . 12 VDC, 24 VDC, 90-240 VAC  |
| Operating Temperature . . . . .                    | . . . . . -40°F to 158°F (-40°C to 70°C)  |
| Reservoir Size . . . . .                           | . . . . . 2, 4, 8, 12 or 16 liter   |
| Maximum Run Time . . . . .                         | . . . . . 30 minutes  |
| Control Options . . . . .                          | . . . . . Standard, Pro or Max  |
| Output per Element /Min . . . . .                  | . . . . . 0.12 in <sup>3</sup> , 0.18 in <sup>3</sup> , 0.25 in <sup>3</sup> (2 cm <sup>3</sup> , 3 cm <sup>3</sup> , 4 cm <sup>3</sup> ) |
| Certifications/Ratings . . . . .                   | . . . . . CE, ETL*, IP69K   |
| *Conforms to UL 73, certified to CSA 22.2 No 68-09 |   |
| Instruction Manual . . . . .                       | . . . . . Standard - 332291 / Pro - 332298 / SP - 3A4676 / Max - 332305   |

### G3 with Data Management System (DMS)

- Simple data transfer to your PC via USB flash drive for further analysis using Excel® or Notepad®
- Provides performance history for lube system events, such as cycle detection, error logs and allows a quick check of lubrication performance to meet your system requirements
- Preferred lube cycle program can be stored and transferred to other G3 pumps in your fleet for quick and accurate repeatability
- Provides you the comfort and security in knowing your pump is being properly maintained and your lube system is protecting your valuable asset



Standard Model



Pro Model



Max Model



# Electric Pumps

## G3™ Pumps



### G3 Standard

Comes standard with no controller for use with separate or existing machine control for a low cost solution. Some models capable of sending a low level signal to your external controller or PLC.

| Application | Voltage    | Reservoir Size |         |         |          |          | Wiper Arm | Follower Plate | External Low Level | Auto-Fill Shutoff | Power Connection |
|-------------|------------|----------------|---------|---------|----------|----------|-----------|----------------|--------------------|-------------------|------------------|
|             |            | 2 liter        | 4 liter | 8 liter | 12 liter | 16 liter |           |                |                    |                   |                  |
| Grease      | 12 VDC     | 96G000         | 96G038  | 96G039  | –        | –        | •         |                |                    |                   | CPC              |
|             |            | 96G003         | 96G044  | 96G045  | –        | –        | •         |                | •                  |                   | CPC              |
|             | 24 VDC     | 96G001         | 96G040  | 96G041  | 96G171   | 96G172   | •         |                |                    |                   | CPC              |
|             |            | 96G005         | 96G048  | 96G049  | 96G199   | 96G220   | •         |                | •                  |                   | CPC              |
|             |            | 96G239         | 96G238  | 96G198  | –        | –        | •         |                | • CPC              |                   | 5 Wire CPC       |
|             |            | 96G006         | 96G053  | 96G192  | –        | –        |           | •              | •                  |                   | CPC              |
|             |            | 96G182         | 96G184  | 96G189  | 96G240   | 96G241   | •         |                | • DIN              |                   | DIN              |
|             |            | 96G243         | 96G204  | 96G205  | –        | –        |           | •              | • DIN              |                   | DIN              |
|             | 90-240 VAC | 96G002         | 96G042  | 96G043  | –        | –        | •         |                |                    |                   | DIN              |
|             |            | 96G007         | 96G055  | 96G056  | 96G057   | 96G058   | •         |                | •                  |                   | DIN              |
|             |            | –              | –       | –       | –        | 96G237   | •         |                | •                  | •                 | DIN              |
|             |            | 96G008         | 96G062  | –       | –        | –        |           | •              | •                  |                   | DIN              |
|             |            | –              | 96G202  | –       | –        | –        | •         |                | • DIN              |                   | DIN              |
|             | Oil        | 24 VDC         | 96G050  | 96G051  | 96G052   | –        | 96G258    |                |                    | •                 |                  |
| 90-240 VAC  |            | 96G059         | 96G060  | 96G061  | –        | –        |           |                | •                  |                   | DIN              |



### G3 Pro

Built-in controller with selectable pump on/pump off timer comes with local manual run and password protection with pre-lube function to initiate lube cycle on start-up. Optional low level sensing, warning and shut-down alarm available as well as remote manual run.

| Application | Voltage    | Reservoir Size |         |         |          |          | M12 Connection for Remote* | Wiper Arm | Follower Plate | Low Level | Power Connection |
|-------------|------------|----------------|---------|---------|----------|----------|----------------------------|-----------|----------------|-----------|------------------|
|             |            | 2 liter        | 4 liter | 8 liter | 12 liter | 16 liter |                            |           |                |           |                  |
| Grease      | 12 VDC     | 96G027         | 96G135  | 96G136  | –        | –        |                            | •         |                |           | CPC              |
|             |            | 96G033         | 96G147  | 96G148  | –        | –        |                            | •         |                | •         | 5 Wire CPC**     |
|             | 24 VDC     | 96G028         | 96G137  | 96G138  | –        | –        |                            | •         |                |           | CPC              |
|             |            | 96G011         | 96G068  | 96G069  | 96G247   | –        | •                          | •         |                | •         | CPC              |
|             |            | 96G012         | 96G073  | –       | –        | –        | •                          |           | •              | •         | CPC              |
|             |            | 96G034         | 96G149  | 96G150  | 96G163   | 96G167   |                            | •         |                | •         | 5 Wire CPC**     |
|             |            | –              | 96G196  | –       | –        | –        |                            | •         |                |           | DIN              |
|             |            | –              | –       | 96G194  | –        | –        |                            |           | •              | •         | 5 Wire CPC**     |
|             | 90-240 VAC | 96G029         | 96G139  | 96G140  | –        | –        |                            | •         |                |           | DIN              |
|             |            | 96G013         | 96G075  | 96G076  | 96G077   | 96G078   |                            | •         |                | •         | DIN              |
| 96G014      |            | 96G082         | –       | –       | –        |          |                            | •         | •              | DIN       |                  |
| Oil         | 24 VDC     | 96G070         | 96G071  | 96G072  | –        | –        | •                          |           |                | •         | CPC              |
|             | 90-240 VAC | 96G079         | 96G080  | 96G081  | –        | –        |                            |           |                | •         | DIN              |

\*G3 Pro pumps with the M12 connection for Remote Manual Run/Monitoring Light use the kit with the connecting cable to provide external low level indication. Choose part number 571032 for 12 VDC pumps or 571033 for 24 VDC and AC pumps.

\*\*G3 Pro pumps with the 5 Wire CPC power connection are compatible with a Remote Manual Run/Monitoring Light Device to provide external low level indication. Choose part number 571030 for 12 VDC pumps or 571031 for 24 VDC pumps.

# Electric Pumps

## G3™ Pumps



### G3 SP (Series Progressive)

The G3 SP (Series Progressive) combines the robust, proven design of our G-Series pumps with simple programming and valuable system feedback. The only programming requirements are number of cycles and off time between lube events.

| Application | Voltage    | Reservoir Size |         |         |          | Wiper Arm | Low Level | Power Connection |
|-------------|------------|----------------|---------|---------|----------|-----------|-----------|------------------|
|             |            | 2 liter        | 4 liter | 8 liter | 12 liter |           |           |                  |
| Grease      | 12 VDC     | 96G221         | 96G222  | –       | –        | •         | •         | 5 Wire CPC†      |
|             | 24 VDC     | 96G223         | 96G224  | 96G225  | 96G226   | •         | •         | 5 Wire CPC†      |
|             | 90-240 VAC | 96G227         | 96G228  | –       | –        | •         |           | DIN              |

Note: G3 SP pumps for use in series progressive systems only and require proximity switch with M12 connection.



### G3 Max

Built-in controller with selectable pump on/pump off timer has low level warning and shut-down alarm or set up faults to an external alarm. Comes with manual run and password protection with pre-lube function to initiate lube cycle on start-up. Mix and match up to three cycle and pressure switches for custom installations and feedback. Machine count input is ideally suited for inconsistently used equipment. Optional Data Management System™ (DMS) uses a common USB port to quickly configure, store and transfer error log history to Excel® or Notepad® for longer equipment life and performance.

| Application | Voltage    | Reservoir Size |         |         |          |          | Number of Cycle/Pressure Input | Machine Count | Vent Valve Output* | DIN Alarm Output** | M12 Connection for Remote*** | Wiper Arm | Follower Plate | Low Level | Power Connection |             |
|-------------|------------|----------------|---------|---------|----------|----------|--------------------------------|---------------|--------------------|--------------------|------------------------------|-----------|----------------|-----------|------------------|-------------|
|             |            | 2 liter        | 4 liter | 8 liter | 12 liter | 16 liter |                                |               |                    |                    |                              |           |                |           |                  |             |
| Grease      | 12 VDC     | 96G030         | 96G141  | 96G142  | –        | –        | 1                              |               |                    |                    |                              | •         |                | •         | CPC              |             |
|             |            | 96G021         | 96G096  | 96G097  | –        | –        | 1-3                            | •             | •                  | •                  | •                            | •         |                | •         | DIN              |             |
|             |            | 96G035         | 96G151  | 96G152  | –        | –        | 1                              |               | •                  |                    |                              |           | •              |           | 5 Wire CPC†      |             |
|             |            | –              | 96G159  | –       | –        | –        | 1                              | •             |                    |                    |                              |           | •              |           | 5 Wire CPC†      |             |
|             | 24 VDC     | 96G031         | 96G143  | 96G144  | –        | –        | 1                              |               |                    |                    |                              |           | •              |           | •                | CPC         |
|             |            | 96G017         | 96G088  | 96G089  | –        | –        | 1                              |               | •                  |                    | •                            |           | •              |           | •                | CPC         |
|             |            | 96G018         | 96G090  | –       | –        | –        | 1                              |               | •                  |                    | •                            |           |                | •         | •                | CPC         |
|             |            | 96G036         | 96G155  | 96G156  | 96G164   | 96G168   | 1                              |               | •                  |                    |                              |           | •              |           |                  | 5 Wire CPC† |
|             |            | 96G023         | 96G103  | 96G104  | 96G105   | 96G106   | 1-3                            | •             | •                  | •                  | •                            | •         | •              |           | •                | DIN         |
|             |            | 96G024         | 96G113  | –       | –        | –        | 1-3                            | •             | •                  | •                  | •                            |           |                | •         | •                | DIN         |
|             |            | 96G178         | –       | –       | –        | –        | 1                              |               |                    | •                  |                              |           | •              |           | •                | DIN         |
|             |            | –              | 96G160  | 96G177  | –        | –        | 1                              | •             |                    |                    |                              |           | •              |           |                  | 5 Wire CPC† |
|             | 90-240 VAC | 96G032         | 96G145  | 96G146  | –        | –        | 1                              |               |                    |                    |                              |           | •              |           | •                | DIN         |
|             |            | 96G019         | 96G092  | 96G093  | –        | 96G166   | 1                              |               | •                  |                    |                              |           | •              |           | •                | DIN         |
|             |            | 96G020         | 96G094  | –       | –        | –        | 1                              |               | •                  |                    |                              |           |                | •         | •                | DIN         |
|             |            | 96G025         | 96G118  | 96G119  | 96G120   | 96G121   | 1-3                            | •             | •                  | •                  | •                            | •         | •              |           | •                | DIN         |
|             |            | 96G026         | 96G128  | 96G197  | –        | –        | 1-3                            | •             | •                  | •                  | •                            |           |                | •         | •                | DIN         |
|             |            | 96G037         | 96G183  | –       | –        | –        | 1                              |               |                    | •                  |                              |           | •              |           | •                | DIN         |
|             | Oil        | 24 VDC         | 96G107  | 96G108  | 96G109   | –        | –                              | 1-3           | •                  | •                  | •                            | •         |                |           | •                | DIN         |
|             |            | 90-240 VAC     | 96G122  | 96G123  | 96G124   | –        | –                              | 1-3           | •                  | •                  | •                            | •         |                |           | •                | DIN         |

\*If not connected, use part number 16T854 to cover the Vent Valve Output and maintain IP69K rating.

\*\*The DIN Alarm Output is a dry contact relay which opens or closes when a fault is detected. This relay acts as a switch but supplies no power. It requires external power to energize the circuit when closed. If not connected, use part number 24P731 to cover the DIN connector and maintain IP69K rating.

\*\*\*G3 Max pumps with the M12 connection for Remote Manual Run/Monitoring Light use the kit with the connecting cable to provide external fault indication. Choose part number 571032 for 12 VDC pumps or 571033 for 24 VDC and AC pumps.

†G3 Max and SP pumps with the 5 Wire CPC power connection are compatible with a Remote Manual Run/Monitoring Light Device to provide external fault indication. Choose part number 571030 for 12 VDC pumps or 571031 for 24 VDC pumps.

# Electric Pumps

## G3™ Pumps

### G3 Max with Data Management System

|             | Voltage    | Reservoir Size |         |         |          |          | Number of Cycle/ Pressure Input | Machine Count | Vent Valve Output* | DIN Alarm Output** | M12 Connection for Remote*** | Wiper Arm | Follower Plate | Low Level | Power Connection |             |
|-------------|------------|----------------|---------|---------|----------|----------|---------------------------------|---------------|--------------------|--------------------|------------------------------|-----------|----------------|-----------|------------------|-------------|
|             |            | 2 liter        | 4 liter | 8 liter | 12 liter | 16 liter |                                 |               |                    |                    |                              |           |                |           |                  |             |
| Application | Grease     | 12 VDC         | -       | 96G161  | -        | -        | -                               | 1             | •                  |                    |                              |           |                |           | 5 Wire CPC†      |             |
|             |            |                | -       | 96G153  | 96G154   | -        | -                               | 1             |                    | •                  |                              |           |                |           |                  | 5 Wire CPC† |
|             |            |                | 96G098  | 96G099  | 96G100   | -        | 96G252                          | 1-2           | •                  | •                  | •                            | •         | •              |           | •                | DIN         |
|             |            | 24 VDC         | 96G110  | 96G111  | 96G112   | -        | -                               | 1-2           | •                  | •                  | •                            | •         | •              |           | •                | DIN         |
|             |            |                | 96G115  | 96G116  | -        | -        | -                               | 1-2           | •                  | •                  | •                            | •         |                | •         | •                | DIN         |
|             |            |                | -       | 96G162  | -        | -        | 96G185                          | 1             | •                  |                    |                              |           | •              |           |                  | 5 Wire CPC† |
|             | 90-240 VAC | -              | 96G157  | 96G158  | 96G165   | 96G169   | 1                               |               | •                  |                    |                              |           | •              |           | 5 Wire CPC†      |             |
|             |            | 96G125         | 96G126  | 96G127  | -        | 96G235   | 1-2                             | •             | •                  | •                  | •                            | •         |                | •         | DIN              |             |
|             |            | 96G132         | 96G133  | -       | -        | -        | 1-2                             | •             | •                  | •                  | •                            |           | •              | •         | DIN              |             |
|             | Oil        | 12 VDC         | -       | -       | -        | 96G186   | -                               | 1             | •                  |                    |                              |           | •              |           | •                | 5 Wire CPC† |
|             |            | 24 VDC         | -       | 96G188  | 96G195   | -        | -                               | 1             | •                  |                    |                              |           | •              |           | •                | 5 Wire CPC† |
|             |            |                | 96G190  | -       | -        | -        | -                               | 1-2           | •                  | •                  | •                            | •         | •              |           | •                | DIN         |
| 90-240 VAC  |            | 96G174         | 96G175  | 96G176  | -        | 96G201   | 1-2                             | •             | •                  | •                  | •                            | •         |                | •         | DIN              |             |

\*If not connected, use part number 16T854 to cover the Vent Valve Output and maintain IP69K rating.

\*\*The DIN Alarm Output is a dry contact relay which opens or closes when a fault is detected. This relay acts as a switch but supplies no power. It requires external power to energize the circuit when closed. If not connected, use part number 24P731 to cover the DIN connector and maintain IP69K rating.

\*\*\*G3 Max pumps with the M12 connection for Remote Manual Run/Monitoring Light use the kit with the connecting cable to provide external fault indication. Choose part number 571032 for 12 VDC pumps or 571033 for 24 VDC and AC pumps.

†G3 Max pumps with the 5 Wire CPC power connection are compatible with a Remote Manual Run/Monitoring Light Device to provide external fault indication. Choose part number 571030 for 12 VDC pumps or 571031 for 24 VDC pumps.



# Electric Pumps

## G3™ Pumps



### G3 Pumps with Auto-Fill Shutoff

Versatile line of G3 Pumps (Standard, Pro, and Max) offered with a factory installed Auto-Fill Shutoff (AFSO). The AFSO feature automatically shuts off lubricant flow from a fill pump to the G3 reservoir once the G3 reservoir is full. The G3 AFSO is based on the same design concept as the Auto-Fill Shutoff offered in conjunction with the robust Electric Dyna-Star product line. Eliminate the need to climb up on equipment to refill an empty reservoir by adding Remote Fill Manifold 77X542 to your system at ground level.

### Features and Benefits

- Eliminates Over- or Under-Filling
  - Completely fill the reservoir every time while avoiding costly spills
  - Does not require power to operate
  - Complies with stringent mining regulations where a system must be powered down during fluid refilling
  - Compatible with fast-fill-equipped lubrication trucks
  - Reservoir Full Visual Indication
  - Valve Plate activates a poppet valve, which cuts off grease flow into the reservoir
- Reservoir Full Visual Indication
  - Valve Plate activates a poppet valve, which cuts off grease flow into the reservoir
  - Poppet indicator can incorporate a signal switch for ground level monitoring

|                       | Voltage    | G3 Model | Reservoir Size |         | Number of Cycle/<br>Pressure Input | Vent Valve Output* | Wiper Arm | Low Level   | Power Connection |
|-----------------------|------------|----------|----------------|---------|------------------------------------|--------------------|-----------|-------------|------------------|
|                       |            |          | 4 liter        | 8 liter |                                    |                    |           |             |                  |
| Application<br>Grease | 24 VDC     | Standard | 96G210         | 96G213  |                                    |                    | •         | • DIN       | DIN              |
|                       |            |          | –              | 96G217  |                                    |                    | •         | •           | 5 Wire CPC**     |
|                       |            | Pro      | 96G211         | 96G214  |                                    |                    | •         | •           | 5 Wire CPC†      |
|                       | Max        | 96G212   | 96G215         | 1       | •                                  | •                  | •         | 5 Wire CPC† |                  |
|                       | 90-240 VAC | Standard | –              | 96G207  |                                    |                    | •         | •           | DIN              |
|                       |            | Pro      | –              | 96G208  |                                    |                    | •         | •           | DIN              |
| Max                   |            | –        | 96G209         | 1       | •                                  | •                  | •         | DIN         |                  |

\*If not connected, use part number 16T854 to cover the Vent Valve Output and maintain IP69K rating.

\*\*Low level in CPC.

†G3 Pro and Max pumps with the 5 Wire CPC power connection are compatible with a Remote Manual Run/Monitoring Light Device to provide external fault indication. Choose part number 571030 for 12 VDC pumps or 571031 for 24 VDC pumps.

### G3 Auto-Fill Shutoff Field Conversion Kits

|        |                                  |
|--------|----------------------------------|
| 571286 | G3 AFSO 4L Field Conversion Kit  |
| 571287 | G3 AFSO 8L Field Conversion Kit  |
| 571288 | G3 AFSO 12L Field Conversion Kit |
| 571289 | G3 AFSO 16L Field Conversion Kit |



571287

# Electric Pumps

## G-Series Pump Packages and Accessories

### Ordering Information

| G3 Injector Pump Pre-assembled Modules  | 8 Liter | 16 Liter |
|---|---------|----------|
| G3 Injector Pump Pre-assembled Module: 24V, Max, 5 Pin CPC (Alarm, Manual Run, Low Level in the CPC), 2 Pump Elements, Union Kit, Vent Valve, Pressure Switch, Pressure Gage. | 17J999  | 17N926   |

| G3 and G1 Accessories |   |
|-----------------------|---|
| 571041                | G1/G3 Pump element – same adjustability as the pump included with G3 pumps.                                   |
| 24V837                | Food and Beverage Upgrade Kit – contains pump element, stainless zerk fitting, and stainless reservoir plugs. |



| G3 Pump Output Union Kits – pump element(s) sold separately. |                                |   |
|--|--------------------------------|---|
| Three (3) Pumps  | Two (2) Pumps – Left and Right | Description   |
| 571026   | 571063                         | For systems without a direct-mount vent valve installed on the first pump outlet. |
| 24P295   | 24P296                         | For systems with a direct-mount vent valve installed on the first pump outlet.    |

Each G3 includes one pump element when it ships. Add one or two more (p/n 571041) and the appropriate union kit if needed for your application.

| Relief valve options for G-series pumps |         |   |
|---|---------|---|
| Outlet Thread                           |         | Description   |
| NPT                                     | BSPB    |   |
| 571028*                                 | 571071  | Adjustable return-to-reservoir pressure relief kit – 500 to 3,500 psi (35 to 241 bar).        |
| 556420                                  | n/a     | Male run tee – 1/4 NPT, use with 571028 kit to increase pressure limit to 5,000 psi.          |
| 26C030                                  | 26C176  | Pressure relief to atmosphere kit – 5,000 psi (345 bar).                                      |
| 26A910*                                 | n/a     | Pressure relief to atmosphere kit – 4,000 psi (276 bar).                                      |
| 115122*                                 | n/a     | Pressure relief to atmosphere valve – 1/8 in NPT male, 4,000 psi (276 bar).                   |
| 571058*                                 | 571070  | Pressure relief-to-atmosphere kit – requires one of the following six pressure relief valves: |
|   | 563156* | Pressure relief valve – 750 psi (52 bar)  |
|   | 563157* | Pressure relief valve – 1,000 psi (69 bar)  |
|   | 563158* | Pressure relief valve – 1,500 psi (103 bar)   |
|   | 563159* | Pressure relief valve – 2,000 psi (138 bar)   |
|   | 563160* | Pressure relief valve – 2,500 psi (172 bar)   |
|   | 563161* | Pressure relief valve – 3,000 psi (207 bar)   |

\*Acceptable for use with G-Mini pumps.



571028

| G1/G3 Remote Manual Run/Monitoring Lights |         |  |
|---|---------|--|
| 12 VDC                                    | 24 VDC* | M12 Cable included?  |
| 571030                                    | 571031  | No. Use with CPC-5 power cables.                                       |
| 571032                                    | 571033  | Yes. 16.5 ft (5 m). Use with pumps that have M12 input for manual run. |

\*24 VDC is also used with AC powered G-Series pumps.

| G1/G3 Mounting Bracket Options |   |
|--------------------------------|---|
| 125910                         | G3 pump mounting L-bracket  |
| 571159                         | G3 reservoir support bracket for mobile installations – secures 12 and 16 liter reservoirs. |
| 132187                         | G-Series isolation kit (vibration damper)   |



571255

| G1/G3 Protective Front Cover Kits |   |
|-----------------------------------|---|
| 571036                            | Black   |
| 571255                            | Clear   |
| 24Z962                            | Clear with cutouts for Reset and Manual Run buttons |



571033

| Grease Pressure Gauges – stainless steel case, liquid filled (glycerine), 0-5,000 PSI (0-350 bar). |               |        |                                      |
|--|---------------|--------|--------------------------------------|
| Part Number  | Thread        | Mount  | Suggested Use                        |
| 126005   | 1/4 NPT brass | Back   | Vent valve gauge port                |
| 102814   | 1/4 NPT brass | Bottom | Tee into pump outlet with p/n 556420 |

# Electric Pumps

## G-Series Pump Packages and Accessories

### G1/G3 Reservoir Filling Accessories

|         |   |
|---------|---|
| 24M644* | High capacity fill coupler with quick disconnect and dust cover   |
| 121474* | Female coupler – mates to 24M644 fill stud and 77X542 remote fill manifold.   |
| 247886* | Manual pump – fits 5 gallon or 35 pound pail. Includes 121474 coupler.  |
| 571162  | Manual hand pump – use with grease cartridges. Installs into alternate pump element port. (G3 only. Not recommended for pumps with follower plates or three-pump union kits.) |
| 571167  | Manual hand pump adaptor – for use with 571162 fill pump to protect threads in pump base.   |
| 571064* | Cold temperature fill relief kit – prevents over-pressurizing when filling in cold temperatures.  |
| 77X542  | Remote-fill port manifold with vent – for use with reservoirs that have AFSO.   |
| 26C029  | G1/G3 oil reservoir fill cap lanyard  |

\*Acceptable for use with G-Mini pumps.

### Refill Pump Kits – each kit includes 121474 coupler.

|        |   |
|--------|---|
| 247886 | Manual hand pump for 35 lb pail                       |
| 26A319 | Fireball 225 120 lb keg. Includes cart for keg.       |
| 26A320 | Fireball 225 400 lb barrel. Includes cart for barrel. |

### Solar Power Accessories – for use with 12 VDC pumps.

|        |  |
|--------|--|
| 26C432 | Solar battery box with terminal strip  |
| 26C433 | Solar Panel Kit. Includes battery box with terminal strip (26C432), solar panel and mounting hardware. |
| B32073 | Solar panel base anchor kit  |
| B32790 | Solar panel stand kit – 3 ft (0.9 m) for 50-180W panels  |
| B32793 | Solar panel stand kit – 6 ft (1.8 m) for 50-180W panels  |
| B32739 | Solar panel A-frame stand kit  |

### G3 Pump Enclosure Kits

Ideal for fracturing equipment lubrication, these kits contain a G3 pump, valve assemblies, durable enclosure and mounting assemblies.

|        |   |
|--------|---|
| 132090 | Triplex, 12V, G3 Pro                            |
| 132091 | Triplex, 24V, G3 Pro                            |
| 132154 | Triplex, 24V, G3 Standard                       |
| 132092 | Quintuplex, 12V, G3 Pro                         |
| 132093 | Quintuplex, 24V, G3 Pro                         |
| 132155 | Quintuplex, 24V, G3 Standard                    |
| 132089 | Standalone enclosure with G3/MSP mounting panel |
| 132188 | G3/MSP mounting panel                           |
| 132163 | Isolator kit                                    |



121474



571162



77X542



132155

## G3 Input Sensors Ordering Information

### Machine Count Sensors

|        |   |
|--------|---|
| 17J939 | G3 machine count inductive sensor – 12-24 VDC. NPN normally open, M12 male, 5mm sensing distance.                     |
| 557781 | "Microswitch" dry contact limit switch – AC/DC. Can be wired N.O. or N.C. Use with cable 124300 and cord grip 260067. |

**Pressure Switches** – use to read pressure in an injector-based system. After injectors dispense, controller or G3 Max will trigger pump shut down and vent.

| Part Number | Voltage and Switch Type | Pressure Setting Range  | Porting        | Electrical Connector     | Notes  |
|-------------|-------------------------|---|----------------|--------------------------|--|
| 24N181      | AC/DC, Dry Contact      | 580 to 5,800 psi (40 to 400 bar)  | 1/4 NPT female | DIN connector (included) | Designed specifically for grease. Includes DIN connector – just add 124300 to connect to G3 Max. |
| 24K414      | 10-32 VDC, PNP          | set: 290 to 580 PSI (20 to 40 bar)<br>reset: 175 to 5,685 PSI (12 to 392 bar) | 1/4 NPT male   | M12 male                 | Dual pressure setting adjustments. M12 connection makes it easy to wire to a G3 Max.             |

For more pressure switch options and more details, see page 95.

**Solid State Proximity Switches** – use with Series Progressive Divider Valves to count cycles.

| Part Number | Voltage and Switch Type | Divider Valve | Thread  | Electrical Connector |
|-------------|-------------------------|---------------|---------|----------------------|
| 17L983      | 10-36 VDC, PNP          | MSP and MHH   | 7/16-20 | M12 male             |
| 17L879      | 10-36 VDC, PNP          | CSP           | M11     | M12 male             |



17L983

# Electric Pumps

## G-Series Pump Packages and Accessories

**Cables for Solid State Proximity Switches** – use with a G3 Max or G3 SP when connecting directly to the pump, when LED cycle indication is required.

| Part Number | Prox switch connection | 2nd connection     | Length        | Notes                                     |
|-------------|------------------------|--------------------|---------------|---|
| 25M602      | M12 female, straight   | Flying leads       | 16.5 ft (5 m) | PNP switch with NPN LED - requires 124594 |
| 25M603      | M12 female, straight   | M12 male, straight | 16.5 ft (5 m) | PNP switch with NPN LED                   |

For more proximity switch and cable options, and more details, see Proximity Switches section on pages 93-94.

**Other wiring accessories for G-series pumps** – use with a G3 Max, G3 SP or G-Mini when connecting directly to the pump, when LED cycle indication is not required.

| Part Number | 1st connection          | 2nd connection     | Length        | Notes   |
|-------------|-------------------------|--------------------|---------------|---|
| 126331      | M12 female, straight    | Flying leads       | 16.5 ft (5 m) | Requires 124594 when used with G3 Max/SP or G-Mini  |
| 124300      | M12 male, straight      | Flying leads       | 16.5 ft (5 m) | Accessory cable – add 124301 when connecting to an M12 sensor.  |
| 124333      | M12 female, straight    | M12 male, straight | 16.5 ft (5 m) | Accessory cable   |
| 124301      | M12 female, straight    | n/a                | n/a           | Connector for 6-8 mm cable  |
| 124594      | M12 male, straight      | n/a                | n/a           | Connector for 6-8 mm cable  |
| 124595      | M12 male, straight      | n/a                | n/a           | Connector for 8-11 mm cable   |
| 124640      | DIN female              | Flying leads       | 6.6 ft (2 m)  | Output cable for DIN alarm relay (G3 Max)   |
| 127123      | DIN female              | n/a                | n/a           | Field wireable DIN connector  |
| 24P731      | DIN power/alarm cover   | n/a                | n/a           | With gasket and screw, IP69K rated  |
| 16T854      | Vent valve output cover | n/a                | n/a           | With o-ring, IP69K rated – use with G3 Max pumps that have the VV connector but no VV cable installed |

### Vent Valve Ordering Information

#### Direct-Mount Vent Valves for G3 Pumps

G3 pump vent valve kits include adjustable pressure relief, 500-3,500 psi (35-241 bar), and mount directly to a G3 pump.

#### Normally Closed Vent Valves for use with G3 Max pumps

| Voltage  | NPT version | BSPP version | Power cable |
|----------|-------------|--------------|-------------|
| 12 VDC   | 571169      | 571171       | Included    |
| 24 VDC   | 571170      | 571172       | Included    |
| AC pumps | 571170      | 571172       | Included    |

G3 Max AC pumps are 24 VDC internally, so they use 24 VDC accessories, including the vent valve and pressure sensors.

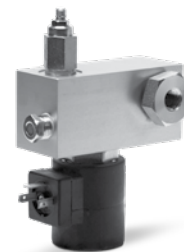
#### Normally Open Vent Valves for use with G3 Standard pumps

| Voltage | NPT version | BSPP version | Power cable |
|---------|-------------|--------------|-------------|
| 12 VDC  | 24M478      | 24M481       | 24N402      |
| 24 VDC  | 24M479      | 24M482       | 24N402      |
| 115 VAC | 24M480      | 24M483       | 16U790*     |
| 230 VAC | 24N182      | 24M484       | 16U790*     |

\*24N351 is alternative patch cable which connects directly to DIN power connection.

#### Accessories for G3 Standard Systems

|        |  |
|--------|--|
| 24N402 | Vent valve power cable – normally open, 12 or 24 VDC valve, Deutsch connector, 6 feet  |
| 16U790 | Vent valve power cable – normally open, 115 or 230 VAC valve, DIN connector, 15 feet   |
| 24N351 | Save installation time and money without the need for additional cabling. Patch cable connects vent valves with DIN connection directly to the DIN Pump Power connector. |



24M480



24N351

# Electric Pumps

## Modu-Flo®

### Highly Configurable Pump Solution For Nearly Any Application

The Modu-Flo system is ideal for applications where minimizing downtime is critical. Customizing is easy—just mix and match pumps, reservoirs and manifolds in any configuration to meet most applications. Replace the pump or reservoir, without disconnecting lubrication lines. Electric pumps available for use with AC or DC supply voltage make Modu-Flo the right solution for any automated electric lubrication system.

- Modular system design allows configurations to work in all applications
- Easy to standardize on components and reduce inventory
- Adjustable pump output for fast, convenient customizing

### Typical Applications

- Presses and other in plant machines

### Lubrication Used

- Oil and Grease up to NLGI #2

### Technical Specifications

|                                  |   |
|----------------------------------|---|
| Output per Stroke . . . . .      | 0.024 in <sup>3</sup> (0.4 cm <sup>3</sup> )          |
| Motor . . . . .                  | 24 VDC, 115 VAC                                       |
| Max Output per Minute . . . . .  | 24 VDC - 0.29 in <sup>3</sup> (4.7 cm <sup>3</sup> )  |
| . . . . .                        | 115 VAC - 0.58 in <sup>3</sup> (9.5 cm <sup>3</sup> ) |
| Max Operating Pressure . . . . . | 2,500 psi (172 bar)                                   |
| Max Run Time . . . . .           | 4 Minutes   |
| Operating Temp . . . . .         | 20°F to 140°F (-7°C to 60°C)                          |
| Operating Environment . . . . .  | 24 VDC - Inside/Outside, 115 VAC - Inside Only        |

### Ordering Information

| Modu-Flo Pumps       |   |
|----------------------|---|
| 563356               | 24 VDC motor, 20 ft connector cable   |
| 563346               | 115 VAC motor, 20 ft connector cable  |
| 563333               | Pump-to-reservoir manifold, NPT, liquid filled gauge, fill check, outlet check, blowout |
| 563329               | Pump-to-reservoir manifold, NPT, w/out hardware or fittings                             |
| 563355               | Pump-to-reservoir manifold, SAE, dry gauge, fill check, outlet check, blowout           |
| 563357               | Pump-to-reservoir manifold, BSPP, dry gauge, fill check, outlet check, blowout          |
| 563324               | Pump-to-reservoir manifold, NPT, dry gauge, fill check, outlet check, blowout           |
| 563331               | Pump-to-reservoir manifold, NPT, dry gauge, fill check, outlet check, tubed blowout     |
| Modu-Flo Spare Parts |   |
| 563137               | 20 ft connector cable for 24 VDC  |
| 256778               | Modu-Flo pump repair kit  |
| 557287               | 24 VDC gear motor   |
| 557285               | 115 VAC gear motor  |

See pneumatic Modu-Flo section for a complete list of configurable parts.

For new applications, consider a G3 Pump instead.



Modu-Flo pump shown with grease reservoir

# Electric Pumps

## Lube Master®

### Built For Severe-duty Environments

The Lube Master is a rugged pump package designed for demanding applications. The adjustable output and anti-friction drive bearings make it both reliable and efficient. Rugged cast aluminum main body and heavy-duty internal components deliver consistent performance in harsh applications. With several reservoir choices and accessories to choose from, the Lube Master pump can be easily customized to meet virtually all application needs.

### Typical Applications

- Cement plants, paper processing, steel mills and other harsh environments

### Typical Fluids Used

- Oil
- Grease up to NLGI #2

### Technical Specifications

|                          |  |
|--------------------------|--|
| Cycle Rate               | 1-175 Strokes per minute                                 |
| Output Volume per Minute | 0.01-8.62 in <sup>3</sup> (0.16-143.41 cm <sup>3</sup> ) |
| Max Output Pressure      | 5,000 psi (340 bar)                                      |
| Material                 | Plastic or Metal, Cylindrical                            |
| Reservoir Size           | Oil - 12 pint, 20 pint, Grease - 12 lb, 20 lb            |
| Motor                    | 115/230 VAC, 230/460 VAC                                 |



LM5111

### Ordering Information

| Lube Master Pumps |  |
|-------------------|--|
| LM1115            | 12 pt Plastic Oil Reservoir (562892), 12 pt Oil Low Level, SPST, 10 watts (563015)   |
| LM1552            | 12 pt Plastic Oil Reservoir (562892), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,140 rpm) (557273), Low Level Switch (12 pt Oil, SPDT, 15 amps) (563316)      |
| LM1635            | 12 pt Plastic Oil Reservoir (562892), Wall-Mounting 60:1 Reduction (563387), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270), 12 pt Oil Low Level, SPST, 10 watts (563015)               |
| LM2323            | 20 pt Plastic Oil Reservoir (562893), Floor-Mounting 10:1 Reduction (563388), Motor (1/2 HP, 115/230 VAC, Single Phase, 60 Hz, 1,725 rpm) (557271), Low Level Switch (20 pt Oil, SPDT, 15 amps) (563317) |
| LM2331            | 20 pt Plastic Oil Reservoir (562893), Floor-Mounting 10:1 Reduction (563388), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270)  |
| LM2533            | 20 pt Plastic Oil Reservoir (562893), Floor-Mounting 60:1 Reduction (563388), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270), Low Level Switch (20 pt Oil, SPDT, 15 amps) (563317)      |
| LM3131            | 12 pt Metal Oil Reservoir (562894), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270)  |
| LM4311            | 20 pt Metal Oil Reservoir (562895), Floor-Mounting 10:1 Reduction (563388)   |
| LM4451            | 20 pt Metal Oil Reservoir (562895), Wall-Mounting 10:1 Reduction (563386), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,140 rpm) (557273)   |
| LM4523            | 20 pt Metal Oil Reservoir (562895), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 115/230 VAC, Single Phase, 60 Hz, 1,725 rpm) (557271), Low Level Switch (20 pt Oil, SPDT, 15 amps) (563317)   |
| LM4533            | 20 pt Metal Oil Reservoir (562895), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270), Low Level Switch (20 pt Oil, SPDT, 15 amps) (563317)        |

|        |   |
|--------|---|
| LM5111 | 12 lb Plastic Grease Reservoir (562896)   |
| LM5114 | 12 lb Plastic Grease Reservoir (562896), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)   |
| LM5311 | 12 lb Plastic Grease Reservoir (562896), Floor-Mounting 10:1 Reduction (563388)   |
| LM5324 | 12 lb Plastic Grease Reservoir (562896), Floor-Mounting 10:1 Reduction (563388), Motor (1/2 HP, 115/230 VAC, single phase, 60 Hz, 1,725 rpm) (557271), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322) |
| LM5331 | 12 lb Plastic Grease Reservoir (562896), Floor-Mounting 10:1 Reduction (563388), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270)  |
| LM5334 | 12 lb Plastic Grease Reservoir (562896), Floor-Mounting 10:1 Reduction (563388), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)      |
| LM5514 | 12 lb Plastic Grease Reservoir (562896), Floor-Mounting 60:1 Reduction (563389), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)   |
| LM5521 | 12 lb Plastic Grease Reservoir (562896), Wall-Mounting 10:1 Reduction (563386), Motor (1/2 HP, 115/230 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557271)   |
| LM5534 | 12 lb Plastic Grease Reservoir (562896), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)      |
| LM5544 | 12 lb Plastic Grease Reservoir (562896), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 115/230 VAC, Single Phase, 60 Hz, 1,140 rpm) (557272), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322) |
| LM5644 | 12 lb Plastic Grease Reservoir (562896), Wall-Mounting 60:1 Reduction (563387), Motor (1/2 HP, 115/230 VAC, Single Phase, 60 Hz, 1,140 rpm) (567272), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)  |

# Electric Pumps

## Lube Master®

### Ordering Information

| Lube Master Pumps |   |
|-------------------|---|
| LM6211            | 20 lb Plastic Grease Reservoir (562897), Clutch Drive (563383)  |
| LM6311            | 20 lb Plastic Grease Reservoir (562897), Floor-Mounting 10:1 Reduction (563388)   |
| LM6314            | 20 lb Plastic Grease Reservoir (562897), Floor-Mounting 10:1 Reduction (563388), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)   |
| LM6334            | 20 lb Plastic Grease Reservoir (562897), Floor-Mounting 10:1 Reduction (563388), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)      |
| LM6344            | 20 lb Plastic Grease Reservoir (562897), Floor-Mounting 10:1 Reduction (563388), Motor (1/2 HP, 115/230 VAC, Single Phase, 60 Hz, 1,140 rpm) (557272), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322) |
| LM6514            | 20 lb Plastic Grease Reservoir (562897), Floor-Mounting 10:1 Reduction (563388), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)   |
| LM6524            | 20 lb Plastic Grease Reservoir (562897), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 115/230 VAC, Single Phase, 60 Hz, 1,725 rpm) (557271), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322) |
| LM6534            | 20 lb Plastic Grease Reservoir (562897), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)      |
| LM6544            | 20 lb Plastic Grease Reservoir (562897), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 115/230 VAC, Single Phase, 60 Hz, 1,140 rpm) (557272), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322) |
| LM7214            | 12 lb Metal Grease Reservoir (562898), Clutch Drive (563383), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)  |
| LM7344            | 12 lb Metal Grease Reservoir (562898), Floor-Mounting 10:1 Reduction (563388), Motor (1/2 HP, 115/230 VAC, Single Phase, 60 Hz, 1,140 rpm) (557272), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)   |
| LM7514            | 12 lb Metal Grease Reservoir (562898), Floor-Mounting 60:1 Reduction (563389), Low Level Switch (12 lb or 20 lb Grease, SPDT) (563322)  |
| LM7534            | 12 lb Metal Grease Reservoir (562898), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557273), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)        |
| LM7544            | 12 lb Metal Grease Reservoir (562898), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 115/230 VAC, Single Phase, 60 Hz, 1,140 rpm) (557272), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)   |
| LM7614            | 12 lb Metal Grease Reservoir (562898), Wall-Mounting 60:1 Reduction (563387), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)  |
| LM7654            | 12 lb Metal Grease Reservoir (562898), Wall-Mounting 60:1 Reduction (563387), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,140 rpm) (557273), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)         |
| LM8114            | 20 lb Metal Grease Reservoir (562899), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)   |
| LM8314            | 20 lb Metal Grease Reservoir (562899), Floor-Mounting 10:1 Reduction (563388), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)   |
| LM8334            | 20 lb Metal Grease Reservoir (562899), Floor-Mounting 10:1 Reduction (563388), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)        |
| LM8354            | 20 lb Metal Grease Reservoir (562899), Floor-Mounting 10:1 Reduction (563388), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,140 rpm) (557273), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)        |
| LM8454            | 20 lb Metal Grease Reservoir (562899), Wall-Mounting 10:1 Reduction (563386), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,140 rpm) (557273), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)         |
| LM8514            | 20 lb Metal Grease Reservoir (562899), Floor-Mounting 60:1 Reduction (563389), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)   |
| LM8531            | 20 lb Metal Grease Reservoir (562899), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270)  |
| LM8534            | 20 lb Metal Grease Reservoir (562899), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)        |
| LM8554            | 20 lb Metal Grease Reservoir (562899), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,140 rpm) (557273), Low Level Switch (12 lb and 20 lb Grease, SPDT) (563322)        |
| LM9331            | Power Prime Reservoir Assembly (562908), Floor-Mounting 10:1 Reduction (563388), Motor (1/2 HP, 230/460 VAC, 3-Phase, 60 Hz, 1,725 rpm) (557270)  |
| LM9511            | Power Prime Reservoir Assembly (562908), Floor-Mounting 60:1 Reduction (563389)   |
| LM9521            | Power Prime Reservoir Assembly (562908), Floor-Mounting 60:1 Reduction (563389), Motor (1/2 HP, 115/230 VAC, Single Phase, 60 Hz, 1,725 rpm) (557271)   |

# Electric Pumps

## Lube Master®

### Pump Repair Kits

At the heart of all current Lube Master pump packages is pump part number 563380 (521-700-000). There are three repair kits for the pump, and some of the parts overlap because each kit includes some of the same seals. To completely rebuild the pump, all three kits are required, and some extra parts will remain because of this overlap.

|        |   |
|--------|---|
| 563915 | Driveshaft Kit: Includes the driveshaft, cam, bearings, and related seals and hardware.                                 |
| 563921 | Seal Kit: Includes seals and small hardware.  |
| 563916 | Standard Output Manifold Kit: Includes pump piston and cylinder, output manifold block, and related seals and hardware. |

### Reservoir Repair Kits

|        |   |
|--------|---|
| 562902 | Plastic tube with u-cup seal for part numbers 562892 and 562896 |
| 562903 | Plastic tube with u-cup seal for part numbers 562893 and 562897 |
| 564270 | Metal tube with u-cup seal for part numbers 562894 and 562898   |
| 564271 | Metal tube with u-cup seal for part numbers 562895 and 562899   |

### Blowout Disc Kits

|        |  |
|--------|--|
| 563962 | Package of 6 Blowout Discs, Yellow, 1450 psi, Oil      |
| 563965 | Package of 6 Blowout Discs, Aluminum, 2350 psi, Grease |



# Electric Pumps

## Lube Master®

### Lube Master Ordering Menu Code

Use the Smart Numbering System to order a complete assembly! The six-digit Smart Numbering System can help you order quickly and accurately. Simply follow the diagram for the configuration you want and build your order. Alternatively, use the part numbers at right to order individual components and assemble them in the field.

| Code   | Former Code | Description  | Part Number | LM | Reservoir | Drive | Motor | Low Level |
|--|-------------|--|-------------|----|-----------|-------|-------|-----------|
| <b>Product Identifier</b>  |             |  |             |    | X         | X     | X     | X         |
| LM   | LUB         | LM = Lube Master   | 563380      |    |           |       |       |           |
| Note: When ordering Lube Master bare pump 563380 for use with a grease reservoir, a fill stud is required (part number 557374). Fill stud 557374 is compatible with mating coupler 558906. Order separately. |             |  |             |    |           |       |       |           |
| <b>Reservoir Options</b>   |             |  |             |    |           |       |       |           |
| 1  | OPA         | 12 pt plastic oil reservoir  | 562892      |    |           |       |       |           |
| 2  | OPB         | 20 pt plastic oil reservoir  | 562893      |    |           |       |       |           |
| 3  | OMA         | 12 pt metal oil reservoir  | 562894      |    |           |       |       |           |
| 4  | OMB         | 20 pt metal oil reservoir  | 562895      |    |           |       |       |           |
| 5  | GPA         | 12 lb plastic grease reservoir   | 562896      |    |           |       |       |           |
| 6  | GPB         | 20 lb plastic grease reservoir   | 562897      |    |           |       |       |           |
| 7  | GMA         | 12 lb metal grease reservoir   | 562898      |    |           |       |       |           |
| 8  | GMB         | 20 lb metal grease reservoir   | 562899      |    |           |       |       |           |
| 9  | OHS         | Power Prime/Overhead Supply  | 562908      |    |           |       |       |           |
| <b>Drive Options</b>   |             |  |             |    |           |       |       |           |
| 1  | DOO         | No drive   | N/A         |    |           |       |       |           |
| 2  | DOA         | Clutch drive with ratchet arm  | 563383      |    |           |       |       |           |
| 3  | DOB         | 10:1 reduction, floor-mounting base  | 563388      |    |           |       |       |           |
| 4  | DOC         | 10:1 reduction, wall-mounting base   | 563386      |    |           |       |       |           |
| 5  | DOD         | 60:1 reduction, floor-mounting base  | 563389      |    |           |       |       |           |
| 6  | DOE         | 60:1 reduction, wall-mounting base   | 563387      |    |           |       |       |           |
| Note: Drive Options 3, 4, 5, and 6 each contain all required mounting hardware (mounting plate, coupler, coupler guard, nuts, bolts, and washers).   |             |  |             |    |           |       |       |           |
| <b>Motor Options</b>   |             |  |             |    |           |       |       |           |
| 1  | MOO         | No motor   | N/A         |    |           |       |       |           |
| 2  | MOA         | 1/2 HP, 115/230 VAC, single phase, 60 Hz, 1,725 rpm  | 557271      |    |           |       |       |           |
| 3  | MOB         | 1/2 HP, 230/460 VAC, 3-phase, 60 Hz, 1,725 rpm   | 557270      |    |           |       |       |           |
| 4  | MOC         | 1/2 HP, 115/230 VAC, single phase, 60 Hz, 1,140 rpm  | 557272      |    |           |       |       |           |
| 5  | MOD         | 1/2 HP, 230/460 VAC, 3-phase, 60 Hz, 1,140 rpm   | 557273      |    |           |       |       |           |
| <b>Low Level Options</b>   |             |  |             |    |           |       |       |           |
| 1  | LOO         | No level switch  | N/A         |    |           |       |       |           |
| 2  | LOA         | 12 pt oil, SPDT, 15 amps   | 563316      |    |           |       |       |           |
| 3  | LOB         | 20 pt oil, SPDT, 15 amps   | 563317      |    |           |       |       |           |
| 4  | LOC         | 12 and 20 lb grease, SPDT  | 563322      |    |           |       |       |           |
| 5  | LOE         | 12 pt oil, SPST, 10 watts  | 563015      |    |           |       |       |           |
| 6  | LOF         | 20 pt oil, SPST, 10 watts  | 563016      |    |           |       |       |           |
| N/A*   | N/A         | High/low level switch kit (for METAL grease reservoirs only)   | 564318      |    |           |       |       |           |
| N/A*   | LOH         | Explosion-proof LL switch for grease reservoirs. (Class I, Group C and D; Class II, Group E, F, and G) | 564377      |    |           |       |       |           |
| *564318 and 564377 are sold separately and field-installed. Choose option "1" and then order either part separately.   |             |  |             |    |           |       |       |           |
| <b>Pressure Gauge (included)</b>   |             |  |             |    |           |       |       |           |
| N/A  | G1          | No gauge   | N/A         |    |           |       |       |           |
| N/A  | G3          | Liquid-filled 0-3000 psi gauge   | 557713      |    |           |       |       |           |
| Note: 557713 is included with every LMxxxx assembly, but not with the bare pump.   |             |  |             |    |           |       |       |           |
| <b>Pressure Indicators (sold separately, but required for safety)</b>  |             |  |             |    |           |       |       |           |
| N/A  | POA         | Standard Blowout, 1,450 psi (100 bar), Oil   | 563179      |    |           |       |       |           |
| N/A  | POB         | Standard Blowout, 2,350 psi (162 bar) Grease   | 563184      |    |           |       |       |           |
| N/A  | POC         | High-Pressure Blowout Switch, 1,450 psi (100 bar), Oil   | 563384      |    |           |       |       |           |
| N/A  | POD         | High-Pressure Blowout Switch, 2,350 psi (162 bar), Grease  | 563385      |    |           |       |       |           |
| Note: Options POC and POD require approximately 3 feet of 1/4 in OD copper tubing, which must be obtained from a 3rd party source.   |             |  |             |    |           |       |       |           |

# Electric Pumps

## Miniature Meter-Flo®

### Versatile All In One Pump Package

Designed for use with virtually any type of Series Progressive or Single Line Resistive oil lubrication system. The Miniature Meter-Flo's rugged steel reservoir and motor assembly withstands the toughest applications. Capable of high volumetric output operating continuously at pressures up to 1,000 psi (69 bar).

- Compact with several options to create a complete system using feedback and control

### Typical Applications

- Ideal for smaller series progressive systems requiring continuous lubrication

### Lubrication Used

- Oil – 160 to 15,000 SUS

### Technical Specifications

Output Volume per minute. . . . . 1, 5, 8, 14 in<sup>3</sup> (16, 82, 131, 229 cm<sup>3</sup>)  
 Output Pressure . . . . . 0-2,000 psi (0-138 bar)  
 Material . . . . . Metal, Rectangular  
 Reservoir Size. . . . . 1.5, 3, 5 gal (12, 24, 40 pint)  
 Motor . . . . . 115 VAC



MM2211

### Ordering Information

| Miniature Meter-Flo (MMF) Electric (Motor Driven) Pumps w/Reservoirs |   |
|--|---|
| MM1111   | 1.5 gal Reservoir, 1 in <sup>3</sup> /min, 1,500 psi  |
| MM1112   | 1.5 gal Res., 1 in <sup>3</sup> /min, 1,500 psi, Low Level Switch (Reed-Type, SPST)                             |
| MM1121   | 1.5 gal Reservoir, 1 in <sup>3</sup> /min, 1,500 psi, High-Pressure Switch                                      |
| MM1122   | 1.5 gal Reservoir, 1 in <sup>3</sup> /min, 1,500 psi, High-Pressure Switch, Low Level Switch (Reed-Type, SPST)  |
| MM1211   | 1.5 gal Res., 5 in <sup>3</sup> /min, 2,000 psi   |
| MM1212   | 1.5 gal Res., 5 in <sup>3</sup> /min, 2,000 psi, Low Level Switch (Reed-Type, SPST)                             |
| MM1222   | 1.5 gal Res., 5 in <sup>3</sup> /min, 2,000 psi, High-Pressure Switch (Reed-Type, SPST)                         |
| MM1311   | 1.5 gal Reservoir, 8 in <sup>3</sup> /min, 2,000 psi  |
| MM1312   | 1.5 gal Res., 8 in <sup>3</sup> /min, 2,000 psi, Low Level Switch (Reed-Type, SPST)                             |
| MM1322   | 1.5 gal Reservoir, 8 in <sup>3</sup> /min, 2,000 psi, High-Pressure Switch, Low Level Switch (Reed-Type, SPST)  |
| MM1411   | 1.5 gal Reservoir, 14 in <sup>3</sup> /min, 1,500 psi   |
| MM1412   | 1.5 gal Res., 14 in <sup>3</sup> /min, 1,500 psi, Low Level Switch (Reed-Type, SPST)                            |
| MM1422   | 1.5 gal Reservoir, 14 in <sup>3</sup> /min, 1,500 psi, High-Pressure Switch, Low Level Switch (Reed-Type, SPST) |
| MM2112   | 3 gal Reservoir, 1 in <sup>3</sup> /min, 1,500 psi, High-Pressure Switch, Low Level Switch (Reed-Type, SPST)    |
| MM2211   | 3 gal Reservoir, 5 in <sup>3</sup> /min, 2,000 psi  |
| MM2212   | 3 gal Reservoir, 5 in <sup>3</sup> /min, 2,000 psi, Low Level Switch (Reed-Type, SPST)                          |
| MM2221   | 3 gal Reservoir, 5 in <sup>3</sup> /min, 2,000 psi, High-Pressure Switch  |
| MM2222   | 3 gal Reservoir, 5 in <sup>3</sup> /min, 2,000 psi, High-Pressure Switch, Low Level Switch (Reed-Type, SPST)    |
| MM2312   | 3 gal Reservoir, 8 in <sup>3</sup> /min, 2,000 psi, Low Level Switch (Reed-Type, SPST)                          |
| MM2322   | 3 gal Reservoir, 8 in <sup>3</sup> /min, 2,000 psi, High-Pressure Switch, Low Level Switch (Reed-Type, SPST)    |
| MM2411   | 3 gal Reservoir, 14 in <sup>3</sup> /min, 1,500 psi   |

|        |   |
|--------|---|
| MM2412 | 3 gal Reservoir, 14 in <sup>3</sup> /min, 1,500 psi, Low Level Switch (Reed-Type, SPST)                       |
| MM2422 | 3 gal Reservoir, 14 in <sup>3</sup> /min, 1,500 psi, High-Pressure Switch, Low Level Switch (Reed-Type, SPST) |
| MM3112 | 5 gal Reservoir, 1 in <sup>3</sup> /min, 1,500 psi, Low Level Switch (Reed-Type, SPST)                        |
| MM3122 | 5 gal Reservoir, 1 in <sup>3</sup> /min, 1,500 psi, High-Pressure Switch, Low Level Switch (Reed-Type, SPST)  |
| MM3211 | 5 gal Reservoir, 5 in <sup>3</sup> /min, 2,000 psi (Reed-Type, SPST)  |
| MM3212 | 5 gal Reservoir, 5 in <sup>3</sup> /min, 2,000 psi, Low Level Switch (Reed-Type, SPST)                        |
| MM3312 | 5 gal, 8 in <sup>3</sup> /min, 2,000 psi, Low Level Switch  |
| MM3322 | 5 gal Reservoir, 8 in <sup>3</sup> /min, 2,000 psi, High-Pressure Switch, Low Level Switch (Reed-Type, SPST)  |
| MM3411 | 5 gal Reservoir, 14 in <sup>3</sup> /min, 1,500 psi   |
| MM3412 | 5 gal Reservoir, 14 in <sup>3</sup> /min, 1,500 psi, Low Level Switch (Reed-Type, SPST)                       |
| MM3422 | 5 gal Reservoir, 14 in <sup>3</sup> /min, 1,500 psi, High-Pressure Switch, Low Level Switch (Reed-Type, SPST) |

| Miniature Meter-Flow (MMF) Spare Parts |  |
|--|--|
| 564412                                 | MMF Assembly - Pump, Gearmotor, Reducer Assembly, 1 in <sup>3</sup> /min Flowrate  |
| 564413                                 | MMF Assembly - Pump, Gearmotor, Reducer Assembly, 5 in <sup>3</sup> /min Flowrate  |
| 564414                                 | MMF Assembly - Pump, Gearmotor, Reducer Assembly, 8 in <sup>3</sup> /min Flowrate  |
| 564415                                 | MMF Assembly - Pump, Gearmotor, Reducer Assembly, 14 in <sup>3</sup> /min Flowrate |
| 557286                                 | Motor, 115 VAC   |
| 557293                                 | Gear Box, 1 in <sup>3</sup> /min (12.5:1)  |
| 557822                                 | Gear Pump Only, 1 to 8 in <sup>3</sup> /min  |
| 557821                                 | Gear Pump Only, 14 in <sup>3</sup> /min  |
| 557810                                 | Suction Strainer   |
| 563558                                 | Relief Valve   |
| 557825                                 | Replacement Level Switch   |

# Electric Pumps

## Miniature Meter-Flo®

### Miniature Meter-Flo Ordering Menu Code

NOTE: Utilize number code not lettered code from literature for ordering purposes.

MM - X - X - X - X

#### Reservoir Option

- 1 RA, 1.5 gallon reservoir
- 2 RB, 3 gallon reservoir
- 3 RC, 5 gallon reservoir

#### Pump / Flow Option (\*)

- 1 PA, 1 in<sup>3</sup>/min (1,500 psi maximum operating pressure)
- 2 PB, 5 in<sup>3</sup>/min (2,000 psi maximum operating pressure)
- 3 PC, 8 in<sup>3</sup>/min (2,000 psi maximum operating pressure)
- 4 PD, 14 in<sup>3</sup>/min (1,500 psi maximum operating pressure)

#### Pressure Switch Option

- 1 SO, no pressure switch
- 2 SA, high pressure switch

#### Low Level Option

- 1 LO, no low level switch
- 2 LA, low level switch, reed-type, SPST - 563014

(\*) All pump flow rates are based on 160 SUS (at 100°F) 10W oil, 70°F at 1,000 psi.

Example: Miniature Meter-Flo (MM) pump package consisting of a 3 gallon reservoir, 5 in<sup>3</sup>/min pump output, high pressure switch and low level switch.  
Ordering Code: MM2222

# Electric Pumps

## Meter-Flo®

### Continuous Duty Durability

With its solid pump housing, these rugged gear pumps are designed for dependable operation in high demand applications. The gear pump is available with a direct-coupled 1/2 horsepower motor capable of 1,725 rpms with output volumes of 245 cubic inches per minute. Eleven different pump models to choose from.

### Typical Applications

- Ideal for applications requiring continuous oil delivery up to 1,000 lubrication points

### Lubrication Used

- Oil – 300 to 3,000 SUS

### Technical Specifications

Output volume per minute. . . . . 14 to 245 in<sup>3</sup> (230 to 4015 cm<sup>3</sup>)  
 Max output pressure. . . . . 300 to 1,500 psi (20.7 to 103.5 bar)  
 Operating temp. . . . . 50°F to 150°F (10°C to 65.5°C)

### Ordering Information

| Meter-Flo Pumps |  |
|-----------------|--|
| 557814          | 9 in <sup>3</sup> /min (147 cm <sup>3</sup> /min) @ 1,140 rpm, 14 in <sup>3</sup> /min (229 cm <sup>3</sup> /min) @ 1,725 rpm, NPT ports, ccw        |
| 557819          | 9 in <sup>3</sup> /min (147 cm <sup>3</sup> /min) @ 1,140 rpm, 14 in <sup>3</sup> /min (229 cm <sup>3</sup> /min) @ 1,725 rpm, NPT ports, cw         |
| 558953          | 9 in <sup>3</sup> /min (147 cm <sup>3</sup> /min) @ 1,140 rpm, 14 in <sup>3</sup> /min (229 cm <sup>3</sup> /min) @ 1,725 rpm, SAE ports, ccw        |
| 557813          | 18 in <sup>3</sup> /min (295 cm <sup>3</sup> /min) @ 1,140 rpm, 30 in <sup>3</sup> /min (492 cm <sup>3</sup> /min) @ 1,725 rpm, NPT ports, ccw       |
| 557818          | 26 in <sup>3</sup> /min (426 cm <sup>3</sup> /min) @ 1,140 rpm, 40 in <sup>3</sup> /min (655 cm <sup>3</sup> /min) @ 1,725 rpm, NPT ports, ccw       |
| 558954          | 26 in <sup>3</sup> /min (426 cm <sup>3</sup> /min) @ 1,140 rpm, 40 in <sup>3</sup> /min (655 cm <sup>3</sup> /min) @ 1,725 rpm, SAE ports, cw        |
| 557815          | 56 in <sup>3</sup> /min (918 cm <sup>3</sup> /min) @ 1,140 rpm, 84 in <sup>3</sup> /min (1,377 cm <sup>3</sup> /min) @ 1,725 rpm, NPT ports, ccw     |
| 558949          | 56 in <sup>3</sup> /min (918 cm <sup>3</sup> /min) @ 1,140 rpm, 84 in <sup>3</sup> /min (1,377 cm <sup>3</sup> /min) @ 1,725 rpm, NPT ports, cw      |
| 557816          | 76 in <sup>3</sup> /min (1,245 cm <sup>3</sup> /min) @ 1,140 rpm, 117 in <sup>3</sup> /min (1,917 cm <sup>3</sup> /min) @ 1,725 rpm, NPT ports, ccw  |
| 558950          | 76 in <sup>3</sup> /min (1,245 cm <sup>3</sup> /min) @ 1,140 rpm, 117 in <sup>3</sup> /min (1,917 cm <sup>3</sup> /min) @ 1,725 rpm, NPT ports, cw   |
| 557817          | 111 in <sup>3</sup> /min (1,819 cm <sup>3</sup> /min) @ 1,140 rpm, 168 in <sup>3</sup> /min (2,753 cm <sup>3</sup> /min) @ 1,725 rpm, NPT ports, ccw |
| 558951          | 111 in <sup>3</sup> /min (1,819 cm <sup>3</sup> /min) @ 1,140 rpm, 168 in <sup>3</sup> /min (2,753 cm <sup>3</sup> /min) @ 1,725 rpm, NPT ports, cw  |
| 557820          | 161 in <sup>3</sup> /min (2,638 cm <sup>3</sup> /min) @ 1,140 rpm, 245 in <sup>3</sup> /min (4,015 cm <sup>3</sup> /min) @ 1,725 rpm, NPT ports, ccw |
| 558955          | 161 in <sup>3</sup> /min (2,638 cm <sup>3</sup> /min) @ 1,140 rpm, 245 in <sup>3</sup> /min (4,015 cm <sup>3</sup> /min) @ 1,725 rpm, NPT ports, cw  |

**NOTE:** cw – clock-wise rotation / ccw – counter clock-wise rotation when facing pump shaft.



557814

| Motor Option  |   |
|---|---|
| 558895  | 1/2 HP, 115/230 VAC, 1,725 rpm, single phase, 56C with feet                             |
| Repair Kits   |   |
| 557997  | Meter-Flo seal kit – 540-800-XX1 models   |
| 557998  | Meter-Flo relief valve repair kit – 540-800-XX1 models                                  |
| Meter-Flo Paddle Base and Pump Packages   |   |
| Include motor mounting base, pump, L-bracket, coupler, coupler guard, and other small hardware needed to mount a 56F motor. Simply add any 56F motor (or 56C with feet) to complete the pump package. |   |
| 563557  | Paddle base with pump 557814  |
| 564411  | Paddle base with pump 557813  |
| 24N405  | Paddle base with pump 557815  |
| 24N406  | Paddle base with pump 557816  |
| 24N407  | Paddle base with pump 557817  |
| 24N408  | Paddle base with pump 557818  |
| 24N409  | Paddle base with pump 557820  |
| Additional Mounting Options for Meter-Flo Pumps – pumps not included.   |   |
| 558956  | Bell housing bracket and coupler kit – requires NEMA 56C motor with feet.               |
| 561067  | L-bracket – bare part for mounting Meter-Flo pump in a custom application               |
| 563303  | Extra long coupler used when replacing old "Webster" pumps with current Meter-Flo pumps |

# Electric Pumps

## Injecto-Flo® EO-1 and EO-3

### Reliable Machine Tool Lubrication

#### EO-1 and EO-3

A cost effective, low pressure oil solution designed for use with any high volume, intermittent lubrication system. Can be used with Injecto-Flo II series piston distributor products. EO-1 is ideal for small to medium size single line parallel systems requiring intermittent metered lubrication with an electrically driven pump. EO-3 has integrated control and bright LED's to verify system operation. Built-in vent valve gets you up and working with piston distributors fast – no kits to purchase and assemble.

### Typical Applications

- In-plant medium size machine tool lubrication applications

### Typical Fluids Handled

- Oil – ISO 50 to 1,500 (SUS 250 to 5,000)

### Technical Specifications

Power . . . . . 115 VAC, 230 VAC  
 Motor speed . . . . . 1,680 rpm @ 60 Hz, 1,340 rpm @ 50 Hz

#### EO-1

Pump flow rate . . . . . 6 in<sup>3</sup>/min (100 cm<sup>3</sup>/min)  
 Pressure . . . . . 145 to 650 psi (10 to 45 bar)  
 Reservoir . . . . . Plastic, rectangular  
 Reservoir size . . . . . 6.3, 7.6, 12.6, 15.8 or 25.3 pint

#### EO-3

Pump flow rate . . . . . 8.5 in<sup>3</sup>/min (140 cm<sup>3</sup>/min)  
 Pressure . . . . . 350 psi (24 bar)  
 Operating temp. . . . . 14°F to 120°F (-10°C to 49°C)  
 Reservoir . . . . . Plastic, rectangular  
 Reservoir size . . . . . 7.6 or 12.6 pint  
 Manual . . . . . 313839A

### Ordering Information

| Injecto-Flo EO-1 Pumps |  |
|------------------------|--|
| 562837                 | Pump with 3 liter plastic reservoir, 115 VAC                                 |
| 24B427                 | Pump with 3 liter plastic reservoir, 230 VAC                                 |
| 562849                 | Pump with 3 liter plastic reservoir, 230 VAC                                 |
| 562838                 | Pump with 3.6 liter plastic reservoir, 230 VAC                               |
| 562839                 | Pump with 6 liter plastic reservoir, 115 VAC                                 |
| 562840                 | Pump with 6 liter plastic reservoir, 230 VAC                                 |
| 562841                 | Pump with 6 liter plastic reservoir, 230 VAC                                 |
| 562842                 | Pump with 6 liter plastic reservoir, 230 VAC, return port                    |
| 562843                 | Pump with 6 liter metal reservoir, 115 VAC                                   |
| 562844                 | Pump with 12 liter metal reservoir, 115 VAC                                  |
| Injecto-Flo EO-3 Pumps |  |
| 562851                 | Pump with 3 liter plastic reservoir, 115 VAC, remote control                 |
| 562850                 | Pump with 3 liter plastic reservoir, 115 VAC, timer control, pressure switch |
| 562852                 | 3.6 liter plastic reservoir, 115 VAC   |
| 562847                 | 6 liter reservoir, 115 VAC   |

| Injecto-Flo EO-1 Spare Parts |   |
|------------------------------|---|
| 129781                       | Cap and strainer kit                            |
| 556015                       | Adjustable relief valve                         |
| 556013                       | Gear pump only                                  |
| 556014                       | Suction strainer                                |
| 556011                       | 115 VAC motor                                   |
| 556012                       | 230 VAC motor                                   |
| 129520                       | 6 liter metal reservoir replacement sight glass |
| Low Level Switches           |   |
| 556018                       | Low level switch for 3 liter reservoirs         |
| 556019                       | Low level switch for 6 and 12 liter reservoirs  |



562850



562839

# Electric Pumps

## Injecto-Flo® II

### Durable Long Lasting Machine Tool Pump

Great versatility in a small package has many control options. A dependable high-quality gear pump for years of trouble-free operation combined with Injecto-Flo II piston distributor metering devices completes your oil or fluid grease lubrication system. Internal controller with LED alarms is easy to program for any application. Built-in vent valve gets you up and working with piston distributors fast—no kits to purchase and assemble.

### Typical Applications

- Ideal solution for automatic lubrication on small and mid-sized machines

### Typical Fluids Handled

- Oil – 50 to 100 cst
- Fluid Grease NLGI #000

### Technical Specifications

#### Max Output Volume Per Minute

Oil . . . . . 30.50 in<sup>3</sup> (500 cm<sup>3</sup>)  
 Grease . . . . . 12.20 in<sup>3</sup> (200 cm<sup>3</sup>)

#### Max Pressure

Oil . . . . . 360 psi (25 bar)  
 Grease . . . . . 580 psi (40 bar)

Power . . . . . 230 VAC

Reservoir . . . . . Plastic, Rectangular

Reservoir Size . . . . . .3, 6 liter



122895



15U858

### Ordering Information

| Injecto-Flo II Oil Pumps – 3 liter Reservoirs (no control), 230 VAC |  |
|---|--|
| 122545  | 0.2 lpm, Screw Cap   |
| 122546  | 0.2 lpm, Straight Connector (10 mm Pipe)                   |
| 122547  | 0.5 lpm, Screw Cap   |
| 122548  | 0.5 lpm, Straight Connector (10 mm Pipe)                   |
| 122549  | 0.2 lpm, Single w/DIN, Screw Cap                           |
| 122550  | 0.2 lpm, Single w/DIN, Straight Connector (10 mm Pipe)     |
| 122551  | 0.5 lpm, Single w/DIN, Screw Cap                           |
| 122552  | 0.5 lpm, Single w/DIN, Straight Connector (10 mm Pipe)     |
| 122553  | 0.2 lpm, Single w/M12 Top, Screw Cap                       |
| 15U859  | 0.2 lpm, Single w/M12 Top, Straight Connector (10 mm Pipe) |
| 122554  | 0.5 lpm, Single w/M12 Top, Screw Cap                       |
| 122555  | 0.5 lpm, Single w/M12 Top, Straight Connector (10 mm Pipe) |
| 122556  | 0.2 lpm, Dual w/DIN, Screw Cap                             |
| 122557  | 0.2 lpm, Dual w/DIN, Straight Connector (10 mm Pipe)       |
| 122558  | 0.5 lpm, Dual w/DIN, Screw Cap                             |
| 122559  | 0.5 lpm, Dual w/DIN, Straight Connector (10 mm Pipe)       |
| 122560  | 0.2 lpm, Dual w/M12 Top, Screw Cap                         |
| 122561  | 0.2 lpm, Dual w/M12 Top, Straight Connector (10 mm Pipe)   |
| 122562  | 0.5 lpm, Dual w/M12 Top, Screw Cap                         |
| 15U858  | 0.5 lpm, Dual w/M12 Top Straight Connector (10 mm Pipe)    |

| Injecto-Flo II Oil Pumps – 6 liter Reservoirs (no control), 230 VAC |  |
|---|--|
| 122563  | 0.2 lpm, Screw Cap   |
| 122564  | 0.2 lpm, Straight Connector (10 mm Pipe)                   |
| 122565  | 0.5 lpm, Screw Cap   |
| 122566  | 0.5 lpm, Straight Connector (10 mm Pipe)                   |
| 122567  | 0.2 lpm, Single w/DIN, Screw Cap                           |
| 122568  | 0.2 lpm, Single w/DIN, Straight Connector (10 mm Pipe)     |
| 564138  | 0.5 lpm, Single w/DIN, Screw Cap                           |
| 122569  | 0.5 lpm, Single w/DIN, Straight Connector (10 mm Pipe)     |
| 122570  | 0.2 lpm, Single w/M12 Top, Screw Cap                       |
| 122571  | 0.2 lpm, Single w/M12 Top, Straight Connector (10 mm Pipe) |
| 122572  | 0.5 lpm, Single w/M12 Top, Screw Cap                       |
| 122573  | 0.5 lpm, Single w/M12 Top, Straight Connector (10 mm Pipe) |
| 122574  | 0.2 lpm, Dual w/DIN, Screw Cap                             |
| 122575  | 0.2 lpm, Dual w/DIN, Straight Connector (10 mm Pipe)       |
| 122576  | 0.5 lpm, Dual w/DIN, Screw Cap                             |
| 122577  | 0.5 lpm, Dual w/DIN, Straight Connector (10 mm Pipe)       |
| 122578  | 0.2 lpm, Dual w/M12 Top, Screw Cap                         |
| 122579  | 0.2 lpm, Dual w/M12 Top, Straight Connector (10 mm Pipe)   |
| 122580  | 0.5 lpm, Dual w/M12 Top, Screw Cap                         |
| 15U860  | 0.5 lpm, Dual w/M12 Top Straight Connector (10 mm Pipe)    |

# Electric Pumps

## Injecto-Flo® II

### Ordering Information

| <b>Injecto-Flo II Fluid Grease Pumps - 3 liter Reservoirs (no control), 230 VAC</b> |  |
|---|--|
| 122581  | 0.2 lpm, Screw Cap   |
| 563301  | 0.2 lpm, Straight Connector (10 mm Pipe)   |
| 122582  | 0.2 lpm, Single w/DIN, Screw Cap   |
| 122583  | 0.2 lpm, Single w/DIN, Straight Connector (10 mm Pipe)   |
| 122584  | 0.2 lpm, Single w/M12 Top, Screw Cap   |
| 122585  | 0.2 lpm, Single w/M12 Top, Straight Connector (10 mm Pipe)   |
| 122586  | 0.2 lpm, Dual w/DIN, Screw Cap   |
| 122587  | 0.2 lpm, Dual w/DIN, Straight Connector (10 mm Pipe)   |
| 122588  | 0.2 lpm, Dual w/M12 Top, Screw Cap   |
| 557547  | 0.2 lpm, Dual w/M12 Top, Straight Connector (10 mm Pipe)   |
| <b>Injecto-Flo II Fluid Grease Pumps - 6 liter Reservoirs (no control), 230 VAC</b> |  |
| 122589  | 0.2 lpm, Screw Cap   |
| 122590  | 0.2 lpm, Straight Connector (10 mm Pipe)   |
| 122591  | 0.2 lpm, Single w/DIN, Screw Cap   |
| 122592  | 0.2 lpm, Single w/DIN, Straight Connector (10 mm Pipe)   |
| 122593  | 0.2 lpm, Single w/M12 Top, Screw Cap   |
| 122594  | 0.2 lpm, Single w/M12 Top, Straight Connector (10 mm Pipe)   |
| 122595  | 0.2 lpm, Dual w/DIN, Screw Cap   |
| 122596  | 0.2 lpm, Dual w/DIN, Straight Connector (10 mm Pipe)   |
| 122597  | 0.2 lpm, Dual w/M12 Top, Screw Cap   |
| 122598  | 0.2 lpm, Dual w/M12 Top, Straight Connector (10 mm Pipe)   |
| <b>Injecto-Flo II Oil Pumps w/Integrated Control</b>                                |  |
| 122895  | 3 liter, 0.2 lpm, 230 VAC w/Time or Pulse, Manual Lube, Level Switch, Pressure Gauge, Pressure Switch, Green Light, Red Light, Screw Cap |
| 122897  | 6 liter, 0.2 lpm, 230 VAC w/Time or Pulse, Manual Lube, Level Switch, Pressure Gauge, Pressure Switch, Green Light, Red Light, Screw Cap |
| 122898  | 6 liter, 0.5 lpm, 230 VAC w/Time or Pulse, Manual Lube, Level Switch, Pressure Gauge, Pressure Switch, Green Light, Red Light, Screw Cap |
| <b>Injecto-Flo II Fluid Grease Pumps w/Integrated Control</b>                       |  |
| 122896  | 3 liter, 0.2 lpm, 230 VAC w/Time or Pulse, Manual Lube, Level Switch, Pressure Gauge, Pressure Switch, Green Light, Red Light, Screw Cap |
| 122899  | 6 liter, 0.2 lpm, 230 VAC w/Time or Pulse, Manual Lube, Level Switch, Pressure Gauge, Pressure Switch, Green Light, Red Light, Screw Cap |

# Electric Pumps

## Thrif-T Luber®

### Low Pressure Orifice Lubrication

Big on features with a small price, the perfect fit for entry-level, Single Line Resistive orifice lubrication systems. A complete electric package includes pump, reservoir and integrated control (remote version optional) for fast and easy installation. Use with Thrif-T Luber orifice dispensers for a complete system.

### Typical Applications

- Small machine tools

### Lubrication Used

- Oil – 100 to 10,000 SUS

### Technical Specifications

|                                     |   |
|-------------------------------------|---|
| Maximum output per minute . . . . . | 0.42 in <sup>3</sup> (6.9 cm <sup>3</sup> ) |
| Maximum output pressure. . . . .    | 150 psi (10 bar)                            |
| Operating temp. . . . .             | 0°F to 140°F (-18°C to 60°C)                |
| Motor . . . . .                     | 120 VAC, 60 Hz                              |
| Reservoir . . . . .                 | 4 pint (1.9 liters)                         |

### Ordering Information

| Thrif-T Luber Pumps with Reservoir |  |
|------------------------------------|--|
| 564068                             | TLEP-10 – solid state timer control built in |
| 564067                             | TLEP-11 – remote control                     |
| Thrif-T Luber Replacement Parts    |  |
| 558031                             | Timer replacement board                      |
| 563162                             | Replacement relief valve                     |
| 564065                             | Replacement pump                             |
| 564439                             | Replacement reservoir and motor housing      |
| 557641                             | Replacement gearmotor                        |
| 557826                             | Replacement low level switch                 |
| 558296                             | 0-300 psi gauge                              |





# Electric Pumps

## Maxi-Flo™

### Machine Tool Lubrication with System Monitoring

Compact design with everything you need to get your single line resistive oil lubrication system installed and running quickly. A standard package comes complete with reservoir, pump, gear motor, and choice of internal or remote control. Simple slide switches allow for easy setup of pump run cycle time. Bright LED indicators for low level and power allow for easy troubleshooting and verification.

- Integrated control with manual run button for easy setup
- Compact design fits anywhere
- 500 psi (34 bar) rating for using with various orifice metering devices

### Typical Applications

- Small machine tools

### Lubrication Used

- Oil – 60 to 30,000 SUS

### Technical Specifications

|   |   |
|---|---|
| Maximum output per stroke. . . . .      | 0.01 in <sup>3</sup> (0.165 cm <sup>3</sup> ) |
| Pump output Volume per minute . . . . . | 0.11 in <sup>3</sup> (1.8 cm <sup>3</sup> )   |
| Maximum output pressure. . . . .        | 500 psi (34 bar)                              |
| Operating temp. . . . .                 | 0°F to 140°F (-18°C to 60°C)                  |
| Material . . . . .                      | Plastic, rectangular                          |
| Reservoir size. . . . .                 | 4 pints (1.9 liters)                          |
| Motor. . . . .                          | .120 VAC, 60 hz                               |

### Ordering Information

| Maxi-Flo Packages |   |
|-------------------|---|
| 563379            | Solid State Timer control built in      |
| 563376            | Remote control                          |
| Accessories       |   |
| 564376            | High pressure switch                    |
| 558899            | Gauge, 0 to 1,000 psi                   |
| Replacement Parts |   |
| 558031            | Timer replacement board                 |
| 557641            | Replacement gearmotor                   |
| 563374            | Replacement pump                        |
| 557826            | Replacement low level switch            |
| 563930            | Replacement reservoir/timer housing kit |
| 563375            | Replacement relief indicator            |



563379

# Pneumatic Pumps

LubePro™

Pneumatic Pumps

## Built to Last. Built to Perform.

For nearly 50 years, Graco Fire-Ball™ pumps have been a mainstay in the lubrication marketplace for durability and long life. LubePro™ series pumps leverage the same proven quality and leading technology, offering a robust solution where high output and fast lubrication cycles and flow rates are needed to optimally lubricate equipment while it's working.

## Features and Benefits

- Factory-installed low level indicator
- High-strength, shatter-resistant reservoir
- Easy to install utilizing existing mounting holes
- Fast cycle rate and flow
- Integrated vent automatically relieves pressure on return stroke
- Pneumatic power – easily installed into existing air line

## Typical Applications

- Packaging
- Glass Manufacturing
- Tire Production
- Thermoforming
- Injection Molding
- Paper Production
- Labels
- Automation Machinery
- Presses

## Lubrication Used

- 40 cSt oil minimum
- NLGI #000 to NLGI #2 grease



24Y499



17C753



24Z053



24Z028



17P751



17C750



24X694

## Technical Specifications

|                             | A900  | H1900   | A1900   | A2600   | A2800   | A2900  | A4000  |
|-----------------------------|---|---|---|---|---|--|--|
| Fluid Handling Capabilities | 40 cSt oil minimum                                      | 40 cSt oil minimum                                      | 40 cSt oil minimum                                      | Up to #2 grease   | 40 cSt oil minimum  | Up to #2 grease  | 40 cSt oil - #2 grease                                 |
| Maximum Working Pressure    | 1,350 psi (93.1 bar)                                    | 3,500 psi (241 bar)                                     |   |   |   | 4,000 psi (276 bar)                                    |  |
| Pressure Ratio              | 9:1   | 19:1  | 19:1  | 26:1  | 28:1  | 29:1   | 40:1   |
| Pump Output                 | 1.5 in <sup>3</sup> (24.58 cm <sup>3</sup> ) per stroke | 3.0 in <sup>3</sup> (49.16 cm <sup>3</sup> ) per stroke | 3.0 in <sup>3</sup> (49.16 cm <sup>3</sup> ) per stroke | 2.2 in <sup>3</sup> (36.05 cm <sup>3</sup> ) per stroke | 0.56 in <sup>3</sup> (9.18 cm <sup>3</sup> ) per stroke               | 0.58 in <sup>3</sup> (9.5 cm <sup>3</sup> ) per stroke | 50 in <sup>3</sup> (819 cm <sup>3</sup> ) per minute   |
| Reservoir Capacity          | 2.8 liters (170.9 in <sup>3</sup> )                     | –   | 2 liters (122 in <sup>3</sup> )                         | 4 lb  | 0.6 liters (36.6 in <sup>3</sup> )<br>2 liters (122 in <sup>3</sup> ) | 1 lb<br>4 lb   | 5.5 liters (335.6 in <sup>3</sup> )<br>7.5 lb<br>13 lb |
| Maximum Air Inlet Pressure  | 150 psi (10.3 bar)                                      | 185 psi (12.8 bar)                                      | 185 psi (12.8 bar)                                      | 135 psi (9.3 bar)                                       | 175 psi (12.1 bar)  |  | 100 psi (6.89 bar)                                     |
| Air Inlet Size              | 1/4 in-18 NPSF  | 1/4 in NPT  |   |   |   |  |  |
| Fluid Outlet Size           | 1/4 in-18 NPT   | 3/4 in NPT  |   |   | 1/4 in NPT  |  |  |
| Operating Temperature       | -4°F to 149°F (-20°C to 65°C)                           |   | 14°F to 149°F (-10°C to 65°C)                           |   |   |  |  |

# Pneumatic Pumps

LubePro™

## Ordering Information

| Pump Model | Fluid  | Pressure Ratio | Reservoir Size | NPT       |                          | BSPP      |                          |
|------------|--------|----------------|----------------|-----------|--------------------------|-----------|--------------------------|
|            |        |                |                | Pump Only | With Low Level Indicator | Pump Only | With Low Level Indicator |
| H1900      | Oil    | 19:1           | –              | 24Y498    | 24Y499                   | 25Y498    | 25Y499                   |
| A1900      | Oil    | 19:1           | 2 liters       | 17C753    | 17C752 (NO)              | 18C753    | 18C752 (NO)              |
|            |        |                |                |           | 19C752 (NC)              |           | 20C752 (NC)              |
| A2600      | Grease | 26:1           | 4 lb           | 17C750    | 17C751 (NO)              | 18C750    | 18C751 (NO)              |
|            |        |                |                |           | 19C751 (NC)              |           | 20C751 (NC)              |
| A2800      | Oil    | 28:1           | 0.6 liters     | 24Z020    | 24Z021 (NO)              | 24Z023    | 24Z024 (NO)              |
|            |        |                |                |           | 24Z022 (NC)              |           | 24Z025 (NC)              |
|            |        |                | 2 liters       | 24Z026    | 24Z027 (NO)              | 24Z029    | 24Z030 (NO)              |
|            |        |                |                |           | 24Z028 (NC)              |           | 24Z050 (NC)              |
| A2900      | Grease | 29:1           | 1 lb           | 24Z051    | 24Z052 (NO)              | 24Z054    | 24Z055 (NO)              |
|            |        |                |                |           | 24Z053 (NC)              |           | 24Z056 (NC)              |
|            |        |                | 4 lb           | 24Z057    | 24Z058 (NO)              | 24Z060    | 24Z061 (NO)              |
|            |        |                |                |           | 24Z059 (NC)              |           | 24Z062 (NC)              |

| Pump Model | Fluid | Pressure Ratio | Reservoir Size | NPT                 |                      |                     |                    |
|------------|-------|----------------|----------------|---------------------|----------------------|---------------------|--------------------|
|            |       |                |                | Low Level Detection | Pneumatic Vent Valve | Electric Vent Valve | Series Progressive |
| A4000      | Oil   | 40:1           | 5.5 liters     | –                   | 17P752               | 17T195              | 17T178             |
|            |       |                |                | Yes                 | 17P753               | 17T196              | 17T179             |
|            |       |                | 7.5 lb         | –                   | 17P750               | 17T193              | 17T176             |
|            | Yes   |                |                | 17P751              | 17T194               | 17T177              |                    |
|            | 13 lb |                | Yes            | 17U217              | –                    | –                   |                    |

## LubePro™ Accessories

| Part Number | Description   | Maximum Working Pressure | Pump Compatibility |       |       |       |       |       |
|-------------|---|--------------------------|--------------------|-------|-------|-------|-------|-------|
|             |   |                          | A1900              | H1900 | A2600 | A2800 | A2900 | A4000 |
| 105474      | 3-way air valve, 150 psi (10 bar), 1/2 NPSM(F) conduit ports for wiring, 1/4 NPT(F) air ports. 24 VDC/120 VAC | 150 psi (10.3 bar)       |                    |       |       | •     | •     | •     |
| 128305      | 4-way air valve, 12 VDC   |                          | •                  | •     | •     |       |       |       |
| 128254      | 4-way air valve, 24 VDC   |                          | •                  | •     | •     |       |       |       |
| 128255      | 4-way air valve, 120 VAC  |                          | •                  | •     | •     |       |       |       |
| 128257      | 4-way air valve, 240 VAC  |                          | •                  | •     | •     |       |       |       |
| 560734      | Air valve reservoir mounting bracket  |                          | •                  |       | •     |       |       |       |
| 24Y079      | 4-way air valve installation kit – 12 VDC air valve, bracket, air lines, fittings                             |                          | •                  |       | •     |       |       |       |
| 24Y080      | 4-way air valve installation kit – 24 VDC air valve, bracket, air lines, fittings                             |                          | •                  |       | •     |       |       |       |
| 24Y081      | 4-way air valve installation kit – 120 VAC air valve, bracket, air lines, fittings                            |                          | •                  |       | •     |       |       |       |
| 24Y082      | 4-way air valve installation kit – 240 VAC air valve, bracket, air lines, fittings                            |                          | •                  |       | •     |       |       |       |
| 121474      | Female coupler. Quick-disconnect. 1/4 in NPT. Mates with fill stud on LubePro grease pumps.                   | 3,700 psi (255 bar)      | •                  | •     | •     | •     | •     | •     |



121474

# Pneumatic Pumps

## Modu-Flo®

### Features and Benefits

Mix and match pumps, reservoir and manifolds in any configuration to meet any application. Replace the pump or reservoir without disconnecting lubrication lines.

- Easy to standardize on components and reduce inventory
- Adjustable pump output for fast, convenient customizing

### Typical Applications

- In plant machinery, presses and mixers

### Lubrication Used

- Oil and Grease up to NLGI #2

### Technical Specifications

Output per Stroke

|                        |  |
|------------------------|--|
| AL-5                   | 0.01 to 0.03 in <sup>3</sup> (0.16 to 0.49 cm <sup>3</sup> ) |
| AL-25                  | 0.03 to 0.12 in <sup>3</sup> (0.49 to 1.96 cm <sup>3</sup> ) |
| AL-50                  | 0.06 to 0.24 in <sup>3</sup> (0.94 to 3.93 cm <sup>3</sup> ) |
| Max Strokes per Minute | 30   |
| Max Output Pressure    | 3,000 psi (207 bar)  |
| Ratio                  | 30:1   |

### Ordering Information

| Modu-Flo Pumps w/out Reservoirs  |   |
|--|---|
| 563304   | AL-5, Pneumatic 30:1, 0.010-0.030 in <sup>3</sup> /stroke, 0.164-0.492 cm <sup>3</sup>  |
| 563306   | AL-25, Pneumatic 30:1, 0.030-0.120 in <sup>3</sup> /stroke, 0.492-1.966 cm <sup>3</sup>   |
| 563308   | AL-50, Pneumatic 30:1, 0.060-0.240 in <sup>3</sup> /stroke, 0.938-3.933 cm <sup>3</sup>   |
| Modu-Flo Pump Assembly Repair Kits   |   |
| 563902   | AL-5, Single or Double Acting Repair Kit  |
| 563903   | AL-25, Single or Double Acting Repair Kit   |
| 563904   | AL-50, Single or Double Acting Repair Kit   |
| 563337   | Modu-Flo Pump Mounting Kit - Mounting Screws, O-Rings   |
| Modu-Flo Manifold Kits   |   |
| 563329   | Pump/Reservoir Manifold only (NPT)  |
| 563324   | Pump/Reservoir Manifold (NPT) w/Outlet Check Valve, System Fill Check Valve, Blowout Assembly, 0-3,000 psi Pressure Gauge       |
| 563331   | Pump/Reservoir Manifold (NPT) w/Outlet Check Valve, System Fill Check Valve, Tubed Blowout Assembly, 0-3,000 psi Pressure Gauge |
| 563355   | Pump/Reservoir Manifold (SAE) w/Outlet Check Valve, System Fill Check Valve, Blowout Assembly, Pressure Gauge                   |
| 563323   | Remote Pump Manifold (NPT) w/Outlet Check Valve, System Fill Check Valve, Blowout Assembly                                      |
| 563330   | Remote Pump Manifold (NPT) w/Outlet Check Valve, System Fill Check Valve, Tubed Blowout Assembly                                |
| <b>NOTE:</b> Manifolds include yellow blowout disks for use in oil applications. When used with grease, replace with red disk, p/n 557434. |   |
| Modu-Flo Oil Reservoirs  |   |
| 562891   | 5 pt Plastic Cylindrical Reservoir  |
| 562904   | 6 pt Plastic Cylindrical Reservoir  |
| 562889   | 12 pt Plastic Cylindrical Reservoir   |
| 562890   | 20 pt Plastic Cylindrical Reservoir   |
| 563319   | 12 pt Tank  |
| 563320   | 24 pt Tank  |
| 563321   | 40 pt Tank  |



Pump package shown with oil reservoir



Pump package shown with grease reservoir

# Pneumatic Pumps

## Modu-Flo®

### Ordering Information

| <b>Modu-Flo Grease Reservoirs</b>           |  |
|---|--|
| 562910                                      | 3 lb Plastic Cylindrical Reservoir   |
| 562911                                      | 3 lb Plastic Cylindrical Reservoir w/Low Level Switch Actuator (order separately)          |
| 562888                                      | 5 lb Plastic Cylindrical Reservoir   |
| 562905                                      | 6 lb Plastic Cylindrical Reservoir   |
| 562884                                      | 12 lb Plastic Cylindrical Reservoir  |
| 562885                                      | 20 lb Plastic Cylindrical Reservoir  |
| 564264                                      | 5 lb Metal Cylindrical Reservoir   |
| 562906                                      | 6 lb Metal Cylindrical Reservoir   |
| 562886                                      | 12 lb Metal Cylindrical Reservoir  |
| 562887                                      | 20 lb Metal Cylindrical Reservoir  |
| <b>Modu-Flo Low Level Switch Assemblies</b> |  |
| 563316                                      | 15 amp Low Level Switch for 5 and 12 pt Cylindrical Oil Reservoirs, SPDT                   |
| 563318                                      | 15 amp Low Level Switch for 6 pt Cylindrical Oil Reservoirs and all Tank Reservoirs, SPDT  |
| 563317                                      | 15 amp Low Level Switch for 20 pt Cylindrical Oil Reservoirs, SPDT                         |
| 563014                                      | 10 watt Low Level Switch for 6 pt Cylindrical Oil Reservoirs and all Tank Reservoirs, SPST |
| 563015                                      | 10 watt Low Level Switch for 5 and 12 pt Cylindrical Oil Reservoirs, SPST                  |
| 563016                                      | 10 watt Low Level Switch for 20 pt Cylindrical Oil Reservoirs, SPST                        |
| 564322                                      | 10 watt Low Level Switch for 12, 24 and 40 pt Tanks, Dual SPST                             |
| 563322                                      | Low Level Switch for 5, 6, 12 and 20 pt Cylindrical Grease Reservoirs                      |
| 557825                                      | Replacement Low Level Switch for 563014, 563015, 563016                                    |
| 557781                                      | Replacement Low Level Switch for 563322  |
| <b>Modu-Flo Pressure Switch Assemblies</b>  |  |
| 557829                                      | Pressure Switch for all Reservoirs   |
| 563325                                      | High Pressure Blowout Switch for 5 pt or 5 lb Reservoirs                                   |
| 563326                                      | High Pressure Blowout Switch for 12 and 20 pt or 12 and 20 lb Reservoirs                   |
| 563327                                      | High Pressure Blowout Switch for all Rectangular Reservoirs                                |
| <b>Modu-Flo Solenoid Valves</b>             |  |
| 563315                                      | 3-Way Pneumatic Solenoid Valve, 115 VAC  |
| 563332                                      | 3-Way Pneumatic Solenoid Valve, 24 VDC   |
| <b>Modu-Flo Timer Kits</b>                  |  |
| 563339                                      | Solid State AC Timer for all Tanks   |
| 563340                                      | Solid State AC Timer for 5 pt and 5 lb Cylindrical Reservoirs                              |
| 563341                                      | Solid State AC Timer for 6, 12 and 20 pt, 6, 12 and 20 lb Cylindrical Reservoirs           |

# Pneumatic Pumps

## E-Series™

### Designed for Reliability

The E-Series pump is a great, minimum cost, entry level alternative to standard pneumatic pump products. This all-in-one pump package comes complete with no assembly required and is easy to install. All pump packages include high-pressure rupture disc assembly and lube outlet check valve. The E-Series offers many reservoir options for either grease or oil. Great for any application where price is a concern and installation time is at a premium.

- Easy field installation of accessories without disturbing existing plumbing
- Smart pump design with few moving parts ensures long-lasting dependability

### Typical Applications

- Presses and other in-plant machines

### Lubrication Used

- Oil up to 30,000 SUS
- Grease up to NLGI #2

### Technical Specifications

|                               |   |
|-------------------------------|---|
| Output per Stroke . . . . .   | 0.03 in <sup>3</sup> (0.49 cm <sup>3</sup> )        |
| Max Output Pressure . . . . . | 2,000 psi (138 bar)                                 |
| Ratio . . . . .               | 20:1  |
| Reservoir Material . . . . .  | Plastic, Cylindrical or Rectangular                 |
| Reservoir Size . . . . .      | 3 and 6 lb (1.36 kg and 2.72 kg), 4 pt (1.89 liter) |
| Air Pressure . . . . .        | 40 to 150 psi (2.8 to 10.3 bar)                     |
| Cycle Rate . . . . .          | 10 CPM grease, 30 CPM oil                           |

### Ordering Information

| E-Series Assemblies with Fixed Output Pump |  |
|--|--|
| 563365                                     | E-Series Pump with 3 lb (1.36 kg) Plastic Cylindrical Grease Reservoir, Low Level Switch, Pressure Gauge                       |
| 563363                                     | E-Series Pump with 6 lb (2.72 kg) Plastic Cylindrical Grease Reservoir with 2,350 psi (162 bar) Rupture Disc                   |
| 563364                                     | E-Series Pump with 6 lb (2.72 kg) Plastic Cylindrical Grease Reservoir, Low Level Switch with 2,350 psi (162 bar) Rupture Disc |
| 563361                                     | E-Series Pump with 4 pt (1.89 liter) Plastic Rectangular Oil Reservoir   |
| 563362                                     | E-Series Pump with 4 pt (1.89 liter) Plastic Rectangular Oil Reservoir, Low Level Switch                                       |
| E-Series Components                        |  |
| 563358                                     | Fixed Output Pump only – with 1,750 psi (121 bar) Rupture Disc   |
| 563367                                     | Adjustable Output Pump – .01- 0.03 in <sup>3</sup> (0.16-0.49 cm <sup>3</sup> ) (*not fitted with Rupture Disc Assembly)       |
| E-Series Oil Reservoirs                    |  |
| 563359                                     | 4 pt (1.89 liter) Plastic Rectangular Reservoir  |
| 562891                                     | 5 pt (2.36 liter) Plastic Cylindrical Reservoir  |
| 562904                                     | 6 pt (2.84 liter) Plastic Cylindrical Reservoir  |
| 562889                                     | 12 pt (5.67 liter) Plastic Cylindrical Reservoir   |
| 562890                                     | 20 pt (9.45 liter) Plastic Cylindrical Reservoir   |
| 564375                                     | 40 pt (18.93 liter) Cylindrical – Plastic  |
| 563319                                     | 12 pt (5.67 liter) Rectangular – Metal   |
| 563320                                     | 24 pt (11.36 liter) Rectangular – Metal  |
| 563321                                     | 40 pt (18.93 liter) Rectangular – Metal  |



563364

# Pneumatic Pumps

## E-Series™

### Ordering Information

| <b>E-Series Grease Reservoirs</b>   |  |
|---|--|
| 562910  | 3 lb (1.36 kg) Plastic Cylindrical Reservoir   |
| 562888  | 5 lb (2.26 kg) Plastic Cylindrical Reservoir   |
| 564264  | 5 lb (2.26 kg) Metal Cylindrical Reservoir   |
| 562905  | 6 lb (2.71 kg) Plastic Cylindrical Reservoir   |
| 562906  | 6 lb (2.71 kg) Metal Cylindrical Reservoir   |
| 562884  | 12 lb (5.42 kg) Plastic Cylindrical Reservoir  |
| 562886  | 12 lb (5.42 kg) Metal Cylindrical Reservoir  |
| 562885  | 20 lb (9.04 kg) Plastic Cylindrical Reservoir  |
| 562887  | 20 lb (9.04 kg) Metal Cylindrical Reservoir  |
| <b>E-Series Low Level Options - Not available for 3 lb Cylindrical Reservoirs</b> |  |
| 563378  | 10 watt Low Level Switch for 4 pt (1.89 liter) Rectangular Oil Reservoirs                              |
| 563015  | 10 watt Low Level Switch for 5 pt (2.36 liter) and 12 pt (5.67 liter) Cylindrical Oil Reservoirs       |
| 563016  | 10 watt Low Level Switch for 20 pt (9.46 liter) Cylindrical Oil Reservoirs                             |
| 563316  | 15 amp Low Level Switch for 5 pt (2.37 liter) and 12 pt (5.68 liter) Cylindrical Oil Reservoirs, SPDT  |
| 563318  | 15 amp Low Level Switch for 6 pt (2.84 liter) Cylindrical Oil Reservoirs and all Tank Reservoirs, SPDT |
| 563317  | 15 amp Low Level Switch for 20 pt (9.45 liter) Cylindrical Oil Reservoirs                              |
| 563322  | 15 amp Low Level Switch for all Grease Reservoirs  |
| 557826  | 10 watt Replacement Switch   |
| 557781  | 15 amp Replacement Switch  |
| <b>E-Series Accessories - For Field Installation</b>                              |  |
| 563315  | 3-Way Modular Pneumatic Valve - 115 VAC  |
| 563332  | 3-Way Modular Pneumatic Valve - 24 VDC   |
| 563909  | Pump Repair Kit (fixed output)   |
| 563945  | Pump Repair Kit (adjustable E-Series Pump)   |

# Pneumatic Pumps

## MSA-10™ and MSA-100™

### Durable In-Line Pumps

MSA Series products are used together with main lubrication supply lines where the pump is fed directly with no additional reservoir required. No reservoir makes the MSA Series ideal for locations that are difficult to reach or undesirable to enter. Use the MSA-10 for standard applications and the MSA-100 when high operating pressures and larger outputs are required.

- Ideal for applications where space is a premium
- Handles high pressure lubricant feed of direct line intake
- Used with or without a reservoir for the ultimate flexibility

### Typical Applications

- In-plant manufacturing presses, machinery and processing equipment

### Lubrication Used

- Oil and Grease up to NLGI #2

### Technical Specifications

#### MSA-10

|                             |   |
|-----------------------------|---|
| Material                    | Steel   |
| Output per Stroke           | 0.04 to 120 in <sup>3</sup> (0.66 to 1.97 cm <sup>3</sup> ) |
| Max Pump Strokes per Minute | Single-Acting - 15<br>Double-Acting - 60                    |
| Max Output Pressure         | 3,000 psi (207 bar)   |
| Air Pressure                | 40 to 150 psi (2.8 to 10.3 bar)                             |
| Max Lube Inlet              | 500 psi (34 bar)  |
| Ratio                       | 25:1  |

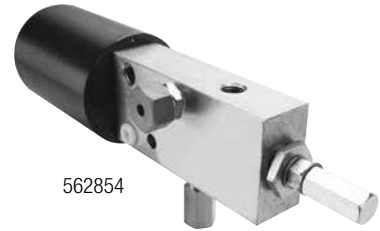
#### MSA-100

|                             |   |
|-----------------------------|---|
| Material                    | Aluminum  |
| Seals                       | Buna-N and Fluoroelastomer                                  |
| Output per Stroke           | 0.4 to 0.8 in <sup>3</sup> (6.57 to 13.11 cm <sup>3</sup> ) |
| Max Pump Strokes per Minute | Single-Acting - 15<br>Double-Acting - 30                    |
| Max Output Pressure         | 3,000 psi (207 bar)   |
| Air Pressure                | 60 to 140 psi (4.1 to 9.7 bar)                              |
| Max Lube Inlet              | 500 psi (34 bar)  |
| Ratio                       | 25:1  |

\*Supplied with Rupture-to-Atmosphere Indicator rated to 1,450 psi (100 bar) (standard)

### Ordering Information

| MSA Pumps            |   |
|----------------------|---|
| 562854               | MSA-10 Air Operated Pump                          |
| 562855               | MSA-100 Air Operated Pump                         |
| MSA Kits             |   |
| 563912               | MSA-10 Repair Parts Kit                           |
| 563913               | MSA-100 Repair Parts Kit                          |
| MSA Restrictor Valve |   |
| 563072               | Air Inlet Restrictor Valve for MSA-10 and MSA-100 |





# Pneumatic Pumps

## Injecto-Flo® AO-1

### Compact Air-Operated Oil Pump

The AO-1 pneumatic pumps are compact in size to fit into any application, but deliver higher pump output rates with its short pump off time between cycles. Great for applications using piston distributors for oil lubrication. Several reservoir sizes and materials to choose from. Has built-in vent valve to get you up and running fast.

### Typical Applications

- Small to medium machine tools

### Lubrication Used

- Oil – 250 to 5,000 SUS

### Technical Specifications

|  |  |
|--|--|
| Output per stroke (single shot only) . . . . . | 0.80 in <sup>3</sup> (13 cm <sup>3</sup> ) |
| Maximum output pressure. . . . .               | 450 psi (31 bar)                           |
| Ratio . . . . .                                | 4.5:1                                      |
| Reservoir material. . . . .                    | Plastic or metal, rectangular              |
| Reservoir size. . . . .                        | 4.2 pt (2 liter) or 6.4 pt (3 liter)       |
| Minimum on-time. . . . .                       | .5 seconds                                 |
| Minimum off-time. . . . .                      | .15 seconds                                |

### Ordering Information

| Injecto-Flo AO-1 Pumps |  |
|------------------------|--|
| 562845                 | Pump, 4.2 pt (2 liter) plastic rectangular reservoir |
| 562846                 | Pump, 6.4 pt (3 liter) metal rectangular reservoir   |
| Low Level Switches     |  |
| 556018                 | Low level switch for 2 and 3 liter reservoirs        |



562845

# Pneumatic Pumps

## LubriSystem®

Pneumatic Pumps

### Air Operated Pump for Single Line Parallel Systems

Easy to design, modify and adjust for oil or grease applications large or small. Great for operation of piston distributors. Combine with LubriSystem injectors for easy, low cost system design solutions.

- Ability to serve large systems – up to 100 lube points or more
- Efficient design promotes increase productivity and less downtime
- Several reservoir choices for both oil and grease applications

### Typical Applications

- In plant equipment and machinery

### Lubrication Used

- Oil and Grease up to NLGI #1

### Technical Specifications

|                               |  |
|-------------------------------|--|
| Output per Stroke . . . . .   | 1.5 in <sup>3</sup> (24.6 cm <sup>3</sup> )  |
| Max Output Pressure . . . . . | .360 to 1,350 psi (25 to 93 bar)   |
| Air Inlet Pressure . . . . .  | 40 to 150 psi (3 to 10 bar)  |
| Ratio . . . . .               | .9:1   |
| Reservoir Material . . . . .  | Plastic, Cylindrical   |
| Reservoir Size . . . . .      | 6 lb (2.72 kg), 12 lb (5.44 kg) or 20 lb (9.06 kg),<br>6 pt (2.84 liter), 12 pt (5.68 liter) or 20 pt (9.46 liter) |



563575

### Ordering Information

| LubriSystem Pump w/out Reservoir                             |   |
|--|---|
| 563579   | Standard Pump   |
| LubriSystem Standard Oil Pumps                               |   |
| 563574   | LubriSystem Pump w/6 pt (2.84 liter) Plastic Cylindrical Reservoir                            |
| 563575   | LubriSystem Pump w/12 pt (5.68 liter) Plastic Cylindrical Reservoir                           |
| 563576   | LubriSystem Pump w/20 pt (9.46 liter) Plastic Cylindrical Reservoir                           |
| 563577   | LubriSystem Pump w/6 pt (2.84 liter) Plastic Cylindrical Reservoir, 10 watt Low Level Switch  |
| 563578   | LubriSystem Pump w/12 pt (5.68 liter) Plastic Cylindrical Reservoir, 10 watt Low Level Switch |
| LubriSystem Standard Air Operated Pumps Reservoir Assemblies |   |
| 563571   | LubriSystem Pump w/6 lb (2.72 kg) Plastic Cylindrical Reservoir                               |
| 563572   | LubriSystem Pump w/6 lb (2.72 kg) Plastic Cylindrical Reservoir, Low Level Switch             |
| 563573   | LubriSystem Pump w/12 lb (5.44 kg) Plastic Cylindrical Reservoir, Low Level Switch            |
| LubriSystem Plastic Oil Reservoirs                           |   |
| 562892   | 12 pt (5.68 liter) Reservoir  |
| 562893   | 20 pt (9.46 liter) Reservoir  |
| LubriSystem Plastic Grease Reservoirs                        |   |
| 562907   | 6 lb (2.72 kg) Reservoir  |
| 562896   | 12 lb (5.44 kg) Reservoir   |
| 562897   | 20 lb (9.06 kg) Reservoir   |

| LubriSystem Low Level Switches - Oil Reservoirs only    |  |
|---|--|
| 563014  | 10 watt Low Level Switch for 6 pt (2.84 liter) Reservoirs  |
| 563015  | 10 watt Low Level Switch for 12 pt (5.68 liter) Reservoirs |
| 563016  | 10 watt Low Level Switch for 20 pt (9.46 liter) Reservoirs |
| 563318  | 15 amp Low Level Switch for 6 pt (2.84 liter) Reservoirs   |
| 563316  | 15 amp Low Level Switch for 12 pt (5.68 liter) Reservoirs  |
| 563317  | 15 amp Low Level Switch for 20 pt (9.46 liter) Reservoirs  |
| LubriSystem Low Level Switches - Grease Reservoirs only |  |
| 563322  | 15 amp Low Level Switch for all Grease Reservoirs          |
| LubriSystem Solenoid Valves                             |  |
| 563315  | 115 VAC Solenoid Valve                                     |
| 563332  | 24 VDC Solenoid Valve                                      |
| LubriSystem Repair Kits                                 |  |
| 563762  | Standard Pump Repair/Rebuild Kit - includes Pump Diaphragm |

# Manual Pumps

## Grease Gun

### Features and Benefits

A simple, compact, cost-effective way to deliver oil or grease. Ideal for purging existing centralized systems when changing lubrication or performing maintenance.

- Ideal for troubleshooting and system testing
- Handy carrying case for easy portability

### Lubrication Used

- Oil and Grease

### Technical Specifications

Output per Stroke . . . . . 0.09 in<sup>3</sup> (1.5 cm<sup>3</sup>)  
Pressure Rating . . . . . 5,000 psi (345 bar)  
Reservoir Capacity . . . . . 1 pint (500 cm<sup>3</sup>), 1 lb (0.453 kg) or use 14-14.5 oz grease cartridge  
Pump body and Reservoir Material . . . . . Steel  
Storage Case Material. . . . . HDPE Plastic



562857

### Ordering Information

| Manual Grease Gun |                                 |
|-------------------|---------------------------------|
| 562857            | Pump package with carrying case |
| 558959            | Wall mount bracket              |
| 200389            | 6 in rigid extension            |

# Manual Pumps

## PH Pump™

### Versatile and Tough

Built with aluminum and steel components to meet the high standards of performance and quality you expect from Graco products. Available with a choice of standard clear plastic or metal Modu-Flo reservoirs for either oil or grease. Modular pump/reservoir design plus built-in features enable the PH Manual Pump to be customized for a wide range of applications.

- Built-in volume indicator provides easy verification that lubricant is being delivered to the system and that divider valves are completing lube cycles
- Single-acting positive displacement pump design minimizes the number of moving and wearing parts for extended pump life and reduced maintenance
- Built-in automatic relief valve protects system components from over-pressure
- Built-in outlet check valve prevents back pressure from damaging pump and minimizes chance for contaminants to get into the pump or the lube supply

### Typical Applications

- In-plant equipment and machinery
- Mobile equipment equipped with an EZ-Greaser system

### Lubrication Used

- Oil and Grease

### Technical Specifications

Pump Output . . . . . 0.150 in<sup>3</sup> (2.46 cm<sup>3</sup>) per full stroke  
 Maximum Operating Pressure . . . . . 3,000 psi (207 bar)  
 High Pressure Protection Relief Valve . . . . . Set @ 2,500 psi (172 bar)  
 Force to Operate Handle . . . . . 29 lb (13.14 kg) per 1,000 psi @ rated pressure  
 Reservoir Capacities . . . . . 5 pint (2.37 liter) or 5 lb (2.27 kg), 6 pint (2.84 liter) or 6 lb (2.72 kg),  
 12 pint (5.68 liter) or 12 lb (5.44 kg), 20 pint (9.46 liter) or 20 lb (9.06 kg)

### Ordering Information

| PH Pump |   |
|---------|---|
| 563393  | Pump (w/out reservoir)  |
| 564378  | Pump w/5 pint (2.37 liter) Plastic Cylindrical Oil Reservoir  |
| 564379  | Pump w/5 lb. (2.27 kg) Plastic Cylindrical Grease Reservoir   |
| 564381  | Pump w/5 lb. (2.27 kg) Metal Cylindrical Grease Reservoir     |
| 564389  | Pump w/6 lb. (2.72 kg) Plastic Cylindrical Grease Reservoir   |
| 564383  | Pump w/12 lb. (5.44 kg) Plastic Cylindrical Grease Reservoir  |
| 564386  | Pump w/20 lb. (9.06 kg) Plastic Cylindrical Grease Reservoir  |
| 564385  | Pump w/20 pint (9.46 liter) Plastic Cylindrical Oil Reservoir |
| 564384  | Pump w/12 lb. (5.44 kg) Metal Cylindrical Grease Reservoir    |
| 564387  | Pump w/6 pint (2.84 liters) Plastic Cylindrical Oil Reservoir |
| 557864  | 3,000 psi (210 bar) Dual Scale Pressure Gauge                 |
| 563160  | Automatic 2,500 psi (172 bar) Relief Valve                    |
| 558906  | Coupler for Grease Fill Stud                                  |



564379

# Manual Pumps

## LubriSystem®

### Features and Benefits

The LubriSystem hand pump package offers versatility for use in any application, large or small. Great for operation with Injectors or Piston Distributors, with oil or grease. Sturdy construction of aluminum and steel to provide years of service. Compact design can be used in areas where space is limited. Rugged bracket allows the pump package to be mounted in place in any applications.

- Bracket-mount design for easy installation
- Rugged design for years of operation
- Built-in pressure venting for use with injectors

### Typical Applications

- General machinery lubrication where power is limited or not available

### Lubrication Used

- Oil
- Grease up to NLGI #1

### Technical Specifications

|                                   |  |
|-----------------------------------|--|
| Output per Stroke . . . . .       | 0.125 in <sup>3</sup> (2 cm <sup>3</sup> )   |
| Output Pressure . . . . .         | 3,000 psi (207 bar)  |
| Force to Operate Handle . . . . . | .20 lb (9 kg) per 1,000 psi (69 bar)   |
| Reservoir . . . . .               | Plastic, Cylindrical   |
| Reservoir Size. . . . .           | 6 pint (2.84 liter) or 6 lb (2.72 kg), 12 pint (5.68 liter) or 12 lb (5.44 kg),<br>20 pint (9.46 liter) or 20 lb (9.06 kg) |



564422

### Ordering Information

| LubriSystem Hand-Operated Pumps               |   |
|---|---|
| 564419  | Hand Pump w/12 pt (5.86 liter) Plastic Oil Reservoir, 3,000 psi Gauge |
| 564420  | Hand Pump w/20 pt (9.46 liter) Plastic Oil Reservoir, 3,000 psi Gauge |
| 564421  | Hand Pump w/6 lb (2.72 kg) Plastic Grease Reservoir, 3,000 psi Gauge  |
| 564422  | Hand Pump w/12 lb (5.44 kg) Plastic Grease Reservoir, 3,000 psi Gauge |
| 564423  | Hand Pump w/20 lb (9.06 kg) Plastic Grease Reservoir, 3,000 psi Gauge |
| LubriSystem Hand-Operated Pump Components     |   |
| 563580  | Hand Pump Body w/out Reservoir  |
| LubriSystem Hand-Operated Pump Pressure Gauge |   |
| 557864  | 3,000 psi Gauge   |
| LubriSystem Hand-Operated Pump Reservoirs     |   |
| 562904  | 6 pt (2.84 liter) Plastic Oil Reservoir                               |
| 562889  | 12 pt (5.68 liter) Plastic Oil Reservoir                              |
| 562890  | 20 pt (9.46 liter) Plastic Oil Reservoir                              |
| 562905  | 6 lb (2.72 kg) Plastic Grease Reservoir                               |
| 562884  | 12 lb (5.44 kg) Plastic Grease Reservoir                              |
| 562885  | 20 lb (9.06 kg) Plastic Grease Reservoir                              |

# Manual Pumps

## Thrif-T Luber®

### Features and Benefits

A simple and effective positive displacement pump that delivers up to 0.50 cubic inches per stroke. Compact design easily mounts on any piece of equipment. A spring return drives the piston for controlled lubrication delivery.

- Modular system design allows configurations to work in all applications
- Easy to standardize on components and reduce inventory
- Adjustable pump output for fast, convenient customizing

### Typical Applications

- Small machine tools

### Lubrication Used

- Oil (100-10,000 SUS)

### Technical Specifications

Output per Stroke . . . . . 0.50 in<sup>3</sup> (8.2 cm<sup>3</sup>)  
 Output Pressure . . . . . 75 psi (5 bar)  
 Operating Temp . . . . . 0°F to 140°F (-17.8°C to 60°C)  
 Reservoir Size . . . . . .4 pt (1.89 liter)

### Ordering Information

| Thrif-T Lube Pump |   |
|-------------------|---|
| 564012            | TLMP-00 - Thrif-T Luber Manual Pump, Standard |



564012

# Mechanical Pumps

## Lube Master® Ratchet Drive Pump

### Features and Benefits

Lubricates only while the machine is running! The Lube Master Clutch Drive is a rugged, reliable pump powered mechanically by the machine using the lubrication. This pump is ideal for applications where lubrication cycles vary and are unpredictable.

- Rugged design for harsh-duty applications
- Mechanical link to machine—lubricates only while machine is running
- No separate power supply required

### Typical Applications

- Presses, Banbury mixers, rubber mills, upsetters, heading machines, crane trolleys

### Lubrication Used

- Oil and Grease up to NLGI #2



LM5214

### Technical Specifications

| Min./Max. Pump Output Chart |                 |                     |                       | Output Per Hour                                 |   |
|-----------------------------|-----------------|---------------------|-----------------------|---|---|
| Degrees of Throw            | Effective Ratio | Impulses Per Minute | Pump Strokes Per Hour | Minimum   | Maximum   |
| 12°                         | 30:1            | 5 Min.              | 10                    | 0.100 in <sup>3</sup> (1.639 cm <sup>3</sup> )  | 0.500 in <sup>3</sup> (8.195 cm <sup>3</sup> )    |
| 60°                         | 6:1             | 150 Max.            | 1500                  | 15.00 in <sup>3</sup> (245.85 cm <sup>3</sup> ) | 75.00 in <sup>3</sup> (1,229.25 cm <sup>3</sup> ) |

### Ordering Information

| Lube Master |  |
|-------------|--|
| LM6214      | 20 lb (9.06 kg) Plastic Grease Reservoir (562897), Clutch Drive w/Arm (563383), Low Level Switch (12 lb / 5.44 kg and 20 lb / 9.06 kg Grease, SPDT) (563322) |
| LM8211      | 20 lb (9.06 kg) Metal Grease Reservoir (562899), Clutch Drive w/Arm (563383)   |
| LM4211      | 20 pt (9.46 liter) Metal Oil Reservoir (562895), Clutch Drive w/Arm (563383)   |
| LM7211      | 12 lb (5.44 kg) Metal Grease Reservoir (562898), Clutch Drive w/Arm (563383)   |
| LM5211      | 12 lb (5.44 kg) Plastic Grease Reservoir (562896), Clutch Drive w/Arm (563383)   |
| LM5214      | 12 lb (5.44 kg) Plastic Grease Reservoir (562896), Clutch Drive w/Arm (563383), Low Level Switch (12 lb / 5.44 kg and 20 lb / 9.06 kg Grease, SPDT) (563322) |

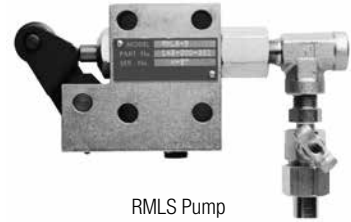
See page 23 for a complete Lube Master ordering menu.

# Mechanical Pumps

## MLS Series™

### Simple Installation and Operation

MLS Mechanical Lube Pumps are designed for automatic lubrication of machinery where machine motion can be used as the power source for the pump. Two pump types are available where the mechanical action is transmitted directly to the pump piston, combining compactness and simplicity. RMLS Pumps are equipped with a cam roller for cam or stop actuation. The EMLS-5 Pump is furnished with a drive arm with adjustable clevis position for powering the pump via a connecting rod from an eccentric pin in the end of a rotating shaft or other back-and-forth movement.



RMLS Pump

### Typical Applications

- Where mechanical machine drive can be utilized

### Technical Specifications

#### Minimum Piston Stroke Lube Discharge

|         |                                 |
|---------|---------------------------------|
| RMLS-5  | 0.005 in <sup>3</sup> @ 3/16 in |
| RMLS-50 | 0.050 in <sup>3</sup> @ 5/16 in |

#### Max Piston Stroke Lube Discharge

|         |                                  |
|---------|----------------------------------|
| RMLS-5  | 0.012 in <sup>3</sup> @ 3/8 in   |
| RMLS-50 | 0.050 in <sup>3</sup> @ 17/32 in |

#### EMLS-5

|                |   |
|----------------|---|
| Arm Travel     | 2-3/4 in, 2-1/16 in, 1-5/16 in  |
| Piston Travel  | 3/8 in, 9/32 in, 1-5/16 in  |
| Lube Discharge | 0.012 in <sup>3</sup> , 0.008 in <sup>3</sup> , 0.005 in <sup>3</sup> |



EMLS Pump

### Ordering Information

| MLS Series Pumps |                        |
|------------------|------------------------|
| 562860           | RMLS-5                 |
| 562861           | EMLS-5                 |
| 562858           | RMLS-50                |
| 563900           | RMLS/EMLS-5 Repair Kit |
| 563901           | RMLS-50 Repair Kit     |



# Hydraulic Pumps

## Modu-Flo®

### Features and Benefits

The Modu-Flo system is ideal for applications where minimizing downtime is critical. Customizing is easy—just mix and match pumps, reservoir and manifolds in any configuration to meet any application. Replace the pump or reservoir without disconnecting lubrication lines. Choose from a wide variety of hydraulic pumps that operate with grease or oil.

- Modular system design allows configurations to work in all applications
- Easy to standardize on components and reduce inventory
- Adjustable pump output for fast, convenient customization



563305

### Typical Applications

- General machinery lubrication where power is limited or not available

### Lubrication Used

- Oil
- Grease up to NLGI #2

### Technical Specifications

Output per Stroke . . . . . 0.010 to 0.120 in<sup>3</sup> (0.164 to 1.966 cm<sup>3</sup>)

### Ordering Information

| Part Number | Model   | Pump Ratio | Pump Output Range per Stroke, in <sup>3</sup> (cm <sup>3</sup> ) | Maximum Cycles per Minute |        | Input Hydraulic Pressure Range, PSI (bar) |             | Maximum Fluid Output Pressure, PSI (bar) | Repair Kit Part Number |
|-------------|---------|------------|--|---------------------------|--------|---|-------------|--|------------------------|
|             |         |            |  | Oil                       | Grease | Minimum                                   | Maximum     |  |                        |
| 563305      | HLJ-5M  | 5.5:1      | 0.010 to 0.030<br>(0.164 to 0.492)                               | 60                        | 10     | 200 (13.8)                                | 2,000 (138) | 3,000 (207)                              | 563905                 |
| 563307      | HLJ-25M |            | 0.030 to 0.120<br>(0.492 to 1.966)                               | 50                        |        |   |             |  | 563906                 |
| 563345      | HLJ-5X  | 2.2:1      | 0.030 to 0.092<br>(0.492 to 1.508)                               |                           |        |   |             |  | 563925                 |

See pneumatic Modu-Flo section for a complete list of configurable parts.

# Single Line Resistive

Thrif-T Luber®

## Simple Solutions to Tight Spaces and Budgets

- 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

## Typical Applications

- Simple time and flow metering system; ideal for small to medium-sized lathes or grinders

## Typical Fluids Handled

- Oil

## Technical Specifications

|                        |                          |
|------------------------|--------------------------|
| Cracking Pressure..... | 2 psi (0.1 bar)          |
| Maximum Pressure.....  | 150 psi (10 bar)         |
| Filter Rating.....     | 40 micron                |
| Orifice Type A.....    | Direct to bearing        |
| Orifice Type B.....    | Manifold                 |
| Orifice Type C.....    | Direct to bearing or Tee |

## Ordering Information

| Thrif-T Luber - Type A Orifice |          |
|--------------------------------|----------|
| 564019                         | TLOA-0   |
| 564020                         | TLOA-1   |
| 564021                         | TLOA-2   |
| 564022                         | TLOA-3   |
| 564023                         | TLOA-4   |
| 564024                         | TLOA-5   |
| 564025                         | TLOA-2/0 |
| 564026                         | TLOA-3/0 |
| 564027                         | TLOA-4/0 |
| 564028                         | TLOA-5/0 |
| Thrif-T Luber - Type B Orifice |          |
| 564038                         | TLOB-0   |
| 564039                         | TLOB-1   |
| 564040                         | TLOB-2   |
| 564041                         | TLOB-3   |
| 564042                         | TLOB-4   |
| 564043                         | TLOB-5   |
| 564044                         | TLOB-2/0 |
| 564045                         | TLOB-3/0 |
| 564046                         | TLOB-4/0 |
| 564047                         | TLOB-5/0 |
| Thrif-T Luber - Type C Orifice |          |
| 564029                         | TLOC-0   |
| 564030                         | TLOC-1   |
| 564031                         | TLOC-2   |



564020



564034

*Quality sintered bronze filters won't shred or clog like felt filters*

| Thrif-T Luber - Type C Orifice |  |
|--------------------------------|--|
| 564032                         | TLOC-3   |
| 564033                         | TLOC-4   |
| 564034                         | TLOC-5   |
| 564035                         | TLOC-2/0   |
| 564036                         | TLOC-3/0   |
| Thrif-T Luber Hardware         |  |
| 561217                         | TLMB-04 - 4-Port Manifold Bar                        |
| 561218                         | TLMB-06 - 6-Port Manifold Bar                        |
| 561219                         | TLMB-08 - 8-Port Manifold Bar                        |
| 561220                         | TLMB-10 - 10-Port Manifold Bar                       |
| 561215                         | TLTF-00 - Tee  |
| 561216                         | TLAB-00 - Anchor Block                               |
| 558220                         | TLBF-00 - Bearing Fitting                            |
| 558189                         | TLCN-00 - Compression Nut                            |
| 558156                         | TLTC-01 - Tube Clip, 1-Tube                          |
| 558157                         | TLTC-02 - Tube Clip, 2-Tubes                         |
| 558158                         | TLTC-03 - Tube Clip, 3-Tubes                         |
| 558159                         | TLTC-04 - Tube Clip, 4-Tubes                         |
| Thrif-T Luber Accessories      |  |
| 564053                         | TLLF-00 - In-Line Filter                             |
| 558296                         | TLPG-00 - Pressure Gauge                             |
| 561143                         | TLTP-25 - 5/32 in (3.96 mm) Tubing, 25 feet (762 cm) |
| 563162                         | Relief Valve - 150 psi (10 bar)                      |
| 556677                         | Reservoir Plug                                       |

# Single Line Parallel Piston Distributors

## Features and Benefits

- 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



## Typical Applications

- Compact metering system with a wide range of outputs; ideal for medium-sized cutting machine tools



## Typical Fluids Handled

- Oil - 32 to 2,000 cst
- Fluid grease up to NLGI #00

## Technical Specifications

|                         | 3400 Series  | 3410 Series  | 3500 Series   | 3510 Series   | 3900 Series  | 3910 Series   |
|-------------------------|--|--|---|---|--|---|
| Oil/Fluid Grease        | Oil  | Fluid grease   | Oil   | Fluid grease  | Oil  | Fluid grease  |
| Reset Pressure          | 150 psi (10 bar)   | 150 psi (10 bar)   | 150 psi (10 bar)  | 150 psi (10 bar)  | 150 psi (10 bar)   | 150 psi (10 bar)  |
| Max. Operating Pressure | 650 psi (45 bar)   | 650 psi (45 bar)   | 650 psi (45 bar)  | 650 psi (45 bar)  | 650 psi (45 bar)   | 650 psi (45 bar)  |
| Output Range            | .0006 to .009 in <sup>3</sup><br>(0.01 to 0.16 cm <sup>3</sup> ) | .0006 to .006 in <sup>3</sup><br>(0.01 to 0.10 cm <sup>3</sup> ) | .006 to .036 in <sup>3</sup><br>(0.1 to 0.6 cm <sup>3</sup> ) | .006 to .018 in <sup>3</sup><br>(0.1 to 0.3 cm <sup>3</sup> ) | 0.012 to 0.09 in <sup>3</sup><br>(0.2 to 1.5 cm <sup>3</sup> ) | .006 to .018 in <sup>3</sup><br>(0.1 to 0.3 cm <sup>3</sup> ) |
| Metering Nipple Options | 5  | 4  | 4   | 3   | 5  | 3   |
| Cast Manifold Outlets   | 2, 3, or 5   | 2, 3, or 5   | 2, 3, or 5  | 2, 3, or 5  | 2 or 3   | 2 or 3  |

## Ordering Information

| 3400 Series Single Point Piston Distributors - Oil          |                                      |
|---|--------------------------------------|
| 558306  | 0.01 cm <sup>3</sup> Output, M8 x 1  |
| 558307  | 0.03 cm <sup>3</sup> Output, M8 x 1  |
| 558308  | 0.06 cm <sup>3</sup> Output, M8 x 1  |
| 558309  | 0.10 cm <sup>3</sup> Output, M8 x 1  |
| 558310  | 0.16 cm <sup>3</sup> Output, M8 x 1  |
| 122804  | 0.01 cm <sup>3</sup> Output, M10 x 1 |
| 122805  | 0.03 cm <sup>3</sup> Output, M10 x 1 |
| 122806  | 0.06 cm <sup>3</sup> Output, M10 x 1 |
| 122807  | 0.10 cm <sup>3</sup> Output, M10 x 1 |
| 122808  | 0.16 cm <sup>3</sup> Output, M10 x 1 |
| 3410 Series Single Point Piston Distributors - Fluid Grease |                                      |
| 121654  | 0.01 cm <sup>3</sup> Output, M8 x 1  |
| 121655  | 0.03 cm <sup>3</sup> Output, M8 x 1  |
| 121656  | 0.06 cm <sup>3</sup> Output, M8 x 1  |
| 121657  | 0.10 cm <sup>3</sup> Output, M8 x 1  |

| 3400/3410 Series Bar Manifolds – use with M8 Piston Distributors |              |                            |
|--|--------------|----------------------------|
| Part Number  | Inlet Thread | Outlet Thread and Quantity |
| 15X624   | M8           | M8-1 Port (Tee)            |
| 15X667   | M10          | M8-2 Port                  |
| 15X668   | M10          | M8-3 Port                  |
| 15X669   | M10          | M8-4 Port                  |
| 15X670   | M10          | M8-5 Port                  |
| 15X671   | M10          | M8-6 Port                  |
| 15X672   | M10          | M8-7 Port                  |
| 15X673   | M10          | M8-8 Port                  |
| 15X674   | M10          | M8-10 Port                 |
| 15X683   | M14          | M8-2 Port                  |
| 15X684   | M14          | M8-3 Port                  |
| 15X685   | M14          | M8-4 Port                  |
| 15X686   | M14          | M8-5 Port                  |
| 15X687   | M14          | M8-6 Port                  |
| 15X688   | M14          | M8-7 Port                  |
| 15X689   | M14          | M8-8 Port                  |
| 15X690   | M14          | M8-10 Port                 |

# Single Line Parallel

## Piston Distributors

### Ordering Information

#### 3500 Series Single Point Piston Distributors - Oil

|        |                                      |
|--------|--------------------------------------|
| 121658 | 0.10 cm <sup>3</sup> Output, M10 x 1 |
| 121659 | 0.20 cm <sup>3</sup> Output, M10 x 1 |
| 121660 | 0.40 cm <sup>3</sup> Output, M10 x 1 |
| 121661 | 0.60 cm <sup>3</sup> Output, M10 x 1 |

#### 3510 Series Single Point Piston Distributors - Fluid Grease

|        |                                      |
|--------|--------------------------------------|
| 121662 | 0.10 cm <sup>3</sup> Output, M10 x 1 |
| 121663 | 0.20 cm <sup>3</sup> Output, M10 x 1 |
| 121664 | 0.30 cm <sup>3</sup> Output, M10 x 1 |

#### 3500/3510 Series Bar Manifolds – use with M10 Piston Distributors

| Part Number | Inlet Thread | Outlet Thread and Quantity |
|-------------|--------------|----------------------------|
| 15X625      | M10          | M10-1 Port (Tee)           |
| 15X675      | M10          | M10-2 Port                 |
| 15X676      | M10          | M10-3 Port                 |
| 15X677      | M10          | M10-4 Port                 |
| 15X678      | M10          | M10-5 Port                 |
| 15X679      | M10          | M10-6 Port                 |
| 15X680      | M10          | M10-7 Port                 |
| 15X681      | M10          | M10-8 Port                 |
| 15X682      | M10          | M10-10 Port                |
| 15X691      | M14          | M10-2 Port                 |
| 15X692      | M14          | M10-3 Port                 |
| 15X693      | M14          | M10-4 Port                 |
| 15X694      | M14          | M10-5 Port                 |
| 15X695      | M14          | M10-6 Port                 |
| 15X696      | M14          | M10-7 Port                 |
| 15X697      | M14          | M10-8 Port                 |
| 15X698      | M14          | M10-10 Port                |

#### 3900 Series Single Point Piston Distributors - Oil

|        |  |
|--------|--|
| 121665 | 0.20 cm <sup>3</sup> Output, M14 x 1.5 |
| 121666 | 0.40 cm <sup>3</sup> Output, M14 x 1.5 |
| 121667 | 0.60 cm <sup>3</sup> Output, M14 x 1.5 |
| 121668 | 1.00 cm <sup>3</sup> Output, M14 x 1.5 |
| 121669 | 1.50 cm <sup>3</sup> Output, M14 x 1.5 |

#### 3910 Series Single Point Piston Distributors - Fluid Grease

|        |  |
|--------|--|
| 122825 | 0.10 cm <sup>3</sup> Output, M12 x 1   |
| 122826 | 0.20 cm <sup>3</sup> Output, M12 x 1   |
| 122827 | 0.30 cm <sup>3</sup> Output, M12 x 1   |
| 121670 | 0.10 cm <sup>3</sup> Output, M14 x 1.5 |
| 121671 | 0.20 cm <sup>3</sup> Output, M14 x 1.5 |
| 121672 | 0.30 cm <sup>3</sup> Output, M14 x 1.5 |

#### 3900/3910 Series Bar Manifolds – use with M14 Piston Distributors

| Part Number | Inlet Thread | Outlet Thread and Quantity |
|-------------|--------------|----------------------------|
| 15X626      | M14          | M14-1 Port (Tee)           |
| 15X699      | M14          | M14-2 Port                 |
| 15X700      | M14          | M14-3 Port                 |
| 15X701      | M14          | M14-4 Port                 |
| 15X702      | M14          | M14-5 Port                 |
| 15X703      | M14          | M14-6 Port                 |
| 15X704      | M14          | M14-7 Port                 |
| 15X705      | M14          | M14-8 Port                 |
| 15X706      | M14          | M14-10 Port                |

Single Line Parallel

# Single Line Parallel Piston Distributors

## Ordering Information

| 3400 Cast Manifolds   |  |
|-----------------------|--|
| 122841                | 2 Outlets, Oil PD, Complete w/Red Plastic Cover            |
| 122861                | 3 Outlets, Oil PD, Complete w/Red Plastic Cover            |
| 122862                | 5 Outlets, Oil PD, Complete w/Red Plastic Cover            |
| 3400 Metering Nipples |  |
| 122989                | 0.01 cm <sup>3</sup> (#1)                                  |
| 558311                | 0.03 cm <sup>3</sup> (#2)                                  |
| 558312                | 0.06 cm <sup>3</sup> (#3)                                  |
| 558313                | 0.10 cm <sup>3</sup> (#4)                                  |
| 558314                | 0.16 cm <sup>3</sup> (#5)                                  |
| 3410 Cast Manifolds   |  |
| 122863                | 2 Outlets, Fluid Grease PD, Complete w/White Plastic Cover |
| 122864                | 3 Outlets, Fluid Grease PD, Complete w/White Plastic Cover |
| 122865                | 5 Outlets, Fluid Grease PD, Complete w/White Plastic Cover |
| 3410 Metering Nipples |  |
| 122990                | 0.01 cm <sup>3</sup> (#1)                                  |
| 558324                | 0.03 cm <sup>3</sup> (#2)                                  |
| 558325                | 0.06 cm <sup>3</sup> (#3)                                  |
| 558326                | 0.10 cm <sup>3</sup> (#4)                                  |
| 3500 Cast Manifolds   |  |
| 122866                | 2 Outlets, Oil PD, Complete w/Red Plastic Cover            |
| 122868                | 3 Outlets, Oil PD, Complete w/Red Plastic Cover            |
| 122869                | 5 Outlets, Oil PD, Complete w/Red Plastic Cover            |
| 3500 Metering Nipples |  |
| 558315                | 0.10 cm <sup>3</sup> (#4)                                  |
| 558316                | 0.20 cm <sup>3</sup> (#5)                                  |
| 558317                | 0.40 cm <sup>3</sup> (#6)                                  |
| 558318                | 0.60 cm <sup>3</sup> (#7)                                  |
| 3510 Cast Manifolds   |  |
| 122885                | 2 Outlets, Fluid Grease PD, Complete w/White Plastic Cover |
| 122886                | 3 Outlets, Fluid Grease PD, Complete w/White Plastic Cover |
| 122887                | 5 Outlets, Fluid Grease PD, Complete w/White Plastic Cover |
| 3510 Metering Nipples |  |
| 558327                | 0.10 cm <sup>3</sup> (#4)                                  |
| 558328                | 0.20 cm <sup>3</sup> (#5)                                  |
| 558329                | 0.30 cm <sup>3</sup> (#6)                                  |

| 3900 Cast Manifolds                                  |  |
|--|--|
| 122888   | 2 Outlets, Oil PD, Complete w/Red Plastic Cover            |
| 122889   | 3 Outlets, Oil PD, Complete w/Red Plastic Cover            |
| 3900 Metering Nipples                                |  |
| 558319   | 0.20 cm <sup>3</sup> (#5)                                  |
| 558320   | 0.40 cm <sup>3</sup> (#6)                                  |
| 558321   | 0.60 cm <sup>3</sup> (#7)                                  |
| 558322   | 1.00 cm <sup>3</sup> (#8)                                  |
| 558323   | 1.50 cm <sup>3</sup> (#9)                                  |
| 3910 Cast Manifolds                                  |  |
| 122890   | 2 Outlets, Fluid Grease PD, Complete w/White Plastic Cover |
| 122891   | 3 Outlets, Fluid Grease PD, Complete w/White Plastic Cover |
| 3910 Metering Nipples                                |  |
| 558330   | 0.10 cm <sup>3</sup> (#4)                                  |
| 558331   | 0.20 cm <sup>3</sup> (#5)                                  |
| 558332   | 0.30 cm <sup>3</sup> (#6)                                  |
| Direct-to-Bearing Piston Distributors - For Oil Only |  |
| 122789   | Direct Type F (M14/D4/0.03 cm <sup>3</sup> )               |
| 122790   | Direct Type F (M14/D4/0.06 cm <sup>3</sup> )               |
| 122791   | Direct Type F (M14/D4/0.10 cm <sup>3</sup> )               |
| 122792   | Direct Type F (M14/D6/0.03 cm <sup>3</sup> )               |
| 122793   | Direct Type F (M14/D6/0.06 cm <sup>3</sup> )               |
| 122794   | Direct Type F (M14/D6/0.10 cm <sup>3</sup> )               |
| 122795   | Direct Type GB (D10.35/0.03 cm <sup>3</sup> )              |
| 122796   | Direct Type GB (D10.35/0.06 cm <sup>3</sup> )              |
| 122797   | Direct Type GB (D10.35/0.10 cm <sup>3</sup> )              |
| 122798   | Direct Type GC (D13.5/0.10 cm <sup>3</sup> )               |
| 122799   | Direct Type GC (D13.5/0.20 cm <sup>3</sup> )               |
| 122800   | Direct Type GC (D13.5/0.30 cm <sup>3</sup> )               |
| 122801   | Direct Type GC (D13.5/0.40 cm <sup>3</sup> )               |

Refer to Graco manual #313759 for more details on Piston Distributors.

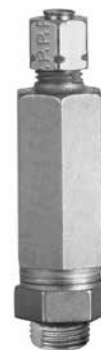
# Single Line Parallel LubriSystem® Injectors

## Features and Benefits

- Two piece compression fitting included for fast, easy installation
- Bundled system tubing available for easy installation
- Threaded outlet allows for manifold or direct-to-bearing mounting
- Adjustable output volume

## Typical Applications

- Designed for frequent, medium-pressure metering; ideal for medium-sized forming or injection-molding machines. Includes system pressure monitoring.



## Typical Fluids Handled

- Oil to NLGI #0

## Technical Specifications

|  |  |
|--|--|
| Operating Pressure (max) .....           | 1,000 psi (69 bar)   |
| Output Range .....                       | 0.002 to 0.024 in <sup>3</sup> (0.033 to 0.393 cm <sup>3</sup> ) |
| Minimum Pressure to Fire Injectors ..... | 450 psi (31 bar)   |
| Reset Pressure .....                     | 160 psi (11 bar)   |
| Minimum On-Time .....                    | 30 seconds   |
| Minimum Off-Time .....                   | 3 minutes  |

## Ordering Information

| Injectors                             |   |                    |                                |                                   |
|---------------------------------------|---|--------------------|--------------------------------|-----------------------------------|
| Size #                                | Output in <sup>3</sup> (cm <sup>3</sup> )             | Adjustment Spacers | Aluminum Alloy Injectors (Oil) | Aluminum Alloy Injectors (Grease) |
|                                       |   |                    | Part No.                       | Part No.                          |
| 0                                     | 0.002 (0.033)   | –                  | 24Z888                         | 24Z682                            |
| 1                                     | 0.005 (0.082)   | 1                  | 24Z889                         | 24Z683                            |
| 2                                     | 0.009 (0.148)   | 2                  | 24Z890                         | 24Z684                            |
| 3                                     | 0.012 (0.197)   | 3                  | 24Z891                         | 24Z685                            |
| 4                                     | 0.015 (0.246)   | 4                  | 24Z892                         | 24Z686                            |
| 8                                     | 0.024 (0.393)   | 4                  | 24Z893                         | 24Z681                            |
| Spare O-ring                          |   |                    | 556587                         | 556586                            |
| LubriSystem Manifolds and Accessories |   |                    |                                |                                   |
| 563769                                | Injector cycle Indicator                              |                    |                                |                                   |
| 24Z808                                | Injector port plugs with O-ring for aluminum manifold |                    |                                |                                   |
| 555808                                | End of line manifold plugs                            |                    |                                |                                   |
| 557901                                | Manifold Injector Outlet Plug                         |                    |                                |                                   |
| 557898                                | Aluminum output adjustment spacer                     |                    |                                |                                   |

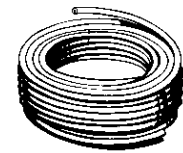
Single Line Parallel

# Single Line Parallel

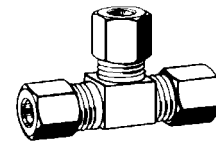
## LubriSystem® Accessories

### Ordering Information

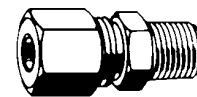
| Heavy Wall Lube Lines (tubing)         |   |
|--|---|
| 561132                                 | Main Line (pump to manifold): 5/16 in OD x .059 in wall (7.9 mm x 1.5 mm), black, 60 feet (18.3 m) Burst Pressure Min. - 1,500 psi (103 bar) at 75°F (24°C)                     |
| 561131                                 | Point Distribution Line (injector to lube point): 3/16 in OD x .044 in wall (4.8 mm x 1.1 mm), black, 60 feet (18.3 m) Burst Pressure Min. - 2,000 psi (138 bar) at 75°F (24°C) |
| Self-Aligning Ferrules And Nuts        |   |
| 556660                                 | Brass Nut, w/captive ferrule, 3/16 in (4.8 mm) tube   |
| 556666                                 | Brass Nut, w/captive ferrule, 5/16 in (7.9 mm) tube   |
| 557963                                 | Brass Inserts for 5/16 in (7.9 mm) tubing (pack of 20)  |
| Tees And Unions                        |   |
| 556636                                 | Male Branch Tee, 5/16 in (7.94 mm) tube, 1/8 in (3.2 mm) NPTF Brass   |
| 556637                                 | Union Tee, 5/16 (7.94 mm) tube, Brass   |
| 556647                                 | Union, 3/16 (4.8 mm) tube, Brass  |
| 556648                                 | Union, 5/16 (4.8 mm) tube, Brass  |
| Brass Connectors                       |   |
| 556642                                 | Female Connector, 3/16 in (4.8 mm) tube x 1/8 in (3.2 mm) NPTF  |
| 556643                                 | Female Connector, 5/16 in (7.94 mm) tube x 1/8 in (3.2 mm) NPTF   |
| 556644                                 | Male Connector, 3/16 in (4.8 mm) tube x 1/8 in (3.2 mm) NPTF  |
| 556645                                 | Male Connector, 5/16 in (7.94 mm) tube x 1/8 in (3.2 mm) NPTF   |
| 556646                                 | Male Connector, 5/16 in (7.94 mm) tube x 1/4 in (6.35 mm) NPTF  |
| Tubing Straps                          |   |
| 563770                                 | 100 pieces, 11-1/2 in (292 mm)  |
| Steel Pipe and Adapter Elbows          |   |
| 15K740                                 | 1/4 in-28 in / 6.35 mm-711 cm (male) x 1/8 in (3.2 mm) NPTF (female), 90° Adapter Elbow   |
| 15K783                                 | 90° Street Elbow, 1/8 in (3.2 mm) NPTF, PTF SAE Short   |
| 557395                                 | 45° Street Elbow, 1/8 in (3.2 mm) NPTF  |
| Brass Male Tube Elbows                 |   |
| 556638                                 | 3/16 in (4.8 mm) tube x 1/8 in (3.2 mm) NPTF  |
| 556639                                 | 5/16 in (7.94 mm) tube x 1/8 in (3.2 mm) NPTF   |
| 556640                                 | 5/16 in (7.94 mm) tube x 1/4 in (6.35 mm) NPTF  |
| Harness Clamps and Brackets            |   |
| 557943                                 | 5/16 in (7.94 mm) diameter  |
| 557946                                 | 3/8 in (9.53 mm) diameter   |
| 557944                                 | 7/16 in (11.11 mm) diameter   |
| 557947                                 | 1/2 in (12.7 mm) diameter   |
| 557945                                 | 5/8 in (15.22 mm) diameter  |
| Miscellaneous                          |   |
| 561113                                 | Air Line Restrictor, 1/2 in x 1/8 in (12.7 mm x 3.2 mm), M to F Pipe  |
| 561114                                 | Air Line Restrictor, 3/8 in x 1/8 in (9.53 mm x 3.2 mm), M to F Pipe  |
| 557374                                 | Trabon Style Fill Stud  |
| 557880                                 | Grease Jockey Style Fill Stud   |
| Fill Couplers, mate w/above fill studs |   |
| 558906                                 | Coupler for use with 557374   |
| 121474                                 | Coupler for use with 557880   |



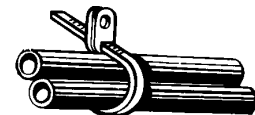
561132



556637



556643



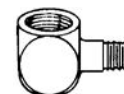
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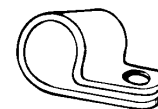
15K783



556638



15K740



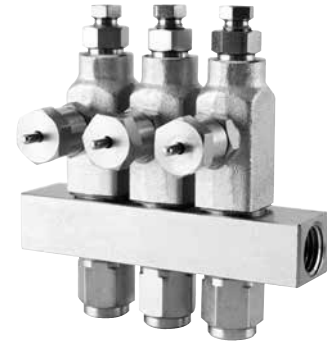
557947

# Single Line Parallel

## GL-32™ and GL-43™ Injectors

### Features and Benefits

- Accurate, reliable and adjustable lubrication for each lube point. Systems are easy to design, fast to set up and allow you to add or subtract lube points without having to redesign your lubrication system
- Versatile high performance – works with oil and grease grades to NLGI #2
- All injectors come standard with fluoroelastomer seals for use with synthetic lubricants and high temperature applications – up to 350°F (176°C)



24A923

### Typical Applications

- In-plant machinery, mobile equipment and anywhere adjustable lubrication output is desired

### Typical Fluids Handled

- Oil (10 weight minimum) and grease up to NLGI #2

### Technical Specifications

|                                      | GL-32 Grease Injectors   | GL-43 Oil Injectors |
|--------------------------------------|--|---------------------|
| Maximum Operating Pressure           | 3,500 psi (241 bar)  | 1,000 psi (69 bar)  |
| Minimum Operating Pressure           | 1,200 psi (83 bar)   | 750 psi (52 bar)    |
| Typical Operating Pressure           | 1,500 psi (103 bar)  | 850 psi (59 bar)    |
| Reset Pressure                       | 200 psi (13.7 bar)   | 150 psi (10 bar)    |
| Output Volume Per Cycle (adjustable) | 0.001 to 0.008 in <sup>3</sup> (0.02 to 0.13 cm <sup>3</sup> ) |                     |
| Maximum Temperature Rating           | 350°F (176°C)  |                     |
| Cycle Indication                     | Visual pin   |                     |
| Instruction Manual                   | 313798   |                     |

### Ordering Information

|         |  | GL-32 Grease Injectors |               | GL-43 Oil Injectors |
|---------|--|------------------------|---------------|---------------------|
|         |  | Carbon Steel           | 304 Stainless | Carbon Steel        |
| Porting | Stand-Alone Injector, 1/4 NPT male inlet, 1/8 in OD tube outlet  | 24A919*                | 24E389*       | 24E240*             |
|         | Replacement Injector for manifolds, 1/8 in OD tube outlet        | 24A920*                | 24E390*       | 24E245*             |
|         | 1-Injector Manifold, 1/4 NPT female inlet, 1/8 in OD tube outlet | 24A921                 | 24E391        | 24E241              |
|         | 2-Injector Manifold, 1/4 NPT female inlet, 1/8 in OD tube outlet | 24A922                 | 24E392        | 24E242              |
|         | 3-Injector Manifold, 1/4 NPT female inlet, 1/8 in OD tube outlet | 24A923                 | 24E393        | 24E243              |
|         | 4-Injector Manifold, 1/4 NPT female inlet, 1/8 in OD tube outlet | 24A924                 | 24E394        | 24E244              |
|         | Replacement Injector for manifolds, 6 mm OD tube outlet          | 24F508*                | 24F550*       | 24F543*             |
|         | 1-Injector Manifold, 1/8 BSPP female inlet, 6 mm OD tube outlet  | 24F509                 | 24F551        | 24F544              |
|         | 2-Injector Manifold, 1/8 BSPP female inlet, 6 mm OD tube outlet  | 24F510                 | 24F552        | 24F545              |
|         | 3-Injector Manifold, 1/8 BSPP female inlet, 6 mm OD tube outlet  | 24F511                 | 24F553        | 24F546              |
|         | 4-Injector Manifold, 1/8 BSPP female inlet, 6 mm OD tube outlet  | 24F512                 | 24F554        | 24F548              |
|         | Repair/Overhaul Kit  | 24B360                 | 24F944        | 24F201              |

\*Must be ordered in quantities of five.

|         |                           | GL-32, GL-33, GL-42 and GL-43 Outlet Fittings |                 |
|---------|---------------------------|---|-----------------|
|         |                           | Carbon Steel                                  | Stainless Steel |
| Porting | JIC-4 male                | 17B168  | 17B169          |
|         | 1/8 in OD tube            | 24B677  | 24F943          |
|         | 1/8 in OD Push-to-Connect | 17B879  | 17B880          |
|         | 1/8 in NPT female         | 17B780  | 17B781          |
|         | 4 mm OD tube              | 24F513  | 24F555          |
|         | 6 mm OD tube              | 24F514  | 24F556          |
|         | Closure Plug              | 17B782  | 17B783          |

| Accessories |  |
|-------------|--|
| 24W495      | Manual grease fitting adapter – compatible with 1/8 in OD tube outlet only |
| 17B785      | Measuring chamber vinyl cap  |

See page 58 for fitting and accessory illustrations.

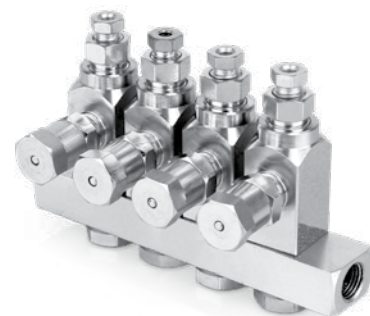


# Single Line Parallel

## GL-33™ and GL-42™ Injectors

### Features and Benefits

- Accurate, reliable and adjustable lubrication for each lube point. Systems are easy to design, fast to set up and allow you to add or subtract lube points without having to redesign your lubrication system
- Versatile high performance – works with oil and grease grades to NLGI #2
- All injectors come standard with fluoroelastomer seals for use with synthetic lubricants and high temperature applications – up to 350°F (176°C)



24W404

### Typical Applications

- In-plant machinery, mobile equipment and anywhere adjustable lubrication output is desired

### Typical Fluids Handled

- Oil (10 weight minimum) and grease up to NLGI #2

### Technical Specifications

|                                      | GL-33 Grease Injectors   | GL-42 Oil Injectors |
|--------------------------------------|--|---------------------|
| Maximum Operating Pressure           | 3,500 psi (241 bar)  | 1,000 psi (69 bar)  |
| Minimum Operating Pressure           | 1,200 psi (83 bar)   | 750 psi (52 bar)    |
| Typical Operating Pressure           | 1,500 psi (103 bar)  | 850 psi (59 bar)    |
| Reset Pressure                       | 200 psi (13.7 bar)   | 150 psi (10 bar)    |
| Output Volume Per Cycle (adjustable) | 0.001 to 0.003 in <sup>3</sup> (0.02 to 0.05 cm <sup>3</sup> ) |                     |
| Maximum Temperature Rating           | 350°F (176°C)  |                     |
| Cycle Indication                     | Visual Pin   |                     |
| Instruction Manual                   | 334495   |                     |

### Ordering Information

|  |   | GL-33 Grease Injectors |               | GL-42 Oil Injectors |
|--|---|------------------------|---------------|---------------------|
|  |   | Carbon Steel           | 304 Stainless | Carbon Steel        |
| Porting  | Stand-Alone Injector, 1/8 NPT male inlet, 1/8 in OD tube outlet   | 24W487*                | 24W489*       | 24W493*             |
|  | Replacement Injector for manifolds, 1/8 in OD tube outlet         | 24W483*                | 24W485*       | 24W491*             |
|  | 1-injector manifold, 1/8 NPT female inlet, 1/8 in OD tube outlet  | 24W401                 | 24W601        | 24W801              |
|  | 2-injector manifold, 1/8 NPT female inlet, 1/8 in OD tube outlet  | 24W402                 | 24W602        | 24W802              |
|  | 3-injector manifold, 1/8 NPT female inlet, 1/8 in OD tube outlet  | 24W403                 | 24W603        | 24W803              |
|  | 4-injector manifold, 1/8 NPT female inlet, 1/8 in OD tube outlet  | 24W404                 | 24W604        | 24W804              |
|  | 5-injector manifold, 1/8 NPT female inlet, 1/8 in OD tube outlet  | 24X302                 | 24X304        | 24X306              |
|  | 6-injector manifold, 1/8 NPT female inlet, 1/8 in OD tube outlet  | 24W405                 | 24W605        | 24W805              |
|  | 9-injector manifold, 1/8 NPT female inlet, 1/8 in OD tube outlet  | 24W406                 | N/A           | 24W806              |
|  | 10-injector manifold, 1/8 NPT female inlet, 1/8 in OD tube outlet | 24W407                 | 24W606        | 24W807              |
|  | 15-injector manifold, 1/8 NPT female inlet, 1/8 in OD tube outlet | 24W408                 | 24W607        | 24W808              |
|  | Stand-Alone Injector, 1/8 NPT male inlet, 6 mm OD tube outlet     | 24W488*                | 24W490*       | 24W494*             |
|  | Replacement Injector for manifolds, 6 mm OD tube outlet           | 24W484*                | 24W486*       | 24W492*             |
|  | 1-Injector Manifold, 1/8 BSPP female inlet, 6 mm OD tube outlet   | 24W501                 | 24W701        | 24W901              |
|  | 2-Injector Manifold, 1/8 BSPP female inlet, 6 mm OD tube outlet   | 24W502                 | 24W702        | 24W902              |
|  | 3-Injector Manifold, 1/8 BSPP female inlet, 6 mm OD tube outlet   | 24W503                 | 24W703        | 24W903              |
|  | 4-Injector Manifold, 1/8 BSPP female inlet, 6 mm OD tube outlet   | 24W504                 | 24W704        | 24W904              |
|  | 5-Injector Manifold, 1/8 BSPP female inlet, 6 mm OD tube outlet   | 24X303                 | 24X305        | 24X307              |
|  | 6-Injector Manifold, 1/8 BSPP female inlet, 6 mm OD tube outlet   | 24W505                 | 24W705        | 24W905              |
|  | 10-Injector Manifold, 1/8 BSPP female inlet, 6 mm OD tube outlet  | 24W506                 | 24W706        | 24W906              |
| 15-Injector Manifold, 1/8 BSPP female inlet, 6 mm OD tube outlet | 24W507  | 24W707                 | 24W907        |                     |
| Repair/Overhaul Kit  | 24W913  | 24W914                 | 24W915        |                     |

\*Must be ordered in quantities of five.

# Single Line Parallel

## GL-33™ and GL-42™ Injectors and Accessories

### Ordering Information

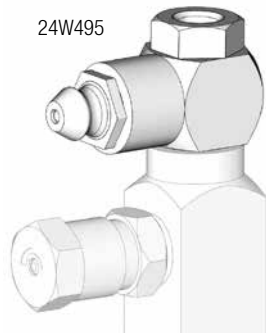
|         |                           | GL-32, GL-33, GL-42 and GL-43 Outlet Fittings |                 |                     |
|---------|---------------------------|---|-----------------|---------------------|
|         |                           | Carbon Steel                                  | Stainless Steel | Nickle-Plated Brass |
| Porting | JIC-4 male                | 17B168  | 17B169          | –                   |
|         | 1/8 in OD tube            | 24B677  | 24F943          | –                   |
|         | 1/8 in OD Push-to-Connect | –   | –               | 17B879              |
|         | 1/4 in OD Push-to-Connect | –   | –               | 17B880              |
|         | 1/8 in NPT female         | 17B780  | 17B781          | –                   |
|         | 4 mm OD tube              | 24F513  | 24F555          | –                   |
|         | 6 mm OD tube              | 24F514  | 24F556          | –                   |
|         | Closure Plug              | 17B782  | 17B783          | –                   |



17B879

### Accessories

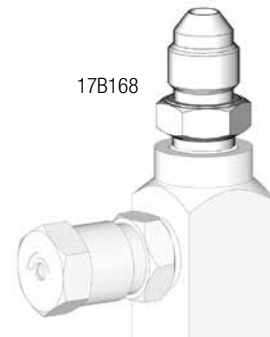
|        |  |
|--------|--|
| 24W495 | Manual grease fitting adapter – compatible with 1/8 in OD tube outlet only |
| 17B785 | Measuring chamber vinyl cap  |



24W495



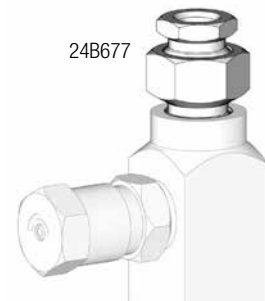
17B780



17B168



17B782



24B677



17B785



# Single Line Parallel

## GL-1™ Injectors

Graco quality provides consistent performance in rugged environments.

- No vent holes to leak lubricants
- Fully-enclosed press fittings

### Injector Covers

Clear, polycarbonate covers protect cycle pin indicators from contamination. (Included with GL-1 X and GL-1 XL models)

### Hex-Head Adjustment Nut

Heavy-duty hex-head nut makes output adjustments simple.

### Unibody Design

Rugged, single-piece body for use in harsh environments.

### GL-1 Manifold

6,000 psi, 3/8 in NPT port manifolds fit pre-existing mounting patterns.

### Output Spectrum Sleeves

Colored-coded spacers enable simple, targeted output volume.

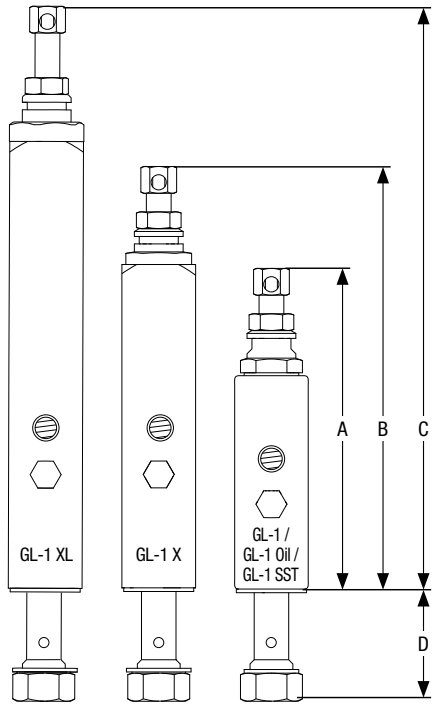


## Technical Specifications

|                            | GL-1   | GL-1 Oil   | GL-1 SST   | GL-1 X   | GL-1 XL  |
|----------------------------|--|--|--|--|--|
| Maximum operating pressure | 3,500 psi (241 bar)  | 3,500 psi (241 bar)  | 3,500 psi (241 bar)  | 6,000 psi (414 bar)  | 6,000 psi (414 bar)  |
| Minimum operating pressure | 1,850 psi (128 bar)  | 750 psi (52 bar)   | 1,850 psi (128 bar)  | 1,850 psi (128 bar)  | 1,850 psi (128 bar)  |
| Reset pressure             | 600 psi (41 bar)   | 150 psi (10 bar)   | 600 psi (41 bar)   | 1,000 psi (69 bar)   | 1,000 psi (69 bar)   |
| Output volume per cycle    | 0.008 to 0.08 in <sup>3</sup><br>(0.13 to 1.31 cm <sup>3</sup> ) | 0.008 to 0.08 in <sup>3</sup><br>(0.13 to 1.31 cm <sup>3</sup> ) | 0.008 to 0.08 in <sup>3</sup><br>(0.13 to 1.31 cm <sup>3</sup> ) | 0.015 to 0.08 in <sup>3</sup><br>(0.25 to 1.31 cm <sup>3</sup> ) | 0.035 to 0.305 in <sup>3</sup><br>(0.57 to 5.0 cm <sup>3</sup> ) |
| Materials                  | Zinc-plated carbon steel   | Zinc-plated carbon steel   | 316 stainless steel  | Zinc-plated carbon steel   | Zinc-plated carbon steel   |

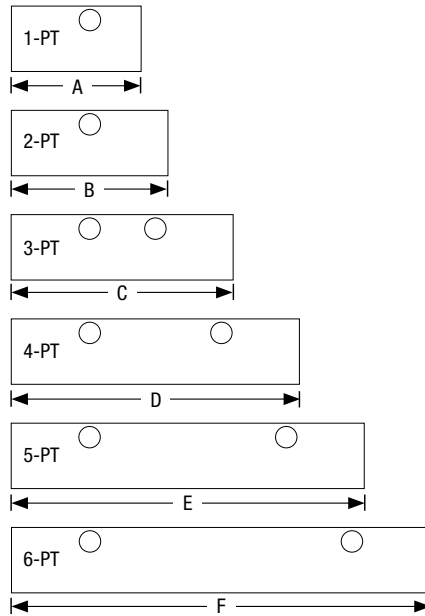
# Single Line Parallel

## GL-1™ Injectors



### GL-1 Injector Dimensions

|   |                   |
|---|-------------------|
| A | 5.3 in (13.46 cm) |
| B | 6.9 in (17.53 cm) |
| C | 9.5 in (24.13 cm) |
| D | 1.7 in (4.32 cm)  |



### GL-1 Manifold Dimensions

|   |                   |
|---|-------------------|
| A | 2.5 in (6.35 cm)  |
| B | 3.0 in (7.62 cm)  |
| C | 4.2 in (10.67 cm) |
| D | 5.5 in (13.97 cm) |
| E | 6.7 in (17.02 cm) |
| F | 8.0 in (20.32 cm) |



114905



24X807



24X817

Single Line Parallel

### Ordering Information

|   | GL-1   | GL-1 Oil | GL-1 SST | GL-1 X | GL-1 XL |
|---|--------|----------|----------|--------|---------|
| <b>GL-1 Injectors and Manifold Assemblies</b>               |        |          |          |        |         |
| GL-1 one point assembly                                     | 114901 | 25T641   | –        | 24X801 | 24X811  |
| GL-1 two point assembly                                     | 114902 | 25T642   | –        | 24X802 | 24X812  |
| GL-1 three point assembly                                   | 114903 | 25T643   | –        | 24X803 | 24X813  |
| GL-1 four point assembly                                    | 114904 | 25T644   | –        | 24X804 | 24X814  |
| GL-1 five point assembly                                    | 114905 | 25T645   | –        | 24X805 | 24X815  |
| GL-1 six point assembly                                     | 117206 | 25T646   | –        | 24X806 | 24X816  |
| GL-1 single replacement injector (no manifold)              | 114909 | 25T649   | 25N109   | 24X807 | 24X817  |
| <b>GL-1 Bare Injector Manifolds (no injectors included)</b> |        |          |          |        |         |
| One bank GL-1 manifold                                      | 114911 | 114911   | 25N101   | 114911 | 114911  |
| Two bank GL-1 manifold                                      | 114912 | 114912   | 25N102   | 114912 | 114912  |
| Three bank GL-1 manifold                                    | 114913 | 114913   | 25N103   | 114913 | 114913  |
| Four bank GL-1 manifold                                     | 114914 | 114914   | 25N104   | 114914 | 114914  |
| Five bank GL-1 manifold                                     | 114915 | 114915   | 25N105   | 114915 | 114915  |
| Six bank GL-1 manifold                                      | 118206 | 118206   | 25N106   | 118206 | 118206  |

# Single Line Parallel

## GL-1™ Injectors

### Ordering Information

|  | GL-1   | GL-1 SST | GL-1 X  | GL-1 XL |
|--|--------|----------|---------|---------|
| <b>GL-1 Injector Accessories</b>       |        |          |         |         |
| Injector cover kit, polycarbonate      | 17L754 | 17L754   | 17L754* | 17L755* |
| Injector crossport kit                 | 133095 | 128139   | 133095  | 133095  |
| Zerk and cap kit (5 pack)              | 17Y511 | 17Y498   | 17Y511  | 17Y511  |
| Adjustment screw and lock nut (5 pack) | 17Y510 | 17Y489   | –       | –       |
| Seal repair kit                        | 241234 | 241234   | 25A081  | 25A080  |
| GL-1 oil conversion kit                | 25E349 | 25E349   | –       | –       |
| Injector port manifold plug            | 25D336 | –        | 25D336  | 25D336  |

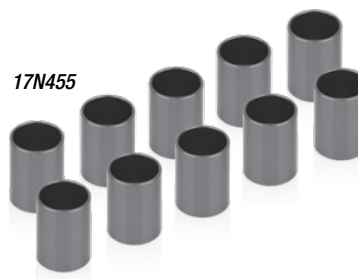
\*Included with every GL-1 X and GL-1 XL injector.

### GL-1 Manifold Mounting Weld Bar

|                          |        |
|--------------------------|--------|
| One bank GL-1 manifold   | 17S392 |
| Two bank GL-1 manifold   | 17S392 |
| Three bank GL-1 manifold | 17S393 |
| Four bank GL-1 manifold  | 17S394 |
| Five bank GL-1 manifold  | 17S395 |
| Six bank GL-1 manifold   | 17S396 |

### Output Spectrum Sleeves

| GL-1 Output Target<br>in <sup>3</sup> (cm <sup>3</sup> ) | Output Target Ratio |              | Color  | 10-Pack<br>Part Number |
|--|---------------------|--------------|--------|------------------------|
|  | From Minimum        | From Maximum |        |                        |
| <b>GL-1 / GL-1 SST Injectors</b>                         |                     |              |        |                        |
| 0.01 (0.1)   | 1.0                 | 0.10         | N/A    | N/A                    |
| 0.03 (0.5)   | 2.0                 | 0.50         | Red    | 17K601                 |
| 0.05 (0.8)   | 3.0                 | 0.60         | Silver | 17K602                 |
| 0.06 (1.0)   | 4.0                 | 0.80         | Gold   | 17K603                 |
| 0.08 (1.3)   | 5.0                 | 1.00         | Green  | 17K604                 |
| <b>GL-1 X Injectors</b>                                  |                     |              |        |                        |
| 0.01 (0.3)   | 1.0                 | 0.20         | N/A    | N/A                    |
| 0.03 (0.5)   | 2.0                 | 0.40         | Red    | 17K601                 |
| 0.04 (0.7)   | 3.0                 | 0.50         | Silver | 17K602                 |
| 0.06 (0.8)   | 3.3                 | 0.60         | Gold   | 17K603                 |
| 0.07 (1.2)   | 5.0                 | 0.75         | Green  | 17K604                 |
| <b>GL-1 XL Injectors</b>                                 |                     |              |        |                        |
| 0.04 (0.6)   | 1.0                 | 0.10         | N/A    | N/A                    |
| 0.05 (0.8)   | 1.5                 | 0.15         | Red    | 17K601                 |
| 0.06 (1.0)   | 2.1                 | 0.25         | Silver | 17K602                 |
| 0.09 (1.5)   | 2.8                 | 0.30         | Gold   | 17K603                 |
| 0.12 (2.0)   | 3.4                 | 0.40         | Green  | 17K604                 |
| 0.13 (2.0)   | 3.9                 | 0.45         | Black  | 17N453                 |
| 0.15 (2.5)   | 4.3                 | 0.50         | Purple | 17N454                 |
| 0.18 (3.0)   | 5.4                 | 0.60         | Blue   | 17N455                 |
| 0.21 (3.5)   | 6.4                 | 0.75         | Orange | 17N456                 |
| 0.24 (4.0)   | 7.5                 | 0.90         | Brown  | 17N457                 |
| 0.30 (5.0)   | 8.6                 | 1.00         | Yellow | 17N458                 |



Single Line Parallel

# Single Line Parallel

## GL-11™ Injectors

### Features and Benefits

- Adjustable output volumes to custom fit the system for each lube point
- Convenient top-mounted cycle pin indicator provides quick, at-a-glance confirmation that the injector is functioning properly
- Hex head adjustment for easy turning from most any orientation

### Typical Applications

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

### Typical Fluids Handled

- Grease up to NLGI #2

### Technical Specifications

|                                   |  |
|-----------------------------------|--|
| Reset Pressure .....              | 600 psi (41 bar)   |
| Maximum Pressure .....            | 3,500 psi (241 bar)  |
| Suggested Operating Pressure..... | 2,500 psi (172 bar)  |
| Minimum Operating Pressure .....  | 1,000 psi (69 bar)   |
| Output Range .....                | 0.05 to 0.5 in <sup>3</sup> (0.82 to 8.2 cm <sup>3</sup> ) |
| Number of Adjustment Turns.....   | 14   |
| Cycle Indicator .....             | Visual   |

### Ordering Information

| GL Injectors and Accessories |                                 |
|------------------------------|---------------------------------|
| 24A918                       | GL-11 injector                  |
| 24B359                       | GL-11 injector repair kit       |
| 17Y511                       | GL-11 zerk and cap kit (5 pack) |



24A918

Single Line Parallel

# Series Progressive

## Compact Series Progressive (CSP) Valves

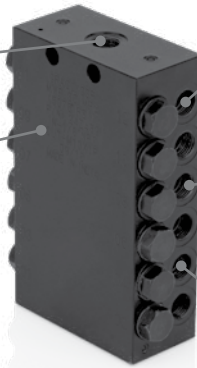
### Graco Quality in a Compact Package

Compact Series Progressive (CSP) valve with broad market versatility.  
Combine with field-proven Graco pumps for a complete system solution.

**1/8" NPT or BSPP Inlet**

**Built-in Durability**

Zinc iron plating stands up to harsh environments.



**Variety of Configurations**

6 to 22 outlets, available with or without indicators.

**High Output Pressure**

Maximum working pressure of 5,076 psi (350 bar).

**Output to Meet Your Needs**

0.012 in<sup>3</sup> (0.2 cc)/stroke output with the ability to double-up outlets if greater output is required.

### Typical Fluids Handled

- Oil or grease grades up to NLGI #2

### Technical Specifications

|  |  |
|--|--|
| Maximum Pressure, psi (bar) .....                              | 5,076 (350)  |
| Output Single Outlet, in <sup>3</sup> (cm <sup>3</sup> ) ..... | 0.012 in <sup>3</sup> (.20 cm <sup>3</sup> )           |
| Cycle Indication .....   | Electronic proximity switch, magnetic visual indicator |
| Max Operating Temperature .....                                | 212°F (100°C)  |
| Material .....   | Carbon alloy steel with zinc iron plating              |

### Ordering Information

|                                     | NPT    | BSPP   |
|-------------------------------------|--------|--------|
| <b>CSP Valves without Indicator</b> |        |        |
| 6 outlet, 1/8 in inlet              | 24Z486 | 24Z477 |
| 8 outlet, 1/8 in inlet              | 24Z487 | 24Z478 |
| 10 outlet, 1/8 in inlet             | 24Z488 | 24Z479 |
| 12 outlet, 1/8 in inlet             | 24Z489 | 24Z480 |
| 14 outlet, 1/8 in inlet             | 24Z490 | 24Z481 |
| 16 outlet, 1/8 in inlet             | 24Z491 | 24Z482 |
| 18 outlet, 1/8 in inlet             | 24Z492 | 24Z483 |
| 20 outlet, 1/8 in inlet             | 24Z493 | 24Z484 |
| 22 outlet, 1/8 in inlet             | 24Z494 | 24Z485 |
| <b>CSP Valves with Indicator</b>    |        |        |
| 6 outlet, 1/8 in inlet              | 24Z504 | 24Z495 |
| 8 outlet, 1/8 in inlet              | 24Z505 | 24Z496 |
| 10 outlet, 1/8 in inlet             | 24Z506 | 24Z497 |
| 12 outlet, 1/8 in inlet             | 24Z507 | 24Z498 |
| 14 outlet, 1/8 in inlet             | 24Z508 | 24Z499 |
| 16 outlet, 1/8 in inlet             | 24Z509 | 24Z500 |
| 18 outlet, 1/8 in inlet             | 24Z510 | 24Z501 |
| 20 outlet, 1/8 in inlet             | 24Z511 | 24Z502 |
| 22 outlet, 1/8 in inlet             | 24Z512 | 24Z503 |

| <b>CSP Valve Accessories</b> |                      |
|------------------------------|----------------------|
| 25E935                       | Acrylic CSP Demo Kit |



# Series Progressive

## Compact Series Progressive (CSP) Valve Accessories

### Ordering Information

| <b>G-Lock Push-to-Connect (PTC) Fittings</b>     |  |
|--|--|
| For use with 1/8 in ID hose only                 |  |
| 17L441   | 1/4 in stud PTC, M10, CSP outlet   |
| 17L458   | 6 mm stud PTC, M10, CSP outlet. Refer to page 100 for mating 6 mm hose studs and hose.         |
| 25M496   | 90 degree 1/4 in field-installable stud  |
| 25M497   | Straight 1/4 in field-installable stud   |
| 17L442   | 1/4 in stud PTC with male 1/8 in NPT, inlet or LP  |
| 17L547   | 1/4 in stud PTC with male 1/4 in NPT, pump outlet  |
| <b>Nylon Tube Push-To-Connect (PTC) Fittings</b> |  |
| For use with 1/4 in OD nylon tube                |  |
| 17L440   | 1/4 in OD nylon tube PTC, M10, CSP outlet  |
| 17L652   | 90 degree 1/4 in OD nylon tube PTC, male 1/8 in NPT, inlet or LP                               |
| 17L653   | Straight 1/4 in OD nylon tube PTC, male 1/8 in NPT, inlet or LP                                |
| <b>CSP Outlet Fittings</b>                       |  |
| 25M498   | 1/8 in NPT female with check, M10  |
| 25M499   | 1/4 in compression with check, M10   |
| 17L550   | 6 mm stud compression, M10, CSP outlet. Refer to page 100 for mating 6 mm hose studs and hose. |
| <b>Doubling Plug</b>                             |  |
| 17L651   | Doubling plug  |
| <b>Proximity Switch</b>                          |  |
| 17L879   | CSP – DC PNP, Solid state, 10-36 VDC, M12 connection   |
| <b>Weld Stud Accessories</b>                     |  |
| 25N730   | CSP weld bar kit   |
| 26A478   | Weld stud kit  |
| 26A479   | Weld stud template   |
| <b>1/4 in ID Hoses and Accessories</b>           |  |
| 128572   | Hose, 1/4 in ID, 2,750 PSI, 100 ft, braided with polyurethane cover                            |
| 128573   | Hose, 1/4 in ID, 2,750 PSI, 125 ft, braided with polyurethane cover                            |
| 128582   | Hose guard, 1/2 in ID, 100 ft  |
| 128563   | Field-installable swivel hose end fitting, 1/4 in ID hose, #4 JIC, SAE 7/16-20 female          |
| 128564   | Field-installable swivel hose end fitting, 1/4 in ID Hose, 1/4 in NPT male                     |
| 128565   | Field-installable swivel hose end fitting, 1/4 in ID Hose, 1/8 in NPT male                     |
| <b>1/8 in ID Hoses and Accessories</b>           |  |
| 128570   | Hose, 1/8 in ID, 3,000 PSI, 200 ft, braided with polyurethane cover                            |
| 128571   | Hose, 1/8 in ID, 3,000 PSI, 400 ft, braided with polyurethane cover                            |
| 128579   | Hose guard, 3/8 in ID, 160 ft  |
| 128580   | Hose guard, 3/8 in ID, 320 ft  |
| 128561   | Field-installable swivel hose end fitting, 1/8 in ID hose, #4 JIC, SAE 7/16-20 female          |
| 128562   | Field-installable swivel hose end fitting, 1/8 in ID hose, 1/8 in NPT male                     |
| <b>1/4 in OD Tubing and Accessories</b>          |  |
| 127555   | Tubing, 1/4 in OD, 625 PSI, 100 ft   |
| 127552   | 1/4 in tube x 1/4 in NPT straight compression fitting  |
| 555726   | 1/4 in tube x 1/4 in NPT elbow compression fitting   |
| 127553   | 1/4 in tube x 1/8 in NPT straight compression fitting  |
| 556634   | 1/4 in tube x 1/8 in NPT elbow compression fitting   |



17L441



17L652



25M499

# Series Progressive

## Trabon® MD Mono Block Divider Valve

### Features and Benefits

The Trabon MD Series is the most compact series progressive solution making it a perfect fit for tight spaced applications

- Available with 2, 3, 4 or 6 outlets
- Easy to install on new or existing equipment
- Use our cycle indicator pin models to provide positive assurance of a successful lube event
- Fluoroelastomer seals for high temperature applications or synthetic lubricants

### Typical Applications

- Industrial or mobile applications where space is at a premium

### Typical Fluids Handled

- Oil or grease up to NLGI #2

### Technical Specifications

|  |   |
|--|---|
| Material .....   | Steel   |
| Pressure (max) .....   | 3,000 psi (207 bar)   |
| Net Weight (approx.) .....                                   | 1 lb 8 oz (0.68 kg)   |
| Volume (Lubricant to cycle divider valve one complete cycle) |   |
| MD-2 .....   | 0.040 in <sup>3</sup> (0.66 cm <sup>3</sup> ) each  |
| MD-3 .....   | 0.040 in <sup>3</sup> (0.66 cm <sup>3</sup> ) outlet 1 and 0.020 in <sup>3</sup> (0.33 cm <sup>3</sup> ) outlet 2 and 3 |
| MD-4 .....   | 0.020 in <sup>3</sup> (0.33 cm <sup>3</sup> ) each  |
| MD-6 .....   | 0.010 in <sup>3</sup> (0.16 cm <sup>3</sup> ) each  |
| Max Operating Temperature .....                              | 350°F (176°C)   |

### Ordering Information

|             | Number of Outlets | Output per Outlet, in <sup>3</sup> (cm <sup>3</sup> )  | Valve Only | Valve with Cycle Pin | Valve with Cycle Switch and Bracket Assembly |
|-------------|-------------------|--|------------|----------------------|--|
| <b>MD-2</b> | 2                 | 0.04 (0.66)  | 562656     | 562653               | 563270                                       |
| <b>MD-3</b> | 3                 | Outlet 1 – 0.04 (0.66)<br>Outlet 2 and 3 – 0.02 (0.33) | 562657     | 562654               | 563271                                       |
| <b>MD-4</b> | 4                 | 0.02 (0.33)  | 562658     | 562655               | 564356                                       |
| <b>MD-6</b> | 6                 | 0.01 (0.16)  | 562659     | N/A                  |  |

| MD Spare Parts |                                   |
|----------------|-----------------------------------|
| 563555         | Cycle indicator end plug assembly |
| 122276         | Viton o-ring                      |



562658

# Series Progressive

## Trabon® MJ Divider Valve

### Features and Benefits

The Trabon MJ series features a compact and easily customizable design that can be tailor fit to meet a variety of specific lube requirements. Capable of handling grease grades up to NLGI #1.

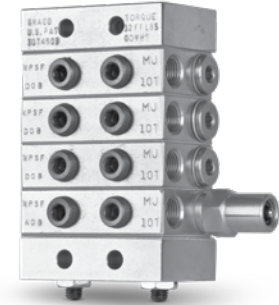
- Space efficient – from 6 to 16 points from one block assembly
- Built-in outlet check valves ensure accurate lube delivery, every time
- Alternate outlet on face of valves can be fitted with optional performance indicators
- Can be easily accessorized with magnetic and electronic proximity switch cycle indicators to provide positive assurance of a successful lube event

### Typical Applications

- Machine tools, textile, glass and can machinery, and mobile equipment

### Typical Fluids Handled

- Oil or Grease up to NLGI #1



### Technical Specifications

Material.....Plated Steel  
 Maximum Pressure ..... 2,000 psi (137.89 bar)  
 Max Operating Temperature.....200°F (93°C)  
 Max Cycle Rate with Cycle Pin ..... 60 cycles/min

|             | Output Twin Outlet, in <sup>3</sup> (cm <sup>3</sup> ) | Output Single Outlet, in <sup>3</sup> (cm <sup>3</sup> ) | Cycle Indication       |
|-------------|--|--|------------------------|
| <b>MJ5</b>  | 0.005 (0.08)   | 0.010 (0.16)   | Not available          |
| <b>MJ10</b> | 0.010 (0.16)   | 0.020 (0.33)   | Cycle indicator switch |
| <b>MJ15</b> | 0.015 (0.26)   | 0.030 (0.49)   |                        |

### Ordering Information

| MJ Valve Working Sections (Must be ordered in multiples of 5) |             |   |                  |                                |                       |
|---|-------------|---|------------------|--------------------------------|-----------------------|
| Outlet  | Description | Output Per Outlet, in <sup>3</sup> (cm <sup>3</sup> ) | Model Number     |                                |                       |
|   |             |   | Standard Section | With Cycle Pin – Right         | With Cycle Pin – Left |
| Single  | MJ-5S       | 0.010 (0.16)  | 562500           | Cycle indication not available |                       |
|   | MJ-10S      | 0.020 (0.33)  | 562501           | 562508                         | 562512                |
|   | MJ-15S      | 0.030 (0.49)  | 562502           | 562509                         | N/A                   |
| Twin  | MJ-5T       | 0.005 (0.08)  | 562503           | Cycle indication not available |                       |
|   | MJ-10T      | 0.010 (0.16)  | 562504           | 562510                         | 562513                |
|   | MJ-15T      | 0.015 (0.26)  | 562505           | 562511                         | 564205                |

| Build Your Own MJ Base Plate Assemblies |                      |              |
|---|----------------------|--------------|
| Component                               | Description          | Model Number |
|   |                      | NPSF         |
| Inlet*                                  | Standard inlet       | 560643       |
| End section*                            | Standard end section | 560645       |
| Tie rods - (2 required)                 | 3-section**          | 557515       |
|   | 4-section**          | 557516       |
|   | 5-section**          | 557517       |
|   | 6-section**          | 557518       |
|   | 7-section**          | 557519       |
|   | 8-section**          | 557520       |
| Tie rod nuts (2 required)               | Tie rod nuts         | 556371       |

\*Must be ordered in multiples of five. \*\*Two tie rods and tie rod nuts required for assembly.

Series Progressive

# Series Progressive

## Trabon® MSP Divider Valve

### Features and Benefits

The Trabon MSP Series sets the industry standard for quality, reliability, and ease of use features. It was the original modular-style series progressive divider valve—and is still the best!

- Quick change valve sections can be removed from the base assembly without disturbing any lube lines—minimizing labor cost and maximizing your machine uptime
- Accessories such as magnetic and electronic proximity switch cycle indicators provide positive assurance of a successful lube event
- Alternate outlet on face of valves can be fitted with optional performance indicators, taking the guesswork out of troubleshooting
- Built-in outlet check valves ensure accurate lube delivery, every time

*Pre-assembled and tested base plates now available!*



### Typical Applications

- Mobile, industrial, food and beverage, wind, and many more

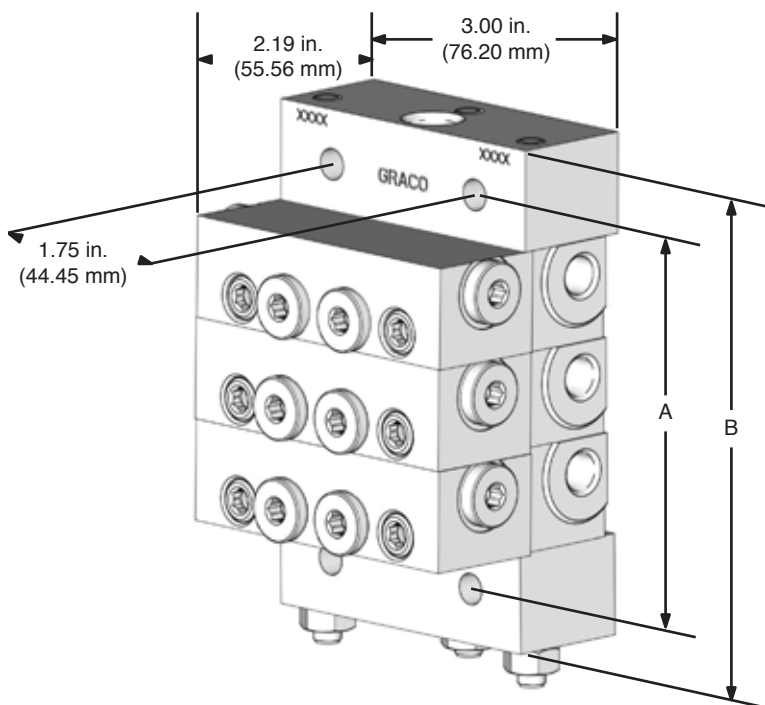
### Typical Fluids Handled

- Oil or Grease up to NLGI #2

### Technical Specifications

|                                       |                     |
|---------------------------------------|---------------------|
| Material.....                         | Plated Steel        |
| Maximum Pressure.....                 | 3,500 psi (241 bar) |
| Max Operating Temperature.....        | 350°F (176 °C)      |
| Max Cycle Rate with Cycle Pin.....    | 60 cycles/minute    |
| Max Cycle Rate without Cycle Pin..... | 200 cycles/minute   |

Series Progressive

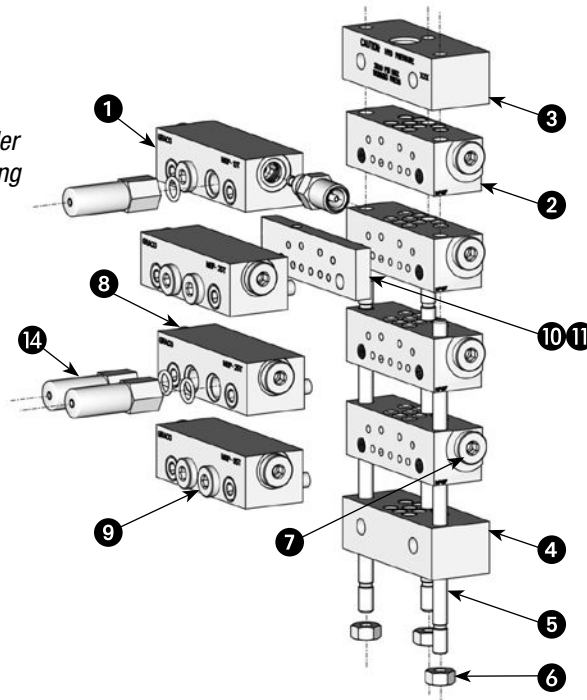


| Number of Valve Sections | Dimensions (for reference only) |                   |
|--------------------------|---------------------------------|-------------------|
|                          | A                               | B                 |
| 3                        | 3.6 in (91.4 mm)                | 4.6 in (116.8 mm) |
| 4                        | 4.5 in (114.3 mm)               | 5.0 in (127.0 mm) |
| 5                        | 5.4 in (137.2 mm)               | 6.4 in (162.6 mm) |
| 6                        | 6.3 in (160.0 mm)               | 7.4 in (188.0 mm) |
| 7                        | 7.3 in (185.4 mm)               | 8.3 in (210.8 mm) |
| 8                        | 8.2 in (208.3 mm)               | 9.2 in (233.7 mm) |

# Series Progressive

## Trabon® MSP Divider Valve

Easily configure the MSP Divider Valve system using the following item selection chart.



Note: Not shown in diagram – Bypass Block (562660), Cycle Indicators and Proximity Switches (refer to specific product pages), and Mounting Brackets (see page 66).

### Ordering Information

MSP Valve Working Sections (Must be ordered in multiples of 5)

| Item    | Outlet       | Description | Output Per Outlet, in <sup>3</sup> (cm <sup>3</sup> ) | Model Number     |                        |                       |
|---------|--------------|-------------|---|------------------|------------------------|-----------------------|
|         |              |             |   | Standard Section | With Cycle Pin – Right | With Cycle Pin – Left |
| 1       | Single       | MSP-5S      | 0.010 (0.16)  | 562711           | N/A                    |                       |
|         |              | MSP-10S     | 0.020 (0.33)  | 562712           |                        |                       |
|         |              | MSP-15S     | 0.030 (0.49)  | 562713           |                        |                       |
|         |              | MSP-20S     | 0.040 (0.66)  | 562714           | 562729                 | 562734                |
|         |              | MSP-25S     | 0.050 (0.82)  | 562715           | 562730                 | 562735                |
|         |              | MSP-30S     | 0.060 (0.98)  | 562716           | 562731                 | 562736                |
|         |              | MSP-35S     | 0.070 (1.15)  | 562717           | 562732                 | 562737                |
|         |              | MSP-40S     | 0.080 (1.31)  | 562718           | 562733                 | 562738                |
|         | Twin         | MSP-5T      | 0.005 (0.08)  | 562720           | N/A                    |                       |
|         |              | MSP-10T     | 0.010 (0.16)  | 562721           |                        |                       |
|         |              | MSP-15T     | 0.015 (0.26)  | 562722           |                        |                       |
|         |              | MSP-20T     | 0.020 (0.33)  | 562723           | 562739                 | 562744                |
|         |              | MSP-25T     | 0.025 (0.41)  | 562724           | 562740                 | 562745                |
|         |              | MSP-30T     | 0.030 (0.49)  | 562725           | 562741                 | 562746                |
| MSP-35T | 0.035 (0.57) | 562726      | 562742  | 562747           |                        |                       |
| MSP-40T | 0.040 (0.66) | 562727      | 562743  | 562748           |                        |                       |

### Pre-Configured MSP Base Plate Assemblies

Includes inlets, intermediate base plate sections, end section, tie rods, and nuts.

| Item      | Maximum Number of Outlets | Number of Valve Sections | Model Number |        | Dimensions (for reference only) |                   |
|-----------|---------------------------|--------------------------|--------------|--------|---------------------------------|-------------------|
|           |                           |                          | NPSF         | BSPP   | A                               | B                 |
| 2/3/4/5/6 | 6                         | 3                        | 24G485       | 24N915 | 3.6 in (91.4 mm)                | 4.6 in (116.8 mm) |
|           | 8                         | 4                        | 24G486       | 24N916 | 4.5 in (114.3 mm)               | 5.0 in (127.0 mm) |
|           | 10                        | 5                        | 24G487       | 24N917 | 5.4 in (137.2 mm)               | 6.4 in (162.6 mm) |
|           | 12                        | 6                        | 24G488       | 24N918 | 6.3 in (160.0 mm)               | 7.4 in (188.0 mm) |
|           | 14                        | 7                        | 24G489       | 24N919 | 7.3 in (185.4 mm)               | 8.3 in (210.8 mm) |
|           | 16                        | 8                        | 24G490       | 24N920 | 8.2 in (208.3 mm)               | 9.2 in (233.7 mm) |

# Series Progressive

## Trabon® MSP Divider Valve

### Ordering Information

| Build Your Own MSP Base Plate Assemblies |   |                                |              |        |        |   |
|--|---|--------------------------------|--------------|--------|--------|---|
| Item                                     | Component   | Description                    | Model Number |        |        | Note  |
|  |   |                                | NPSF         | BSPP   | SAE    |   |
| 2  | Intermediate base plate                                       | Single section                 | 563425       | 563447 | 563451 | Must be ordered in multiples of 5                 |
| 3  | Inlet options<br><i>Additional specialty inlets available</i> | Standard                       | 560919       | 560936 | 560943 |   |
|  |   | With bleed ports               | 563421       |        | 563422 |   |
| 4  | End section options   | Standard                       | 563424       |        |        |   |
|  |   | With alternate inlet port plug | 563279       |        |        |   |
| 5  | Tie rods (3 required)   | 3-section                      | 557731       |        |        | 3 tie rods and tie rod nuts required for assembly |
|  |   | 4-section                      | 557732       |        |        |   |
|  |   | 5-section                      | 557733       |        |        |   |
|  |   | 6-section                      | 557734       |        |        |   |
|  |   | 7-section                      | 557735       |        |        |   |
|  |   | 8-section                      | 557736       |        |        |   |
|  |   | 9-section                      | 557738       |        |        |   |
|  |   | 10-section                     | 557739       |        |        |   |
| 6  | Tie rod nuts (3 required)                                     | Tie rod nuts                   | 556371       |        |        |   |

| Pipe, Piston Enclosure, and Indicator Port Plugs |                                   |              |        |                      |   |
|--|-----------------------------------|--------------|--------|----------------------|---|
| Item   | Component                         | Model Number |        |                      | Note  |
|  |                                   | NPSF         | BSPP   | SAE                  |   |
| 7  | Outlet Port Plug                  | 557349 (NPT) | 558799 | 567251 (with o-ring) | 1 outlet port plug is required for each "S" valve section |
| 8  | Piston Enclosure Plug with o-ring | 567251       |        |                      |   |
| 9  | Indicator Port Plug with o-ring   | 16U217       |        |                      |   |

| Optional Components |   |   |              |  |
|---------------------|---|---|--------------|--|
| Item                | Component                               | Description   | Model Number | Note   |
| 10                  | Crossport Bar                           | Right   | 563469       | 1 outlet port plug is required for each crossport bar          |
|                     |   | Left  | 563470       |  |
|                     |   | Right and Left  | 563471       | 2 outlet port plugs are required for each double crossport bar |
| 11                  | Singling Bar                            | Converts a "T" valve to an "S" valve  | 563472       |  |
| 12                  | Bypass Block                            | MSP Bypass Section  | 562660       |  |
| 13                  | Cycle Indicators and Proximity Switches | Magnetic Visual Cycle Indicator   | 563251       |  |
|                     |   | SPDT Cycle Switch, provides electrical signal to controller or PLC                      | 563272       |  |
|                     |   | SPDT Cycle Switch, provides electrical signal to controller or PLC - Moisture Resistant | 563273       |  |
|                     |   | Proximity Switches  | See Page 93  |  |
| 14                  | Performance Indicators                  | Reset Indicator   | See Page 88  |  |
|                     |   | Automatic Relief Indicator  | See Page 89  |  |
|                     |   | Rupture to Atmosphere Indicator   | See Page 91  |  |
|                     |   | Pressure Switches   | See Page 95  |  |
|                     |   | Broken Line Indicator   | See Page 96  |  |
| 15                  | Mounting Brackets                       | Choose from universal, top, or side mounting  | See Page 72  |  |

# Series Progressive

## Trabon® MSP Modular Specialty Inlets

### Shunt Inlet (oil and fluid grease only)

A three-way valve, either electronic or pneumatic: allows lubricant to enter divider valve, bypasses it to another divider valve, or diverts it back to tank. Replace standard inlet or mount in-line with remote manifold kit.

**NEW** – Graco has updated the Shunt Valve power connection to a DIN Connector. Previous versions used a 3-Pin Brad Harrison Connector. We offer a conversion kit (25T585 – see below) that goes from the Brad Harrison Connector to a DIN Connector.

| Shunt Inlet Components    |  |  |                    |                    |
|---------------------------|--|--|--------------------|--------------------|
| Component                 | Description  | Part Number – NEW (Previous BH Connection) |                    |                    |
|                           |  | Connection Type                            |                    |                    |
|                           |  | NPT  | BSPP               | SAE                |
| Shunt Inlet Sections      | 115 VAC, DIN connection (NO)   | 25B534<br>(563452)                         | –                  | 25U054<br>(560953) |
|                           | 115 VAC, DIN connection (NC)   | 25B535<br>(563453)                         | –                  | 25U053<br>(563463) |
|                           | 24 VDC, DIN connection (NO)  | 25B515<br>(563454)                         | 25U041<br>(563493) | 25U052<br>(563482) |
|                           | 24 VDC, DIN connection (NC)  | 25B514<br>(563455)                         | 25U040<br>(563494) | 25U051<br>(563483) |
|                           | Pneumatic Shunt Inlet, 1/8 in NPSF air inlet   | 563456                                     | –                  | –                  |
| Connection Cable          | DIN Connector with 15 Foot Cable   | 16U790                                     |                    |                    |
|                           | Field Installable DIN Connector, no wire provided  | 132924                                     |                    |                    |
|                           | Adapter Cable (3-Pin Brad Harrison to DIN). To be used on retrofits. Does require some assembly. Manual is 3A8068. | 25T585                                     |                    |                    |
| Remote Mount Manifold Kit | Includes outlet manifold, o-ring and 2 mounting screws   | 563461                                     | –                  | –                  |
| Replacement Parts         | 115 VAC replacement solenoid valve*  | 20A339 (557213)                            |                    |                    |
|                           | 24 VDC replacement solenoid valve*   | 20A081 (557215)                            |                    |                    |
|                           | 115 VAC replacement coil (for 115 VAC BH Connectors only)  | 557214**                                   |                    |                    |

\*Note – the new Replacement Solenoid Valves will NOT work in the old-style Shunt Valves. If you need an old style Solenoid Valve you will have to order a new Shunt Valve.

\*\*Only works with parts 563452, 560953, 563453 and 563463.

### Zero-Leak Shut-Off Inlet (oil only)

A two-way valve that can be used with either continuous or intermittent pressurized harder systems. Replaces a standard inlet section or mounts in-line with a remote manifold kit.

**NEW** – Graco has updated the Zero-Leak Shut-Off Valve power connection to a DIN Connector. Previous versions used a 3-Pin Brad Harrison Connector. We offer a conversion kit (25T585 – see below) that goes from the Brad Harrison Connector to a DIN Connector.

| Zero-Leak Shut-Off Inlet Components    |  |                             |        |                    |
|--|--|-----------------------------|--------|--------------------|
| Component                              | Description  | Connection Type             |        |                    |
|  |  | NPSF                        | BSPP   | SAE                |
| Zero-Leak Shut-Off Inlet Valve Section | 115 VAC, DIN connection  | 20A900<br>(563460)          | N/A    | 20A901<br>(563468) |
|  | 24 VDC, DIN connection   | 20A903<br>(563464)          | 20A902 | 20A904<br>(563467) |
| Connection Cable                       | DIN Connector with 15 Foot Cable   | 16U790                      |        |                    |
|  | Field Installable DIN Connector, no wire provided  | 132924                      |        |                    |
|  | Adapter Cable (3-Pin Brad Harrison to DIN). To be used on retrofits. Does require some assembly. Manual is 3A8068. | 25T585                      |        |                    |
| Inlet Restrictor and Filter            | Inlet restrictor with 90 micron last chance filter   | 563074                      | N/A    |                    |
| Remote Mount Manifold Kit              | Includes outlet manifold, o-ring and 2 mounting screws   | 563461                      | N/A    |                    |
| Replacement Parts                      | 115 VAC replacement solenoid valve*  | 20A586 (557226 – coil only) |        |                    |
|  | 24 VDC replacement solenoid valve*   | 20A585 (557225 – coil only) |        |                    |
|  | Zero leak valve repair kit   | 563933**                    |        |                    |

\*Note – the new Replacement Solenoid Valves will NOT work in the old-style Zero-Leak Shut-Off Valves. If you need an old-style Solenoid Valve or Coil you will have to order a new Zero-Leak Shut-Off Valve.

\*\*Only works with parts 563460, 563464, 563468 and 563467.

# Series Progressive

## Trabon® MSP Mounting Accessories and Spare Parts

### Ordering Information

| Mounting Accessories |                                |                          |                    |                 |                 |                 |                 |
|----------------------|--------------------------------|--------------------------|--------------------|-----------------|-----------------|-----------------|-----------------|
| Model Number         | Description                    | Number of Valve Sections | Dimensions in (mm) |                 |                 |                 |                 |
|                      |                                |                          | A                  | B               | C               | D               | E               |
| 560920               | Mounting Bar (Fig. 1)          |                          | 4 (101.6)          | 1-3/4 (44.5)    | 1 (25.4)        | —               | —               |
| 563465               | Weld Bar Kit*                  |                          | 4 (101.6)          | 1-3/4 (44.5)    | 1 (25.4)        | —               | —               |
| 563435               | Top Mounting Bracket (Fig. 2)  | 3 - 4                    | 3-37/64 (90.9)     | 4-1/2 (114.3)   | 5-21/32 (143.7) | —               | —               |
| 563436               | Top Mounting Bracket (Fig. 2)  | 5 - 6                    | 5-27/64 (137.7)    | 6-11/32 (161.1) | 7-1/2 (190.5)   | —               | —               |
| 563437               | Top Mounting Bracket (Fig. 2)  | 7 - 8                    | 7-17/64 (184.5)    | 8-3/16 (208.0)  | 9-11/32 (237.3) | —               | —               |
| 563438               | Side Mounting Bracket (Fig. 3) | 3 - 4                    | 3-37/64 (90.9)     | 4-1/4 (114.3)   | 6-5/8 (168.3)   | 3-7/8 (187.3)   | 5-5/8 (142.9)   |
| 563439               | Side Mounting Bracket (Fig. 3) | 5 - 6                    | 5-27/64 (137.7)    | 6-11/32 (161.1) | 8-15/32 (215.5) | 9-7/32 (234.2)  | 7-15/32 (198.7) |
| 563440               | Side Mounting Bracket (Fig. 3) | 7 - 8                    | 7-17/64 (184.5)    | 8-3/16 (208.0)  | 10-5/8 (262.0)  | 11-1/16 (281.0) | 9-5/16 (236.5)  |

\*Kit 563465 includes two mounting bars (560920), screws, washers, and lock washers.

### Spare Parts

| Model Number | Description  |
|--------------|--|
| 17J423       | MSP weld stud template   |
| 563929       | MSP cycle pin indicator repair kit, o-ring                         |
| 563928       | MSP cycle pin indicator repair kit, gasket                         |
| 556540       | MSP o-ring (BUNA-N), black   |
| 557721       | MSP (70 Duro) Viton o-ring, brown                                  |
| 122276       | MSP standard high pressure o-ring (90 DURO Fluoroelastomer), black |
| 556568       | Piston enclosure o-ring (BUNA-N), black                            |
| 556570       | Piston enclosure o-ring (90 DURO Fluoroelastomer), black           |
| 556513       | Valve block mounting screws  |
| 556514       | Valve block mounting screw for crossport/singling plate            |
| 556327       | Outlet check ball  |
| 557737       | Outlet check spring  |

Fig. 1  
Mounting Bar

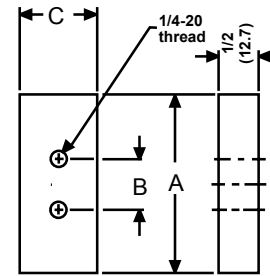


Fig. 2  
Top Mount Bracket

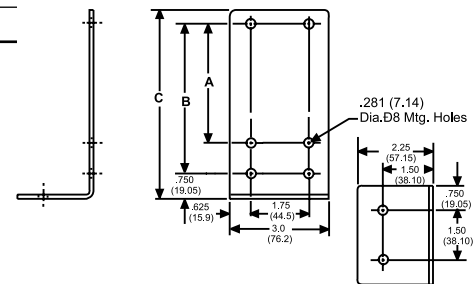
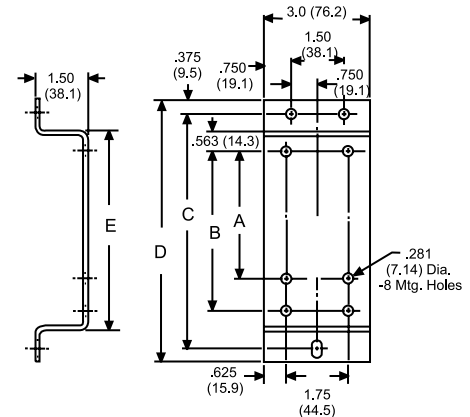


Fig. 3  
Side Mount Bracket





# Series Progressive

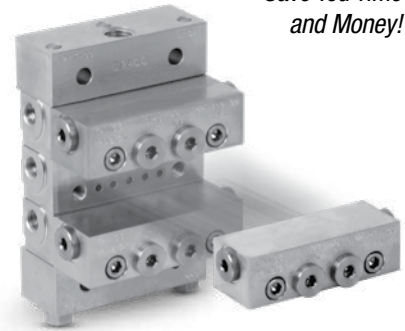
## Trabon® MSP Stainless Steel Divider Valves

### Features and Benefits

Trabon® MSP Series sets the industry standard for quality, reliability, and ease of use features. It was the original modular-style series progressive divider valve – and is still the best! Now get the same reliable valve in stainless steel.

- Face of valves can be fitted with optional performance indicators, taking the guesswork out of troubleshooting
- Can be easily accessorized with electronic proximity switches to provide positive assurance of a successful lube event
- Outlet checks ensure accurate lube delivery, every time
- Quick change valve sections can be removed from the base assembly without disturbing any lube lines—minimizing labor cost and maximizing your machine uptime
- Manufactured in our factory for quality and reliability. Each assembly is honed and match fitted for precise lube delivery every time

*Pre-Assembled and  
Tested Base Plates  
Save You Time  
and Money!*



### Typical Applications

- Machine tools, textile, glass and can machinery, and mobile equipment

### Typical Fluids Handled

- Oil or Grease up to NLGI #2

### Technical Specifications

|                                |                     |
|--------------------------------|---------------------|
| Material.....                  | Stainless Steel     |
| Maximum Pressure.....          | 3,500 psi (241 bar) |
| Max Operating Temperature..... | 140°F (60 °C)       |
| Max Cycle Rate.....            | 200 cycles/min      |

### Ordering Information

| MSP Stainless Steel Working Sections (Must be ordered in multiples of five) |             |  |                                  |
|---|-------------|--|----------------------------------|
| Outlet  | Description | Output Per Outlet,<br>in <sup>3</sup> (cm <sup>3</sup> ) | Standard Section<br>Model Number |
| Single  | MSP-5S-SS   | 0.010 (0.16)   | 24B474                           |
|   | MSP-10S-SS  | 0.020 (0.33)   | 562755                           |
|   | MSP-15S-SS  | 0.030 (0.49)   | 24B475                           |
|   | MSP-20S-SS  | 0.040 (0.66)   | 562756                           |
|   | MSP-25S-SS  | 0.050 (0.82)   | 24B476                           |
|   | MSP-30S-SS  | 0.060 (0.98)   | 24B477                           |
|   | MSP-35S-SS  | 0.070 (1.15)   | 24B478                           |
|   | MSP-40S-SS  | 0.080 (1.31)   | 562757                           |
| Twin  | MSP-5T-SS   | 0.005 (0.08)   | 24B479                           |
|   | MSP-10T-SS  | 0.010 (0.16)   | 562758                           |
|   | MSP-15T-SS  | 0.015 (0.26)   | 24B480                           |
|   | MSP-20T-SS  | 0.020 (0.33)   | 562759                           |
|   | MSP-25T-SS  | 0.025 (0.41)   | 24B481                           |
|   | MSP-30T-SS  | 0.030 (0.49)   | 24B482                           |
|   | MSP-35T-SS  | 0.035 (0.57)   | 24B483                           |
|   | MSP-40T-SS  | 0.040 (0.66)   | 562760                           |

# Series Progressive

## Trabon® MSP Stainless Steel Divider Valves

### Ordering Information

#### Pre-Configured MSP Stainless Base Plate Assemblies

Includes inlets, intermediate base plate sections, end section, tie rods, and nuts.

| Maximum Number of Outlets | Number of Valve Sections | Model Number |        |
|---------------------------|--------------------------|--------------|--------|
|                           |                          | NPSF         | BSPP   |
| 6                         | 3                        | 24N382       | 24N388 |
| 8                         | 4                        | 24N383       | 24N389 |
| 10                        | 5                        | 24N384       | 24N390 |
| 12                        | 6                        | 24N385       | 24N391 |
| 14                        | 7                        | 24N386       | 24N392 |
| 16                        | 8                        | 24N387       | 24N393 |

#### Build Your Own MSP Stainless Base Plate Assemblies

| Component                      | Description          | Model Number |        |
|--------------------------------|----------------------|--------------|--------|
|                                |                      | NPTF         | BSPP   |
| Intermediate base plate – SS*  | Single section       | 24B497       | 24N369 |
| Inlet - SS*                    | Standard inlet       | 15Y070       | 16P368 |
| End section – SS*              | Standard end section | 24B498       |        |
| Tie rods – SS<br>(3 required)  | 3-section**          | 126247       |        |
|                                | 4-section**          | 126248       |        |
|                                | 5-section**          | 126249       |        |
|                                | 6-section**          | 126250       |        |
|                                | 7-section**          | 126251       |        |
|                                | 8-section**          | 126252       |        |
|                                | 9-section**          | 15Y069       |        |
| 10-section**                   | 560956               |              |        |
| Tie rod nuts – SS (3 required) | Tie rod nuts         | 558633       |        |

\*Must be ordered in multiples of five. \*\*Three tie rods and tie rod nuts required for assembly.

#### Additional Components

|        |  |
|--------|--|
| 24B495 | 1000 psi reset indicator w/memory, o-ring seal |
| 24B496 | 1500 psi reset indicator w/memory, o-ring seal |
| 24N373 | 2000 psi reset indicator w/memory, o-ring seal |
| 560974 | 303 SS MSP indicator port plug                 |
| 560973 | 303 SS piston bore plug                        |
| 555457 | SS base closure plug accessory                 |
| 24N945 | Valve, relief, 1/8 NPT, 750 psi SST            |
| 24N948 | Valve, relief, 1/8 NPT, 1,500 psi SST          |
| 24N949 | Valve, relief, 1/8 NPT, 2,000 psi SST          |
| 24N951 | Valve, relief, 1/8 NPT, 2,500 psi SST          |
| 24N952 | Valve, relief, 1/8 NPT, 3,000 psi SST          |
| 24R631 | Crossport bar, both                            |
| 24R632 | Crossport bar, right                           |
| 24R633 | Crossport bar left                             |

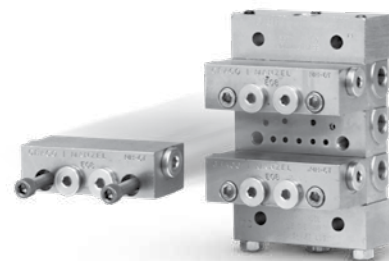
# Series Progressive

## Manzel® MHH Divider Valves

### Features and Benefits

Same capable design as the Trabon MSP Series, with even tighter and more exacting tolerances. The Manzel MHH Series delivers highly accurate lube delivery for demanding high-pressure grease and oil applications.

- Quick change valve sections can be removed from the base assembly without disturbing any lube lines—minimizing labor cost and maximizing your machine uptime
- Can be easily accessorized with magnetic and electronic proximity switch cycle indicators to provide positive assurance of a successful lube event
- Alternate outlet on face of valves can be fitted with optional performance indicators, taking the guesswork out of troubleshooting
- Built-in outlet check valves ensure accurate lube delivery every time



*Pre-Assembled and  
Tested Base Plates  
Now Available!*

### Typical Applications

- Compressors, industrial equipment, and where high-pressure lubrication is required

### Typical Fluids Handled

- Oil

### Technical Specifications

Material .....Plated Steel  
 Maximum Pressure ..... 7,500 psi (517 bar)  
 Maximum Operating Temperature ..... 350°F (176°C)  
 Maximum Cycle Rate ..... 200 cycles/min

|       | Output Twin Outlet, in <sup>3</sup> (cm <sup>3</sup> ) | Output Single Outlet, in <sup>3</sup> (cm <sup>3</sup> ) |
|-------|--|--|
| MHH6  | 0.006 (0.098)  | 0.012 (0.197)  |
| MHH9  | 0.009 (0.149)  | 0.018 (0.295)  |
| MHH12 | 0.012 (0.197)  | 0.024 (0.393)  |
| MHH15 | 0.015 (.246)   | 0.030 (.492)   |
| MHH18 | 0.018 (0.295)  | 0.036 (0.590)  |
| MHH21 | 0.021 (.0344)  | 0.042 (0.688)  |
| MHH24 | 0.024 (0.393)  | 0.048 (0.787)  |
| MHH30 | 0.030 (0.492)  | 0.060 (0.983)  |

### Ordering Information

| MHH Working Sections (Must be ordered in multiples of five) |         |        |         |
|---|---------|--------|---------|
| 562679  | MHH-6S  | 562685 | MHH-6T  |
| 562680  | MHH-9S  | 562686 | MHH-9T  |
| 562681  | MHH-12S | 562687 | MHH-12T |
| 24X029  | MHH-15S | 24X027 | MHH-15T |
| 562682  | MHH-18S | 562688 | MHH-18T |
| 24X030  | MHH-21S | 24X028 | MHH-21T |
| 562683  | MHH-24S | 562689 | MHH-24T |
| 562684  | MHH-30S | 562690 | MHH-30T |

# Series Progressive

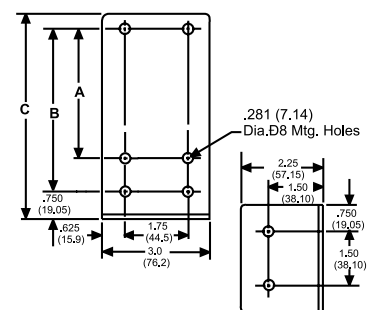
## Manzel® MHH Divider Valves

### Ordering Information

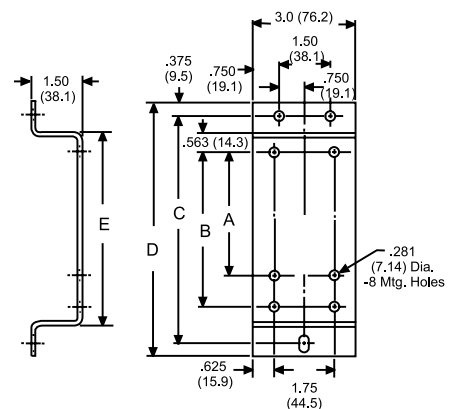
| MHH Base Plate Assemblies - Inlet, Intermediates, Ends and Tie Rods       |  |
|---|--|
| 24F596  | MHH – 3 section, NPSF  |
| 24F597  | MHH – 4 section, NPSF  |
| 24F598  | MHH – 5 section, NPSF  |
| 24F599  | MHH - 6 section, NPSF  |
| 24F600  | MHH - 7 section, NPSF  |
| 24F601  | MHH – 8 section, NPSF  |
| MHH Inlets, Intermediates and Ends (must be ordered in multiples of five) |  |
| 560919  | Inlet, 1/4-18 NPSF (NPT)   |
| 560936  | Inlet, 1/4-19 BSPP   |
| 560943  | Inlet, 7/16-20 UNF-28 (SAE)  |
| 563421  | Inlet, NPSF, bleed ports   |
| 563422  | Inlet, SAE, bleed ports  |
| 563424  | End, NPSF  |
| 563425  | Intermediate, 1/8-27 NPSF  |
| MHH Tie Rods and Nut  |  |
| 557731  | 3-section tie rod  |
| 557732  | 4-section tie rod  |
| 557733  | 5-section tie rod  |
| 557734  | 6-section tie rod  |
| 557735  | 7-section tie rod  |
| 557736  | 8-section tie rod  |
| 556371  | Tie rod nut  |
| Accessories   |  |
| 563469  | Crossport bar, right   |
| 563470  | Crossport bar, left  |
| 563471  | Crossport bar, right and left  |
| 563472  | Singling bar   |
| 563465  | Weld bar kit   |
| 563251  | No weep cycle indicator  |
| 556540  | Standard o-ring (BUNA-N), black  |
| 122276  | High pressure o-ring (90 DURO Fluoroelastomer), black  |
| 556371  | Tie rod nut (3 required per assembly)  |
| 16U217  | Indicator port plug with o-ring  |
| 558799  | BSPP (ISO1170) plug  |
| 567251  | SAE plug with o-ring   |
| 557349  | NPT plug   |
| 563928  | Cycle pin indicator repair kit, gasket   |
| 563929  | Cycle pin indicator repair kit, o-ring   |
| Mounting  |  |
| 560920  | Mounting bar, 4 in (101.6 mm) x 1-3/4 in (44.5 mm) (B) 1 in (25.4 mm) with 1/4 in (6.4 mm)-20 thread   |
| 563435  | Top-mount bracket, (A) 3-37/64 in (90.9 mm) (B) 4-1/2 in (114.3 mm) (C) 5-21/32 in (143.7 mm)  |
| 563436  | Top-mount bracket, (A) 5-27/64 in (137.7 mm) (B) 6-11/32 in (161.1 mm) (C) 7-1/2 in (190.5 mm)   |
| 563437  | Top-mount bracket, (A) 7-17/64 in (184.5 mm) (B) 8-3/16 in (208.0 mm) (C) 9-11.32 in (237.3 mm)  |
| 563438  | Side-mount bracket, (A) 3-37/64 in (90.9 mm) (B) 4-1/4 in (114.3 mm) (C) 6-5/8 in (168.3 mm) (D) 3-7/8 in (187.3 mm) (E) 5-5/8 in (142.9 mm)         |
| 563439  | Side-mount bracket, (A) 5-27/64 in (137.7 mm) (B) 6-11/32 in (161.1 mm) (C) 8-15.32 in (215.5 mm) (D) 9-7/32 in (234.2 mm) (E) 7-15/32 in (198.7 mm) |
| 563440  | Side-mount bracket, (A) 7-17/64 in (184.5 mm) (B) 8-3/16 in (208.0 mm) (C) 10-5/8 in (262.0 mm) (D) 11-1/16 in (281.0 mm) (E) 9-5/16 in (236.5 mm)   |

Series Progressive

Top Mount Hole Configuration



Side Mount Hole Configuration



# Series Progressive

## Trabon® MX Divider Valve

### Features and Benefits

Greater output volumes for heavy service requirements make the Trabon MX Series ideal for steel and paper mill systems with its economical and compact design.

- Durable design withstands harsh environments and operating conditions
- Built-in outlet check valves ensure accurate lube delivery every time
- Can be easily accessorized with magnetic and electronic proximity switch cycle indicators to provide positive assurance of a successful lube event
- Alternate outlet on face of valves can be fitted with optional performance indicators, taking the guesswork out of troubleshooting

### Typical Applications

- Pulp and paper, steel mills, heavy- and high-volume industrial applications

### Typical Fluids Handled

- Oil or Grease up to NLGI #2

### Technical Specifications

Material.....Plated Steel  
 Maximum Pressure ..... 3,000 psi (207 bar)  
 Maximum Operating Temperature.....200°F (93°C)  
 Maximum Cycle Rate with Cycle Pin..... 60 cycles/min



Series Progressive

|               | Output Twin Outlet, in <sup>3</sup> (cm <sup>3</sup> ) | Output Single Outlet, in <sup>3</sup> (cm <sup>3</sup> ) | Cycle Indication                                       |
|---------------|--|--|--|
| <b>MX-25</b>  | 0.025 (0.41)   | 0.050 (0.82)   | Electronic proximity switch                            |
| <b>MX-50</b>  | 0.050 (0.82)   | 0.100 (1.64)   | Electronic proximity switch,<br>cycle indicator switch |
| <b>MX-75</b>  | 0.075 (1.23)   | 0.150 (2.46)   |  |
| <b>MX-100</b> | 0.100 (1.64)   | 0.200 (3.28)   |  |
| <b>MX-125</b> | 0.125 (2.05)   | 0.250 (4.10)   |  |
| <b>MX-150</b> | 0.150 (2.46)   | 0.300 (4.92)   |  |

### Ordering Information

| MX Working Sections |         |
|---------------------|---------|
| 562514              | MX-25S  |
| 562515              | MX-25T  |
| 562516              | MX-50S  |
| 562517              | MX-50T  |
| 562538              | MX-75S  |
| 562539              | MX-75T  |
| 562540              | MX-100S |
| 562541              | MX-100T |
| 562542              | MX-125S |
| 562543              | MX-125T |
| 562545              | MX-150S |
| 562546              | MX-150T |

# Series Progressive

## Trabon® MX Divider Valve

### Ordering Information

| MX w/Cycle Pin (Must be ordered in multiples of two) |  |
|--|--|
| 562523   | MX-50T, with cycle pin indicator, right          |
| 562518   | MX-50S, with cycle pin indicator, right          |
| 562524   | MX-75T, with cycle pin indicator, right          |
| 562519   | MX-75S, with cycle pin indicator, right          |
| 562525   | MX-100T, with cycle pin indicator, right         |
| 562520   | MX-100S, with cycle pin indicator, right         |
| 562526   | MX-125T, with cycle pin indicator, right         |
| 562521   | MX-125S, with cycle pin indicator, right         |
| 562527   | MX-150T, with cycle pin indicator, right         |
| 562522   | MX-150S, with cycle pin indicator, right         |
| 562533   | MX-50T, with cycle pin indicator, left           |
| 562528   | MX-50S, with cycle pin indicator, left           |
| 562534   | MX-75T, with cycle pin indicator, left           |
| 562529   | MX-75S, with cycle pin indicator, left           |
| 562569   | MX-100T, with cycle pin indicator, left          |
| 562530   | MX-100S, with cycle pin indicator, left          |
| 562535   | MX-125T, with cycle pin indicator, left          |
| 562531   | MX-125S, with cycle pin indicator, left          |
| 562536   | MX-150T, with cycle pin indicator, left          |
| 562532   | MX-150S, with cycle pin indicator, left          |
| MX Tie Rods and Nut                                  |  |
| 557488   | 3-section tie rod                                |
| 557489   | 4-section tie rod                                |
| 557490   | 5-section tie rod                                |
| 557491   | 6-section tie rod                                |
| 557492   | 7-section tie rod                                |
| 557493   | 8-section tie rod                                |
| 560576   | 9-section tie rod                                |
| 560577   | 10-section tie rod                               |
| 557494   | Tie rod nut                                      |
| MX Inlet and End Sections                            |  |
| 560620   | MX inlet   |
| 563287   | MX end   |
| Accessories  |  |
| 562916   | Singling bar                                     |
| 562917   | MX crossport bar, RH or LH                       |
| 561102   | MX mounting bar                                  |
| 557509   | MX intermediate gasket (1 required per section)  |
| 557494   | MX tie rod nut (8 required per assembly)         |
| 557323   | MX enclosure plug seal, gasket                   |
| 563917   | MX cycle indicator pin repair kit, current style |
| Plugs for MXP Base Section Outlet Ports              |  |
| 557391   | NPT plug 1/4-18                                  |
| 556430   | SAE plug 9/16-18 with O-ring                     |
| 556427   | BSPP (ISO 1179) plug 1/4-19 with O-ring          |

# Series Progressive

## Trabon® MXP Divider Valves

### Features and Benefits

The Trabon MXP Series' greater output volume makes it easy to customize your assembly to meet larger machine requirements.

- Quick change valve sections can be removed from the base assembly without disturbing any lube lines—minimizing labor cost and maximizing your machine uptime
- Can be easily accessorized with magnetic and electronic proximity switch cycle indicators to provide positive assurance of a successful lube event
- Alternate outlet on face of valves can be fitted with optional performance indicators, taking the guesswork out of troubleshooting
- Built-in outlet check valves ensure accurate lube delivery every time

### Typical Applications

- Pulp and paper, steel mills, heavy- and high-volume industrial applications

### Typical Fluids Handled

- Oil or Grease up to NLGI #2

### Technical Specifications

Material.....Plated Steel  
 Maximum Pressure ..... 3,000 psi (207 bar)  
 Maximum Operating Temperature.....350°F (176°C)  
 Maximum Cycle Rate with Cycle Pin..... 60 cycles/min  
 Maximum Cycle Rate without Cycle Pin ..... 110-200 cycles/min (see chart below)

#### MXP Maximum Cycle Rates without Cycle Pin (cycles/min)

|                             |         | Number of Sections |     |     |     |     |     |     |     |
|-----------------------------|---------|--------------------|-----|-----|-----|-----|-----|-----|-----|
|                             |         | 3                  | 4   | 5   | 6   | 7   | 8   | 9   | 10  |
| Smallest Piston in Assembly | MXP-150 | 200                | 200 | 200 | 200 | 200 | 200 | 180 | 165 |
|                             | MXP-125 | 200                | 200 | 200 | 200 | 200 | 195 | 175 | 155 |
|                             | MXP-100 | 200                | 200 | 200 | 200 | 200 | 185 | 165 | 150 |
|                             | MXP-75  | 200                | 200 | 200 | 200 | 200 | 175 | 155 | 140 |
|                             | MXP-50  | 200                | 200 | 200 | 200 | 195 | 165 | 145 | 130 |
|                             | MXP-25  | 200                | 200 | 200 | 200 | 165 | 140 | 125 | 120 |

|         | Output Twin Outlet, in <sup>3</sup> (cm <sup>3</sup> ) | Output Single Outlet, in <sup>3</sup> (cm <sup>3</sup> ) | Cycle Indication                                       |
|---------|--|--|--|
| MXP-25  | 0.025 (0.41)   | 0.050 (0.82)   | Electronic proximity switch                            |
| MXP-50  | 0.050 (0.82)   | 0.100 (1.64)   | Electronic proximity switch,<br>cycle indicator switch |
| MXP-75  | 0.075 (1.23)   | 0.150 (2.46)   |  |
| MXP-100 | 0.100 (1.64)   | 0.200 (3.28)   |  |
| MXP-125 | 0.125 (2.05)   | 0.250 (4.10)   |  |
| MXP-150 | 0.150 (2.46)   | 0.300 (4.92)   |  |



# Series Progressive

## Trabon® MXP Divider Valves

### Ordering Information

| <b>MXP Working Sections</b> (Must be ordered in multiples of two)                          |   |
|--|---|
| 562813   | MXP-25T   |
| 562819   | MXP-25S   |
| 562814   | MXP-50T   |
| 562820   | MXP-50S   |
| 562815   | MXP-75T   |
| 562821   | MXP-75S   |
| 562816   | MXP-100T  |
| 562822   | MXP-100S  |
| 562817   | MXP-125T  |
| 562823   | MXP-125S  |
| 562818   | MXP-150T  |
| 562824   | MXP-150S  |
| 562835   | MXP bypass  |
| <b>MXP with Cycle Pin – Right</b> (Must be ordered in multiples of two)                    |   |
| 562830   | MXP-50S   |
| 562831   | MXP-75S   |
| 562832   | MXP-100S  |
| 562833   | MXP-125S  |
| 562834   | MXP-150S  |
| 562825   | MXP-50T   |
| 562826   | MXP-75T   |
| 562827   | MXP-100T  |
| 562828   | MXP-125T  |
| 562829   | MXP-150T  |
| <b>MXP Inlet, Intermediate Base and End Sections</b> (Must be ordered in multiples of two) |   |
| 15R994   | Inlet, 3/4-16 SAE o-ring ports  |
| 15R993   | Inlet, 3/8-18 NPSF  |
| 561029   | Inlet, 3/8-19 BSPP (ISO 1179)   |
| 563519   | Intermediate base, 1/4-18 NPSF  |
| 563521   | Intermediate base, 9/16-18 SAE o-ring                                 |
| 563522   | Intermediate base, 1/4-19 BSPP (ISO 1179)                             |
| 563527   | “MXPO” Intermediate base without outlet check, 1/4-18 NPSF            |
| 24Z675   | “MXPO” Intermediate base without outlet check, 1/4-19 BSPP (ISO 1179) |
| 563518   | End section   |
| <b>MXP Tie Rods and Nut</b> (Three required per assembly)                                  |   |
| 557766   | 3-section tie rod   |
| 557767   | 4-section tie rod   |
| 557768   | 5-section tie rod   |
| 557769   | 6-section tie rod   |
| 557770   | 7-section tie rod   |
| 557771   | 8-section tie rod   |
| 557772   | 9-section tie rod   |
| 563520   | 10-section tie rod  |
| 555406   | Tie rod nut   |
| <b>MXP Accessories</b>   |   |
| 563524   | Crossport, left   |
| 563525   | Crossport, right  |
| 563526   | Crossport, left and right   |
| 115010   | MXP standard valve section seal, o-ring (90 DURO Fluoroelastomer)     |
| 555406   | MXP tie rod nut (3 required per assembly)                             |
| 563917   | MXP cycle pin indicator repair kit, new style                         |
| 557774   | MXP enclosure plug  |
| 556572   | Enclosure plug o-ring   |
| 16U217   | MXP indicator port plug with o-ring                                   |
| 561102   | Mounting bar  |



# Series Progressive

## Trabon® MGO Divider Valves

### Features and Benefits

The Trabon MGO Series offers the largest output available in a series progressive system. Ideal for heavy-duty and large bearing applications with wide temperature variations and high volume requirements. Can be easily accessorized with magnetic and electronic proximity switch cycle indicators to provide positive assurance of a successful lube event.

- Alternate outlet on face of valves can be fitted with optional performance indicators, taking the guesswork out of troubleshooting
- Robust design is virtually indestructible and built to perform in extreme environments

### Typical Applications

- Pulp and paper, steel mills, heavy- and high-volume industrial applications

### Typical Fluids Handled

- Oil or Grease up to NLGI #2

### Technical Specifications

Material.....Plated Steel  
 Maximum Pressure ..... 6,000 psi (413 bar)  
 Maximum Operating Temperature..... 350°F (176°C)  
 Maximum Cycle Rate with Cycle Pin..... 60 cycles/min  
 Maximum Cycle Rate without Cycle Pin ..... 110-200 cycles/min (see chart below)

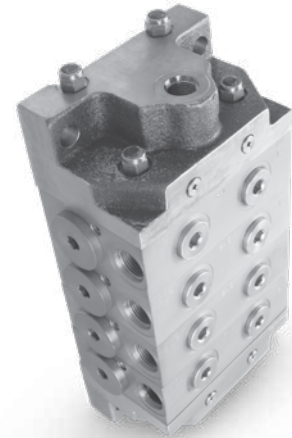
#### MGO Maximum Cycle Rates without Cycle Pin (cycles/min)

|                                |         | Number of Sections |     |     |    |    |    |    |    |    |
|--------------------------------|---------|--------------------|-----|-----|----|----|----|----|----|----|
|                                |         | 3                  | 4   | 5   | 6  | 7  | 8  | 9  | 10 | 11 |
| Smallest Piston<br>in Assembly | MGO-600 | 185                | 140 | 110 | 90 | 80 | 70 | 60 | 55 | 50 |
|                                | MGO-450 | 185                | 135 | 110 | 90 | 75 | 65 | 60 | 50 | 50 |
|                                | MGO-300 | 180                | 130 | 100 | 80 | 70 | 60 | 55 | 50 | 45 |
|                                | MGO-150 | 180                | 125 | 100 | 80 | 65 | 55 | 50 | 45 | 40 |

|         | Output Twin Outlet, in <sup>3</sup> (cm <sup>3</sup> ) | Output Single Outlet, in <sup>3</sup> (cm <sup>3</sup> ) | Cycle Indication                                       |
|---------|--|--|--|
| MGO-150 | 0.150 (2.46)   | 0.300 (4.92)   | Electronic proximity switch,<br>cycle indicator switch |
| MGO-300 | 0.300 (4.92)   | 0.600 (9.83)   |  |
| MGO-450 | 0.450 (7.37)   | 0.900 (14.7)   |  |
| MGO-600 | 0.600 (9.83)   | 1.200 (19.7)   |  |

### Ordering Information

| MGO Working Sections |          |
|----------------------|----------|
| 562570               | MGO-150S |
| 562571               | MGO-300S |
| 562572               | MGO-450S |
| 562573               | MGO-600S |
| 562574               | MGO-150T |
| 562575               | MGO-300T |
| 562576               | MGO-450T |
| 562577               | MGO-600T |



# Series Progressive

## Trabon® MGO Divider Valves

### Ordering Information

| MGO with Cycle Pin – Right  |                                      |
|---|--------------------------------------|
| 562578  | MGO-150S                             |
| 562579  | MGO-300S                             |
| 562580  | MGO-450S                             |
| 562581  | MGO-600S                             |
| 562582  | MGO-150T                             |
| 562583  | MGO-300T                             |
| 562584  | MGO-450T                             |
| 562585  | MGO-600T                             |
| MGO Inlet and End   |                                      |
| 563277  | MGO inlet                            |
| 563278  | MGO end                              |
| MGO Spare Parts   |                                      |
| 556424  | Singled ported sections port plug    |
| 563926  | 1-section o-ring kit                 |
| MGO Tie Rods and Nut (Two (2) short tie rods and two (2) long tie rods required per assembly) |                                      |
| 560591  | 3-section tie rod – short            |
| 560592  | 4-section tie rod – short            |
| 560593  | 5-section tie rod – short            |
| 560594  | 6-section tie rod – short            |
| 560595  | 7-section tie rod – short            |
| 560596  | 8-section tie rod – short            |
| 560597  | 9-section tie rod – short            |
| 560598  | 10-section tie rod – short           |
| 560600  | 3-section tie rod – long             |
| 560601  | 4-section tie rod – long             |
| 560602  | 5-section tie rod – long             |
| 560603  | 6-section tie rod – long             |
| 15U857  | 7-section tie rod – long             |
| 560604  | 8-section tie rod – long             |
| 560605  | 9-section tie rod – long             |
| 560606  | 10-section tie rod – long            |
| 557494  | Tie rod nut (2 required per tie rod) |

Series Progressive

# Air Oil

## Air Oil Series Valves

### Features and Benefits

A Graco exclusive design! The Air Oil solution that detects air line or oil line faults in your system. Series progressive monitoring ensures your critical bearings are lubricated properly.

- Convenient manifold design mounts directly to the face of standard Graco series progressive divider valve assembly
- Check valve design prevents oil from being forced into the air system if lube lines get crushed or bearings get blocked
- Air combines with the oil after the fluid outlet check, preventing air from backing up into your source oil system
- Complete kits include manifold, air sensor, and check valves for easy installation

### Typical Applications

- Steel mills, pulp and paper processing, high temperature and dirty environments

### Typical Fluids Handled

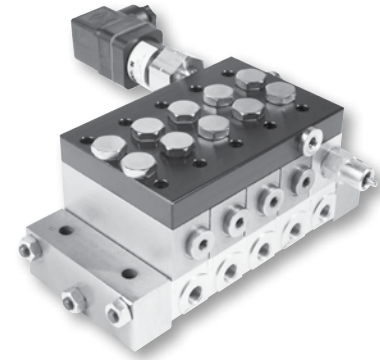
- Oil

### Technical Specifications

Material..... Aluminum  
 Minimum Air Pressure..... 45 psi (3.1 bar)  
 Maximum Air Pressure ..... 250 psi (17 bar)  
 Output..... 3, 4, 5 or 6 Section Divider Valve Assemblies

### Ordering Information

| A0 Series Divider Valves |   |
|--------------------------|---|
| 24B237                   | Air/oil manifold assembly, 3-section                    |
| 24B239                   | Air/oil manifold assembly, 4-section                    |
| 24B240                   | Air/oil manifold assembly, 5-section                    |
| 24B241                   | Air/oil manifold assembly, 6-section                    |
| 24J814                   | Air/oil manifold assembly, 3-section without air sensor |
| 24J815                   | Air/oil manifold assembly, 4-section without air sensor |
| 24J816                   | Air/oil manifold assembly, 5-section without air sensor |
| 24J817                   | Air/oil manifold assembly, 6-section without air sensor |



24B240

*Shown installed on MSP divider valve assembly*

# Air Oil

## High Speed Spindl-Gard® Systems

### Features and Benefits

The High-Speed Spindl-Gard® System is a highly efficient, cost-effective method for lubricating spindle bearings, using air/oil technology. Components include an electric motor driven pump, with 3 liter (0.8 gallon) plastic reservoir, air/oil dispensing module, and an optional programmable timer/controller (AC models only).

- Advanced air/oil concept provides highly effective lubrication, reduces oil consumption, lowers operating temperature and protects spindle bearings from coolant ingress and minimizes thermal distortion resulting in improved production accuracy
- Thin oil film dramatically reduces viscous shear and hydrodynamic drag on the bearing, resulting in reduced friction and lower energy consumption
- Airflow adjustment for each bearing point provides better control
- Oil output selectable for each bearing point helps to customize the system
- Eliminates the clean up and environmental problems that result from mist systems



### Typical Applications

- Spindle Bearings

### Typical Fluids Handled

- Oils up to ISO 460 (2,500 SUS)

### Technical Specifications

|  |   |
|--|---|
| Pump Output .....  | 8.5 in <sup>3</sup> /min (140 cm <sup>3</sup> /min)   |
| Motor Power .....  | 1/8 HP  |
| Motor Voltage and Current Consumption .....  | 115 ± 10% VAC, 50/60 Hz, 1 phase, 3.8 A in-rush, 1.8 A running,<br>230 ± 10% VAC, 50/60 Hz, 1 phase, 1.9A in-rush, 0.94A running, 24VDC, 60 w |
| Pressure Relief Setting .....  | 350 psi (34 bar)  |
| Output Block Regulator .....   | 30 to 60 psi (2.07 to 4.14 bar)   |
| Output Block Regulator .....   | 30 to 60 psi (2.07 to 4.14 bar)   |
| Seals .....  | Buna-N O-Rings  |
| Plastic Reservoir .....  | 0.8 gal (3 liters)  |
| Low-Level .....  | N.C. (held open), 115/230 VAC, 10 watt  |
| Controls Options Remote (External Control or Customer PLC) .....   | 115/230 VAC, 1 ph, 50/60 Hz, 24 VDC   |
| *AC Timer .....  | 115/230 VAC, 1 ph, 50/60 Hz   |
| Work (On) Time .....   | 5 to 20 seconds   |
| Pause (Off) Time .....   | 2.5 to 30 minute  |
| Fault Output .....   | (Dry Contacts), 5 amp max up to 230 VAC   |
| Air Cleanliness .....  | 5 micron, 40°F (4°C) dew point  |
| Operating Temperature .....  | 40°F to 120°F (4°C to 49°C)   |
| Lube Output .....  | 0.0015, 0.0030 and 0.005 cu in/cycle (0.025, 0.049 and 0.082 cm <sup>3</sup> /cycle)  |
| Pressure Switch Set Points   |   |
| Air (N.C.) .....   | 25 psi (1.7 bar), nonadjustable   |
| Oil (N.O.) .....   | 320 psi (22 bar), nonadjustable   |
| Nozzles .....  | Tube ID/Orifice Ratio (See Figure 2)  |
| Delivery Tube Length .....   | 24 in to 50 ft (0.6 m to 15.24 m)   |
| Lubricant Filtration: It is recommended that the lubricant in any lubrication system be filtered to the minimum level recommended by the Society of Automotive Engineers (SAE) which corresponds to the ISO Standard 4460 ratings/ specifications of ISO 18/14 |   |

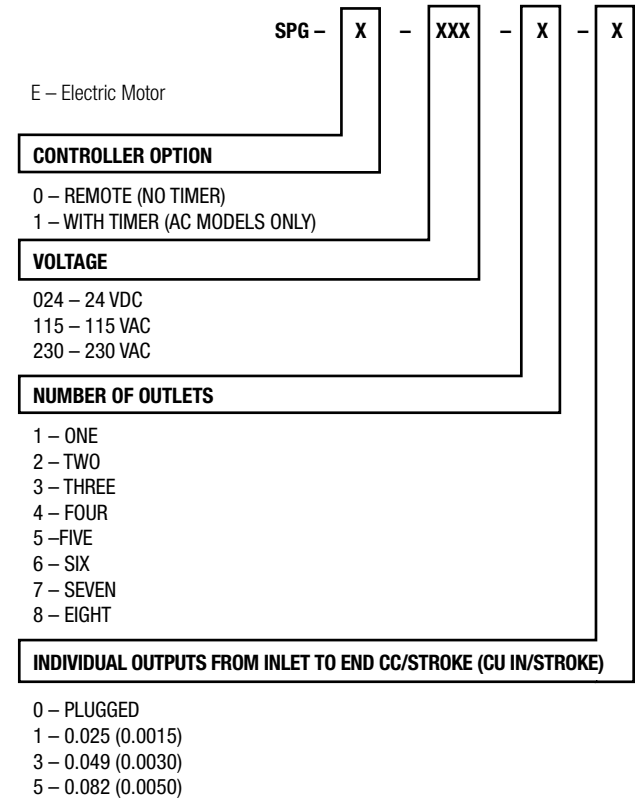
# Air Oil

## High Speed Spindl-Gard® Systems

### Ordering Information

| High Speed Spindl-Gard Systems   |   |
|--|---|
| 26C419   | SPG-E-0-024-2-33  |
| 258295   | SPG-E-0-024-2-55  |
| 564445   | SPG-E-0-024-3-333   |
| 25A202   | SPG-E-0-230-4-3333  |
| 24B219   | SPG-E-1-115-2-11  |
| 24R127   | SPG-E-1-115-2-33  |
| 24V204   | SPG-E-1-115-2-55  |
| 25C264   | SPG-E-1-115-3-111   |
| 258347   | SPG-E-1-115-6-333113  |
| 258301   | SPG-E-1-115-6-333333  |
| 25C265   | SPG-E-1-230-3-111   |
| 25A209   | SPG-E-1-230-4-3333  |
| 24V531   | SPG-E-1-230-5-55555   |
| 26C521   | SPG-E-1-230-8-11111111  |
| 24H681   | SPG-E-1-230-8-55555555  |
| High Speed Spindl-Gard (HSSG) Blocks                                   |   |
| 563130   | 0.0015 in <sup>3</sup> displacement                                 |
| 563131   | 0.0030 in <sup>3</sup> displacement                                 |
| 563132   | 0.0050 in <sup>3</sup> displacement                                 |
| High Speed Spindl-Gard (HSSG) Components                               |   |
| 563489   | 10 micron oil filter element  |
| 561031   | Inlet block   |
| 561032   | Outlet block  |
| Spindl-Gard Nozzles  |   |
| 563127   | Nozzle tube adapter   |
| 560478   | 10 in nozzle tube - 2 outlet, 180°                                  |
| 560477   | 10 in nozzle tube - 1 outlet, 90°                                   |
| 562994   | End outlet nozzle   |
| 563128   | Spray nozzle assembly for headwalls over 1 in thick                 |
| Spindl-Gard Accessories  |   |
| 563048   | Injection point check valve, 1/8 in NPTF                            |
| 563049   | Discharge point check valve, 1/8 in NPTF                            |
| 564337   | Relief valve, 2 psi   |
| 563091   | In-line lube filter, 10 micron, 1/4 in NPSF (FM) to 1/4 in NPTF (M) |
| 557134   | Replacement filter element - in-line lube filter                    |
| 563129   | SG air/oil mixing tee   |
| High Speed Spindl-Gard (HSSG) Tie Rod Kits - Nuts and Washers included |   |
| 564443   | Tie rod kit - 1 air/oil lube point                                  |
| 563940   | Tie rod kit - 2 air/oil lube point                                  |
| 564444   | Tie rod kit - 3 air/oil lube point                                  |
| 15U854   | Tie rod kit - 4 air/oil lube point                                  |
| 15U855   | Tie rod kit - 5 air/oil lube point                                  |
| 563941   | Tie rod kit - 6 air/oil lube point                                  |
| 563942   | Tie rod kit - 7 air/oil lube point                                  |
| 15U856   | Tie rod kit - 8 air/oil lube point                                  |

### Spindl-Gard Ordering Menu Code



# General Accessories

## Trabon® Spra-Control™ Valve

### Features and Benefits

- 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, with no waste.
- Not to be used with G-Series Pumps or other low flow pumps.

### Typical Fluids Handled

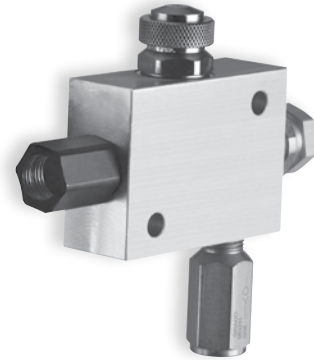
- Oil - minimum of 100 SUS at 100°F
- Grease - NLGI #1 at any temperature, NLGI #2 at 32°F or above

### Technical Specifications

Minimum Air Pressure.....20 psi (1.4 bar)  
 Maximum Air Pressure ..... 150 psi (10.3 bar)  
 Spray Patterns ..... 4 in or 8 in (10.2 cm or 20.3 cm)

### Ordering Information

| Gear Spray Valves |  |
|-------------------|--|
| 563275            | Air-lube control valve and nozzle assembly – 4 in spray diameter, normal |
| 563276            | Air-lube control valve and nozzle assembly – 8 in spray diameter, wide   |



*Ball mills run at peak performance with Graco's Air-Lube Spra-Control Valve*

# General Accessories

## Zone Valves

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### Features and Benefits

- Designed to custom fit lubrication systems and control when sections or zones of the system will receive lubricant
- Available in two- or three-way styles
- Three-way valves available with 12 VDC or 24 VDC
- Available with normally closed and normally open valves for added convenience
- DC models meet typical application requirements

### Ordering Information

| Zone Valves |  |
|-------------|--|
| 24P976      | Two-way valve, 24 VDC, normally open, Deutsch cable, 3,500 psi (241 bar)     |
| 24T296      | Two-way valve, 24 VDC, normally closed, Deutsch cable, 3,500 psi (241 bar)   |
| 24P977      | Three-way valve, 24 VDC, normally closed, Deutsch cable, 3,500 psi (241 bar) |



24P976



24P977

# General Accessories

## Reset Indicator

### Features and Benefits

- 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

| Reset w/Memory<br>psi (bar) | 250<br>(17) | 500<br>(35) | 750<br>(52) | 1,000<br>(69) | 1,500<br>(103) | 2,000<br>(138) | 2,500<br>(172) |
|-----------------------------|-------------|-------------|-------------|---------------|----------------|----------------|----------------|
| MJ                          | •           | •           | •           | •             | •              | •              |                |
| MSP                         | •           | •           | •           | •             | •              | •              | •              |
| MXP                         | •           | •           | •           | •             | •              | •              | •              |
| MX                          | •           | •           | •           | •             | •              | •              | •              |
| MGO                         |             |             |             |               | •              |                |                |



563242

Simple point troubleshooting with visual indication

### Ordering Information

| Divider Valve Reset Indicator w/Memory for MJ, MSP, MHH and MXP              |                     |
|--|---------------------|
| 563231   | 250 psi (17 bar)    |
| 563232   | 500 psi (35 bar)    |
| 563233   | 750 psi (52 bar)    |
| 563234   | 1,000 psi (69 bar)  |
| 563235   | 1,500 psi (103 bar) |
| 563236   | 2,000 psi (138 bar) |
| 563237   | 2,500 psi (172 bar) |
| 563238   | 3,500 psi (241 bar) |
| Divider Valve Reset Indicator w/Memory and O-Ring Seal for MX                |                     |
| 563239   | 250 psi (17 bar)    |
| 563240   | 500 psi (35 bar)    |
| 563241   | 750 psi (52 bar)    |
| 563242   | 1,000 psi (69 bar)  |
| 563243   | 1,500 psi (103 bar) |
| 563244   | 2,000 psi (138 bar) |
| 563245   | 2,500 psi (172 bar) |
| Divider Valve Reset Indicators w/Memory and O-Ring Seal for MSP, MHH and MXP |                     |
| 563252   | 250 psi (17 bar)    |
| 563253   | 500 psi (35 bar)    |
| 563254   | 750 psi (52 bar)    |
| 563255   | 1,000 psi (69 bar)  |
| 563256   | 1,500 psi (103 bar) |
| 563257   | 2,000 psi (138 bar) |
| 563258   | 2,500 psi (172 bar) |
| 563261   | 3,000 psi (207 bar) |
| 563262   | 5,000 psi (345 bar) |
| 563263   | 3,500 psi (241 bar) |
| Divider Valve Reset Indicators w/Memory and O-Ring Seal for MGO              |                     |
| 564200   | 1,500 psi (103 bar) |



# General Accessories

## Automatic Relief Indicator

### Features and Benefits

These performance indicators pinpoint lube line blockages but allow the lube system to continue to supply lubrication to points that are not blocked.

- 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

### Typical Applications

- Works with MSP, MX, MXP, MJ and MHH divider valves

### Technical Specifications

| Auto Relief<br>psi (bar) | 750<br>(52) | 1,000<br>(69) | 1,250<br>(86) | 1,500<br>(103) | 2,000<br>(138) | 2,500<br>(172) | 3,000<br>(207) |
|--------------------------|-------------|---------------|---------------|----------------|----------------|----------------|----------------|
| MJ                       | •           | •             |               | •              | •              |                |                |
| MSP                      | •           | •             | •             | •              | •              | •              | •              |
| MXP                      | •           | •             | •             | •              | •              | •              | •              |
| MX                       |             | •             |               | •              | •              | •              | •              |



563159

*Keep your machine running while lubrication gets to critical points*

### Ordering Information

| Divider Valve Automatic Relief Indicators for MX                                |                     |
|---|---------------------|
| 563156  | 750 psi (52 bar)    |
| 563157  | 1,000 psi (69 bar)  |
| 563158  | 1,500 psi (103 bar) |
| 563159  | 2,000 psi (138 bar) |
| 563160  | 2,500 psi (172 bar) |
| 563161  | 3,000 psi (207 bar) |
| Divider Valve Automatic Relief Indicators for MSP, MHH, MXP and MJ              |                     |
| 563163  | 750 psi (52 bar)    |
| 563164  | 1,000 psi (69 bar)  |
| 563165  | 1,250 psi (86 bar)  |
| 563166  | 1,500 psi (103 bar) |
| 563167  | 2,000 psi (138 bar) |
| 563168  | 2,500 psi (172 bar) |
| 563169  | 3,000 psi (207 bar) |
| Divider Valve Automatic Relief Indicators with O-Ring Seal for MSP, MHH and MXP |                     |
| 563170  | 750 psi (52 bar)    |
| 563171  | 1,000 psi (69 bar)  |
| 563172  | 1,250 psi (86 bar)  |
| 563173  | 1,500 psi (103 bar) |
| 563174  | 2,000 psi (138 bar) |
| 563175  | 2,500 psi (172 bar) |
| 563176  | 3,000 psi (207 bar) |

# General Accessories

## Rupture Indicator

### Features and Benefits

Used on MH divider valve applications where lube system pressures exceed 2,500 psi.

- High pressure from blockage causes a disc to rupture
- Lubricant forces an indicator pin to protrude, indicating the blockage
- High pressure backs up through the system and trips a switch to shut the system off
- When fault is corrected, disc must be replaced and pin reset

### Typical Applications

- Works with MHH divider valves

### Ordering Information

| Divider Valve Rupture Indicators w/Memory |                                      |
|---|--------------------------------------|
| 563220                                    | 3,700 psi (255 bar)                  |
| 563227                                    | 7,300 psi (503 bar)                  |
| 563228                                    | 2,800 psi (193 bar)                  |
| 564355                                    | 4,600 psi (317 bar)                  |
| 563223                                    | 5,500 psi (379 bar)                  |
| 563225                                    | 6,400 psi (441 bar)                  |
| 563229                                    | 2,800 psi (193 bar) with o-ring seal |
| 563221                                    | 3,700 psi (255 bar) with o-ring seal |
| 563222                                    | 4,600 psi (317 bar) with o-ring seal |
| 563224                                    | 5,500 psi (379 bar) with o-ring seal |
| 563226                                    | 6,400 psi (441 bar) with o-ring seal |
| Replacement Rupture Discs                 |                                      |
| 557422                                    | 2,800 psi (193 bar)                  |
| 557423                                    | 3,700 psi (255 bar)                  |
| 557424                                    | 4,600 psi (317 bar)                  |
| 557425                                    | 5,500 psi (379 bar)                  |
| 557427                                    | 6,400 psi (441 bar)                  |
| 557428                                    | 7,300 psi (503 bar)                  |
| 557429                                    | 8,200 psi (565 bar)                  |



563227

*Know quickly when  
critical bearings aren't  
getting lubricated*

# General Accessories

## Rupture to Atmosphere Indicator

### Features and Benefits

- Used in conjunction with system pressure switch—can warn of a fault while allowing lube system to continue to deliver to critical bearings
- Requires replacement of the rupture disc to restart the lube system
- Easy information on blocked lines, high system pressure or blocked bearings



563182

*Blockages are easy to detect with the simple Rupture to Atmosphere indicator*

| Rupture to Atmosphere psi (bar) | 1,450 (100) | 1,750 (121) | 2,050 (141) | 2,350 (162) | 2,950 (203) | 3,250 (224) |
|---------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| MJ                              |             | •           |             | •           | •           | •           |
| MSP                             |             | •           |             | •           | •           | •           |
| MX                              | •           | •           | •           | •           | •           |             |

### Ordering Information

| Rupture-to-Atmosphere Indicators for MJ, MSP, MHH and MXP          |   |
|--|---|
| 564059   | 1,750 psi (121 bar)                     |
| 563191   | 2,350 psi (162 bar)                     |
| 563192   | 2,950 psi (203 bar)                     |
| 563193   | 3,250 psi (224 bar)                     |
| 563194   | 5,000 psi (345 bar)                     |
| 563218   | 6,400 psi (441 bar)                     |
| 563219   | 7,300 psi (503 bar)                     |
| 563217   | 5,500 psi (379 bar)                     |
| Rupture-to-Atmosphere Indicators for MX                            |   |
| 563179   | 1,450 psi (100 bar)                     |
| 563182   | 1,750 psi (121 bar)                     |
| 563183   | 2,050 psi (141 bar)                     |
| 563184   | 2,350 psi (162 bar)                     |
| 563185   | 2,950 psi (203 bar)                     |
| 563186   | 1,450 psi (100 bar), with spud assembly |
| 563187   | 1,750 psi (121 bar), with spud assembly |
| 563188   | 2,350 psi (162 bar), with spud assembly |
| Replacement Rupture Packs of 6 (11/16 in / 17.5 mm diameter discs) |   |
| 563962   | 1,450 psi (100 bar) – yellow            |
| 563963   | 1,750 psi (121 bar) – red               |
| 563964   | 2,050 psi (141 bar) – orange            |
| 563965   | 2,350 psi (162 bar) – aluminum          |
| 563966   | 2,940 psi (203 bar) – blue              |
| Replacement Rupture Packs of 25 (3/8 in / 9.5 mm diameter discs)   |   |
| 563952   | 900 psi (62 bar) – black                |
| 563954   | 1,450 psi (100 bar) – yellow            |
| 563955   | 1,750 psi (121 bar) – red               |
| 563956   | 2,050 psi (141 bar) – orange            |
| 563957   | 2,350 psi (162 bar) – aluminum          |
| 563958   | 2,650 psi (183 bar) – pink              |
| 563959   | 2,950 psi (203 bar) – blue              |
| 563960   | 3,250 psi (224 bar) – purple            |
| 563961   | 5,000 psi (345 bar) – brown             |

# General Accessories

## Magnetic Visual Indicator

### Features and Benefits

Six steel balls in a clear sleeve follow a magnet which moves with the cycling piston, providing a clear visual indication of lube cycles.

### Ordering Information

| Divider Valve Cycle Indicators and Switches |  |
|---|--|
| 563251                                      | MS/MHH visual cycle indicator assembly – o-ring seal |
| 563260                                      | MX/MXP visual cycle indicator assembly               |
| 563250                                      | MS/MHH visual cycle indicator assembly – gasket seal |



### Cycle Switch

- Monitors piston movement to ensure completed lubrication cycle – must have cycle indicator pin
- 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



563272

*Integrates to controllers, starters or PLCs*

### Technical Specifications

|                       |            |
|-----------------------|------------|
| Voltage               | Amp Rating |
| 125/250/480 VAC ..... | 15A        |
| 125 VDC .....         | 1/2A       |
| 250 VDC .....         | 1/4A       |
| 24 VDC .....          | 6A*        |
| *non-inductive        |            |

### Ordering Information

| Cycle Switches |   |
|----------------|---|
| 563270         | MD-2, cycle switch, bracket assembly                                    |
| 563271         | MD-3, cycle switch, bracket assembly                                    |
| 564356         | MD-4, cycle switch, bracket assembly                                    |
| 563269         | MGO cycle switch (SPDT), bracket assembly                               |
| 557781         | Replacement cycle switch for 563269, 563270, 563271, 564356, 563272     |
| 564357         | MHP cycle switch (DPDT) bracket assembly                                |
| 563272         | MJ/MS/MHH/MXP cycle switch (SPDT) bracket assembly                      |
| 563273         | MJ/MS/MHH/MXP cycle switch (SPDT) bracket assembly – moisture resistant |
| 557546         | Replacement bracket – 563272, 563273, 564357                            |
| 260067         | 1/2 in NPT cord grip for use with switch 557781                         |

# General Accessories

## Proximity Switches

### Features and Benefits

- 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



557747

*Magnetically-operated sensing devices for sending system data to the controller or PLC*

### Ordering Information

| Divider Valve Proximity Switches |               |                     |                 |                      |                       |     |                    |                         |                  |
|----------------------------------|---------------|---------------------|-----------------|----------------------|-----------------------|-----|--------------------|-------------------------|------------------|
| Part Number                      | Divider Valve | Rating (if any)     | Switch Type     | Operating Voltage    | Electrical Connection | LED | Max Cycles Per Min | Max Pressure, PSI (bar) | Rated Life Cycle |
| 563495                           | MGO           | UL+CSA              | FSM             | 10-32 VDC            | 4-pin CH Mini         | No  | 125                | 10,000 (690)            | 50,000,000+      |
| 564402                           | MGO           | UL+CSA              | FSM             | 115 VAC              | 5-pin BH Mini         | No  | 125                | 10,000 (690)            | 50,000,000+      |
| 563970                           | MGO           | UL+CSA              | FSM             | 115 VAC              | 3-pin BH Mini         | No  | 125                | 3,500 (241)             | 50,000,000+      |
| 17L881                           | MGO           | IP65, IP68, IP69    | Solid State PNP | 10-32 DC             | M12                   | No  | 200                | 6,000 (414)             | 50,000,000       |
| 564399                           | MXP/MX        | UL+CSA              | FSM             | 115 VAC              | 5-pin BH Mini         | No  | 125                | 3,500 (241)             | 50,000,000+      |
| 563476                           | MXP/MX        | UL+CSA              | FSM             | 115 VAC              | 3-pin BH Mini         | No  | 125                | 3,500 (241)             | 50,000,000+      |
| 563969                           | MXO (gasket)  | UL+CSA              | FSM             | 115 VAC              | 3-pin BH Mini         | No  | 125                | 3,500 (241)             | 50,000,000+      |
| 563486                           | MXP/MX        |                     | FSmech          | 20-32 VDC            | 3-pin BH Mini         | Yes | 100                | 7,500 (518)             | 10,000,000+      |
| 564400                           | MXP/MX        |                     | FSmech          | 20-32 VDC            | 5-pin BH Mini         | Yes | 100                | 7,500 (518)             | 10,000,000+      |
| 564401                           | MXP/MX        | CSA <sub>NRTL</sub> | FSmech          | 115 VAC or 10-32 VDC | Explosion-Proof*      | No  | 100                | 7,500 (518)             | 10,000,000+      |
| 557752                           | MXP/MX        | UL+CSA              | FSM             | 10-32 VDC            | 4-pin CH Mini         | No  | 125                | 10,000 (690)            | 50,000,000+      |
| 558938                           | MXP/MX        | UL+CSA              | FSM             | 115 VAC              | 5-pin BH Mini         | No  | 125                | 10,000 (690)            | 50,000,000+      |
| 564403                           | MXP/MX        | UL+CSA              | FSM             | 10-32 VDC            | 4-pin Micro           | No  | 125                | 10,000 (690)            | 50,000,000+      |
| 17L880                           | MXP/MX        | IP65, IP68, IP69    | Solid State PNP | 10-32 DC             | M12                   | No  | 200                | 8,000 (552)             | 50,000,000       |
| 557741                           | MSP/MHH       | UL+CSA              | FSM             | 115 VAC              | 3-pin BH Mini         | No  | 125                | 3,500 (241)             | 50,000,000+      |
| 557745                           | MSP/MHH       | ✓                   | FSM             | 115 VAC              | Explosion-Proof*      | No  | 125                | 3,500 (241)             | 50,000,000+      |
| 558933                           | MR (gasket)   | ✓                   | FSM             | 115 VAC              | Explosion-Proof*      | No  | 125                | 3,500 (241)             | 50,000,000+      |
| 557746                           | MSP/MHH       | UL+CSA              | FSM             | 115 VAC              | 5-pin BH Mini         | No  | 125                | 3,500 (241)             | 50,000,000+      |
| 557747                           | MSP/MHH       | UL+CSA              | FSM             | 10-32 VDC            | 4-pin CH Mini         | No  | 125                | 3,500 (241)             | 50,000,000+      |
| 563477                           | MSP/MHH       |                     | FSmech          | 20-32 VDC            | 5-pin BH Mini         | Yes | 100                | 7,500 (518)             | 10,000,000+      |
| 563478                           | MSP/MHH       |                     | FSmech          | 20-32 VDC            | 3-pin BH Mini         | Yes | 100                | 7,500 (518)             | 10,000,000+      |
| 563484                           | MSP/MHH       |                     | FSmech          | 115 VAC or 10-32 VDC | 5-pin BH Mini         | No  | 100                | 7,500 (518)             | 10,000,000+      |
| 563485                           | MSP/MHH       | CSA <sub>NRTL</sub> | FSmech          | 115 VAC or 10-32 VDC | Explosion-Proof*      | No  | 100                | 7,500 (518)             | 10,000,000+      |
| 563427                           | MSP/MHH       |                     | Reed            | 115 VAC or 10-32 VDC | 1/2 in NPT cond       | No  | 60                 | 7,500 (518)             | 10,000,000+      |
| 563501                           | MSP/MHH       |                     | FSmech          | 20-32 VDC            | 4-pin Micro           | Yes | 100                | 7,500 (518)             | 10,000,000+      |
| 17L983                           | MSP/MHH       | IP65, IP68, IP69    | Solid State PNP | 10-32 DC             | M12                   | No  | 200                | 7,500 (518)             | 50,000,000       |
| 17M380                           | MJ/MD         | IP65, IP68, IP69    | Solid State PNP | 10-32 DC             | M12                   | No  | 200                | 3,000 (207)             | 50,000,000       |
| 17L879                           | CSP           | IP65, IP68, IP69    | Solid State PNP | 10-32 DC             | M12                   | No  | 200                | 5,075 (350)             | 50,000,000       |

UL+CSA = Approved – search their respective website for the certifications or contact Graco Technical Assistance.

CSA<sub>NRTL</sub> = Approved for hazardous locations: Class I, Groups A, B, C and D – Division 1

✓ = UL and CSA approved for hazardous locations: Class I, Groups A, B, C and D – Division 1; Class II, Groups E, F and G – Division 1

\*Includes 6 ft, 3 conductor cable

BH = Brad Harrison

CH = Crouse-Hinds



17L880

# General Accessories

## Proximity Switch Cables

### Ordering Information

| Part Number  | Proximity Switch Connection | 2nd Connection          | Length         | Note  |
|--|-----------------------------|-------------------------|----------------|---|
| <b>Cables for Legacy Proximity Switches</b>  |                             |                         |                |   |
| 558021   | 3-pin BH Mini, straight     | Flying leads            | 6 ft (1.83 m)  | –   |
| 558022   | 3-pin BH Mini, straight     | Flying leads            | 12 ft (3.66 m) | –   |
| 558025   | 4-pin CH Mini, straight     | Flying leads            | 12 ft (3.66 m) | PNP LED   |
| 558026   | 4-pin CH Mini, 90°          | Flying leads            | 12 ft (3.66 m) | PNP LED   |
| 558023   | 5-pin BH Mini, straight     | Flying leads            | 6 ft (1.83 m)  | –   |
| 558024   | 5-pin BH Mini, straight     | Flying leads            | 12 ft (3.66 m) | –   |
| <b>Cables for Solid State Proximity Switches</b>   |                             |                         |                |   |
| <i>For use with a G3 Max or G3 SP when connecting directly to the pump, when LED is required.</i>              |                             |                         |                |   |
| 25M602   | M12 female, straight        | Flying leads            | 16.5 ft (5 m)  | PNP switch with NPN LED – requires 124594                   |
| 25M603   | M12 female, straight        | M12 male, straight      | 16.5 ft (5 m)  | PNP switch with NPN LED                                     |
| <i>For use with an external lubrication controller, G-Mini, PLC or other controller, when LED is required.</i> |                             |                         |                |   |
| 25M604   | M12 female, straight        | Flying leads            | 16.5 ft (5 m)  | –   |
| 24Z720   | M12 female, 90°             | Flying leads            | 16.5 ft (5 m)  | –   |
| 26A782   | M12 female, 90°             | Flying leads            | 33 ft (10 m)   | –   |
| <i>For use when replacing a legacy proximity switch with a new solid state proximity switch.</i>               |                             |                         |                |   |
| 24Z714   | M12 female, 90°             | 5-pin BH Mini, straight | 1 ft (0.3 m)   | NPN-BH adapter cable  |
| 24Z715   | M12 female, 90°             | 3-pin BH Mini, straight | 1 ft (0.3 m)   | NPN-BH adapter cable  |
| 24Z716   | M12 female, 90°             | 4-pin CH Mini, straight | 1 ft (0.3 m)   | NPN-BH adapter cable  |
| 24Z719   | M12 female, 90°             | 4-pin CH Mini, straight | 1 ft (0.3 m)   | PNP-CH adapter cable  |
| <b>Other M12 cables, without LED indication</b>  |                             |                         |                |   |
| 126331   | M12 female, straight        | Flying leads            | 16.5 ft (5 m)  | Requires 124594 when used with G3 Max, SP, etc.             |
| 124300   | Flying leads                | M12 male, straight      | 16.5 ft (5 m)  | Requires 124301 when used with solid state proximity switch |
| 124333   | M12 female, straight        | M12 male, straight      | 16.5 ft (5 m)  | –   |
| 131214   | M12 female, 90°             | M12 male, straight      | 3.3 ft (1 m)   | –   |
| 131215   | M12 female, 90°             | M12 male, straight      | 6.6 ft (2 m)   | –   |
| 131216   | M12 female, 90°             | M12 male, straight      | 9.8 ft (3 m)   | –   |
| 130282   | M12 female, straight        | M12 male, straight      | 3.3 ft (1 m)   | –   |
| 130280   | M12 female, straight        | M12 male, straight      | 6.6 ft (2 m)   | –   |
| 130283   | M12 female, straight        | M12 male, straight      | 9.8 ft (3 m)   | –   |

# General Accessories

## Pressure Switches

### Features and Benefits

- Easy to visually adjust line pressure and reset pressure to ensure your lube system has vented properly
- LED lights visually display pressure switch functions
- Modern 4-pin M12 micro-connector easily connects to the G3 Max and other controllers
- Turns off your pump or controller and activates venting once the lube system reaches the desired pressure level
- 1/4 NPT thread allows quick connection to injector systems



24K414

*IP67 rated – Durable design allows it to operate in harsh environments*

### Ordering Information

| Pressure Switches |   |
|-------------------|---|
| 24K414            | Set pressure range 290 to 580 psi (20 to 40 bar), reset pressure range 175 to 5,685 psi (12 to 392 bar), M12 connector (female), 9.6 to 32 VDC, 1/4 in (7.6 cm) NPT thread (male), IP67 |

### Features and Benefits

- Moisture resistant and factory set to ensure accuracy for long life and reliability
- Sends an alarm signal to alert either a high- or low-pressure condition
- Available for hydraulic pressures from 50 to 4,700 psi



557829

### Ordering Information

| Pressure Switches |   |
|-------------------|---|
| 557828            | 4,700 psi (324 bar), 400 to 4,700 psi (28 to 324 bar) adjustable range (factory set @ 750 psi / 52 bar), moisture-resistant, NEMA 4   |
| 557829            | 4,700 psi (324 bar), 400 to 4,700 psi (28 to 324 bar) adjustable range (factory set @ 1,150 psi / 79 bar), moisture-resistant, NEMA 4 |

### Features and Benefits

- High-low, adjustable pressure switches

### Ordering Information

| Pressure Switches |  |
|-------------------|--|
| 115124            | Single post pressure switch, NEMA 3  |
| 558947            | Dual post control pressure switch, NEMA 3  |
| 24N181            | IP65 rated for harsh environments. Fluoroelastomer seals are suitable for use in high temperature environments and synthetic lubricants. Large orifice reduces grease solidification. DIN connector. Adjustable from 580 to 5,800 psi (40 to 400 bar). 1/4 in NPT inlet. |



115124



24N181

# General Accessories

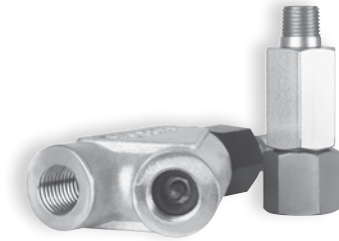
## Broken Line Indicators

### Features and Benefits

- 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

|                       | BLI500               | BLI1000                              | BLI1500               |
|-----------------------|----------------------|--------------------------------------|-----------------------|
| Simulator Pressure    | 60 psi (4.1 bar)     | 100 psi (6.9 bar)                    | 150 psi (10.3 bar)    |
| Minimum Pump Pressure | 1,000 psi (69.0 bar) | 1,500 psi (103.4 bar)                | 2,500 psi (172.4 bar) |
| Application           | Recirculating Oil    | Recirculating Oil or Terminating Oil | Grease                |



563078

*The only device that provides visual indication that bearing lines are intact*

### Ordering Information

| Broken Line Indicators |            |                  |            |                               |                         |                    |                             |                     |                 |                       |
|------------------------|------------|------------------|------------|-------------------------------|-------------------------|--------------------|-----------------------------|---------------------|-----------------|-----------------------|
| System Type            | BLI Rating | Simulator Rating | $\Delta P$ | Pressure Switch Setting (psi) | Pump Relief Valve (psi) | Blowout Disc (psi) | Minimum Pump Capacity (psi) | BLI Kit Part Number | BLI Part Number | Simulator Part Number |
| Re-Circulating Oil     | 500        | 60               | 440        | 400                           | 700                     | N/A                | 1,000                       | 563078              | 563068          | 563075                |
| Re-Circulating Oil     | 1,000      | 100              | 900        | 850                           | 1,400                   | N/A                | 1,500                       | 563079              | 563069          | 563076                |
| Terminating Oil        | 1,000      | 100              | 900        | 850                           | N/A                     | 1,450              | 2,000                       | 563079              | 563069          | 563076                |
| Terminating Grease     | 1,500      | 150              | 1,350      | 1,300                         | N/A                     | 2,350              | 2,500                       | 563080              | 563070          | 563077                |



# General Accessories

## Filters

### Ordering Information

All filter ports are female both end (f/b) unless otherwise stated. For more details, search [www.graco.com](http://www.graco.com) for brochure L15200.

| <b>MSP Inlet Oil Filters</b> – Typically used as a secondary filter at the inlet of MSP divider valve assemblies. |   |                           |                               |                        |                  |
|---|---|---------------------------|-------------------------------|------------------------|------------------|
| Part Number   | Type  | Max Pressure<br>PSI (bar) | Ports                         | Replacement<br>Element | Micron<br>Rating |
| 563091  | MSP standard inlet filter                                       | 3500 (241)                | 1/4-18 NPTF female x male     | 557134                 | 10               |
| 563074  | MSP zero-leak inlet "last chance" filter/restrictor             |                           | 1/4-18 NPSF f x 1/4-18 NPTF m | N/A                    | 90               |
| 563094  | MSP standard/zero-leak/shunt valve inlet filter                 |                           | 1/4-18 NPSF f x 1/4-18 NPTF m |                        |                  |
| 564327  | MSP standard/zero-leak/shunt valve inlet filter and check valve |                           | 1/4-18 NPSF f x 1/4-18 NPTF m |                        |                  |
| 564326  | MSP standard Inlet filter and check valve                       |                           | 7/16-20 SAE-ORB female x male |                        |                  |
| 563073  | MSP zero-leak and shunt "last chance" filter                    |                           | 9/16-18 SAE-ORB female x male |                        |                  |
| 564342  | MSP standard and zero-leak inlet filter                         |                           | 1/4-19 BSPP female x male     |                        |                  |
| 563480  | ZMSP modular filter block                                       | 3000 (207)                | Mounts on base 563479         |                        | 25               |

| <b>Cartridge Oil Filters equipped with "HF2" replacement elements</b> – Versatile medium pressure oil filters for applications up to 3 gpm (11 lpm). |   |                           |                           |                        |                  |
|--|---|---------------------------|---------------------------|------------------------|------------------|
| Part Number  | Type  | Max Pressure<br>PSI (bar) | Ports                     | Replacement<br>Element | Micron<br>Rating |
| 564004   | Single element with electrical and visual indicator | 3000 (207)                | 3/4-14 BSPP (ISO-1179)    | 556031                 | 10               |
| 564003   |   |                           | 3/4-14 BSPP (ISO-1179)    | 556032                 | 20               |
| 564005   |   |                           | M27 x 2 (ISO-6149)        | 556031                 | 10               |
| 564006   |   |                           | M27 x 2 (ISO-6149)        | 556032                 | 20               |
| 562880   |   |                           | 1 1/16-12 SAE (ISO-11926) | 556031                 | 10               |
| 564007   |   |                           | 1 1/16-12 SAE (ISO-11926) | 556032                 | 20               |
| 562881   | Single element with visual indicator                |                           | 3/4-14 BSPP (ISO-1179)    | 556031                 | 10               |
| 564008   |   |                           | 3/4-14 BSPP (ISO-1179)    | 556032                 | 20               |
| 564009   |   |                           | M27 x 2 (ISO-6149)        | 556031                 | 10               |
| 564010   |   |                           | M27 x 2 (ISO-6149)        | 556032                 | 20               |
| 562882   |   |                           | 1 1/16-12 SAE (ISO-11926) | 556031                 | 10               |
| 562883   |   |                           | 1 1/16-12 SAE (ISO-11926) | 556032                 | 20               |

Note: for NPT applications, choose one of the "SAE" options above and add quantity 2 of part number 113613 to adapt to 1/2-14 NPTF thread.

| <b>Replacement Elements For Legacy Single and Dual Cartridge Filters</b> – Use to replace string filters and pleated elements in legacy Trabon/Manzel canister filters. |   |               |   |
|---|---|---------------|---|
| Part Number   | Dimensions                                | Micron Rating | Where used – legacy filter part number            |
| 557803  | 2-5/8 in (67 mm) OD x 3-5/8 in (92 mm) L  | 10            | 183-000-001, 183-000-041, 183-000-141             |
| 557804  |   | 25            | 183-000-011, 183-000-051, 183-000-151             |
| 557805  |   | 50            | 50 micron alternate for 3-5/8 in elements (above) |
| 557806  | 2-5/8 in (67 mm) OD x 9-5/8 in (244 mm) L | 10            | 183-000-071, 183-000-111, 183-000-201             |
| 557807  |   | 25            | 183-000-081, 183-000-121, 183-000-211             |
| 557808  |   | 50            | 50 micron alternate for 9-5/8 in elements (above) |
| 557811  |   | 1             | 1 micron alternate for 9-5/8 in elements (above)  |

| <b>Spin-On Oil Filters</b> – Low pressure, high flow oil filters for applications up to 20 gpm (76 lpm). Typical applications include return lines in recirculating systems, and fill lines. |   |                           |                          |                        |                  |
|--|---|---------------------------|--------------------------|------------------------|------------------|
| Part Number  | Type  | Max Pressure<br>PSI (bar) | Ports                    | Replacement<br>Element | Micron<br>Rating |
| 563092   | Assembly with internal 25 PSI (1.7 bar) bypass      | 200 (13.8)                | 3/4-14 NPT               | 563093                 | 10               |
| 563095   | Assembly with external 150 PSI (10.3 bar) relief    |                           |                          |                        |                  |
| 564343   | Assembly 563095 with fill stud and mounting bracket |                           |                          |                        |                  |
| 563096   | Assembly with external 150 PSI (10.3 bar) relief    | 150 (10.3)                | 3/4-14 BSPP (ISO 1179-1) | 563097                 | 25               |
| 563099   | Assembly with external 150 PSI (10.3 bar) relief    |                           |                          |                        |                  |
| 563100   | Assembly with external 150 PSI (10.3 bar) relief    |                           |                          |                        |                  |

# General Accessories

## Filters and Brushes

### Ordering Information

**In-Line Oil Filter – High-Pressure** – Use with Trabon and G-series pumps in medium duty applications. Miniature Meter-Flo and Modu-Flo oil tanks include a bracket designed to receive these filters.

| Part Number | Max Pressure PSI (bar) | Ports                  | Replacement Element | Micron Rating |
|-------------|------------------------|------------------------|---------------------|---------------|
| 563511      | 7500 (517)             | 1/4-18 NPTF            | 563509              | 10            |
| 563512      |                        |                        | 563510              | 25            |
| 563513      |                        | 9/16-18 SAE            | 563509              | 10            |
| 563514      |                        |                        | 563510              | 25            |
| 563516      |                        | 1/4-19 BSPP (ISO 1179) | 563509              | 10            |
| 563515      |                        |                        | 563510              | 25            |

**In-Line Grease/Heavy Oil Strainer – High-Pressure** – Use with Trabon and G-series pumps in medium duty applications. Install on reservoir fill line or near pump outlet to protect system from contaminants.

| Part Number | Type               | Max Pressure PSI (bar) | Ports                  | Replacement Element | Micron Rating (Mesh Rating) |
|-------------|--------------------|------------------------|------------------------|---------------------|-----------------------------|
| 563508      | Heavy oil strainer | 7500 (517)             | 1/4-18 NPTF            | 557701              | 44 (325)                    |
| 563507      | Grease strainer    |                        | 1/4-18 NPTF            | 557700              | 149 (100)                   |
| 564406      |                    |                        | 1/4-19 BSPP (ISO 1179) |                     |                             |
| 563517      |                    |                        | M14x1.5 (ISO 6419)     |                     |                             |

**Fill Point Strainers with Removable Element** – Installs in fill port on reservoirs with 1/4 in NPT thread.

| Part Number | Type   | Max Pressure PSI (bar) | Ports                         | Replacement Element | Micron Rating (Mesh Rating) |
|-------------|--------|------------------------|-------------------------------|---------------------|-----------------------------|
| 563103      | Oil    | 3000 (207)             | 1/4-18 NPSF f x 1/4-18 NPTF m | 557154              | 44 (325)                    |
| 563102      | Grease |                        |                               | 557153              | 149 (100)                   |

**System-Specific Oil Filters** – Filters designed for use with application-specific oil systems.

| Part Number | Type                                       | Max Pressure PSI (bar) | Ports       | Replacement Element | Micron Rating |
|-------------|--|------------------------|-------------|---------------------|---------------|
| 564053      | Thrif-T Luber (TLLF-00) in-line oil filter | 500 (34)               | 1/8-27 NPSF | 557132              | 25            |
| 561031      | High-speed SpindL-Gard inlet block filter  | N/A                    | N/A         | 563489              | 10            |

**Barrel Pump Fill Line Filter** – Small inline filter for use as a fill filter for barrel pump modules including Fire-Ball and Dyna-Star families.

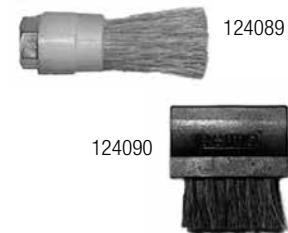
| Part Number | Type                    | Max Pressure PSI (bar) | Ports                                  | Replacement Element | Micron Rating |
|-------------|-------------------------|------------------------|--|---------------------|---------------|
| 77X523      | Inline fill line filter | 5000 (344)             | 3/8-18 NPTF female inlet x male outlet | 77X541              | 400           |

**“Red Alert” Grease Filter** – Ideal for use as a fill line filter for barrel pump modules including Fire-Ball and Dyna-Star families. The indicator provides gradual warning of a dirty element.

| Part Number | Type   | Max Pressure PSI (bar) | Ports      | Replacement Element | Micron Rating |
|-------------|--|------------------------|------------|---------------------|---------------|
| 17L366      | 36 in <sup>2</sup> steel mesh filter, 2 gpm (7.57 lpm) flow capacity | 3000 (207)             | 3/4-14 NPT | 129031              | 380           |

### Oil Brushes

| Part Number | Material  | Dimensions                       | Maximum Temperature | Thread                |
|-------------|-----------|----------------------------------|---------------------|-----------------------|
| 124089      | Horsehair | 3/4 in (20 mm) diameter          | 176°F (80°C)        | 1/4 in-19 BSPP female |
| 124090      |           | 1.2 in (30 mm) x 1.6 in (40 mm)  |                     |                       |
| 124091      |           | 1.2 in (30 mm) x 2.4 in (60 mm)  |                     |                       |
| 124092      |           | 1.2 in (30 mm) x 3.9 in (100 mm) |                     |                       |
| 124114      | Nylon     | 5/8 in (16 mm) diameter          | 160°F (71°C)        | 1/8 in-27 NPT male    |
| 124115      |           | 1/2 in (13 mm) x 2 in (51 mm)    |                     |                       |



# General Accessories

## Pressure Gauges and Check Valves

### Ordering Information

| Pressure Gauges - Bottom and Back Mounted    |  |
|--|--|
| 126005                                       | 0 to 5,000 psi (0 to 344.7 bar), 1/4 in (6.4 mm) NPT brass back mount connection, liquid-filled, operating range -40°F to 150°F (-40°C to 66°C)      |
| 557866                                       | 0 to 3,000 psi (0 to 206.8 bar), standard  |
| 558948                                       | 0 to 150 psi (0 to 10.3 bar), 1/4 in (6.4 mm) NPT brass bottom mount connection, standard  |
| 557713                                       | 0 to 3,000 psi (0 to 206.8 bar), 1/4 in (6.4 mm) NPT stainless steel bottom mount connection, liquid-filled  |
| 102814                                       | 0 to 5,000 psi (0 to 344.7 bar), 1/4 in (6.4 mm) NPT brass bottom mount connection, standard   |
| 557278                                       | 0 to 1,500 psi (0 to 103.4 bar), 1/4 in (6.4 mm) NPT brass back mount connection, standard   |
| 557864                                       | 0 to 3,000 psi (0 to 206.8 bar), 1/4 in (6.4 mm) NPT brass back mount connection, standard   |
| 558297                                       | 0 to 10,000 psi, 1/4 in NPT brass back mount connection, standard  |
| 558298                                       | 0 to 10,000 psi (0 to 689.5 bar), 1/4 in (6.4 mm) NPT steel back mount connection, liquid-filled   |
| Outlet Check Valves                          |  |
| 563196                                       | Single check valve, 1/8-27 in (3.2 mm-68.6 cm) NPTF x 1/8-27 in (3.2 mm-68.6 cm) NPSF carbon steel, steel ball, 5,000 psi (344.7 bar) max            |
| 563052                                       | Single check valve, 7/16-20 in (11.1 mm-50.8 cm) x 7/16-20 in (11.1 mm-50.8 cm) SAE stainless steel, fluoroelastomer ball, 7,500 psi (517.1 bar) max |
| 563054                                       | Single check valve, 7/16-20 in (11.1 mm-50.8 cm) x 7/16-20 in (11.1 mm-50.8 cm) SAE stainless steel, steel ball, 3,500 psi (241.3 bar) max           |
| Maxi-Flo Relief Valve - Field-Installed Only |  |
| 563375                                       | 600 psi (41.4 bar)   |
| Single Ball Check Valves                     |  |
| 563195                                       | 10 psi (.69 bar) nominal cracking pressure, 1/8 in (3.2 mm) NPTF (M) x 1/8 in (3.2 mm) NPSF (F), steel body/ball, 5,000 psi (344.7 bar) max          |
| 563199                                       | 15 psi (1.03 bar) nominal cracking pressure, 1/8 in (3.2 mm) NPSF (F) x 1/8 in (3.2 mm) NPTF (M), steel body/ball, 5,000 psi (344.7 bar) max         |
| 563196                                       | 35 psi (2.4 bar) nominal cracking pressure, 1/8 in (3.2 mm) NPTF (M) x 1/8 in (3.2 mm) NPSF (F), steel body/ball, 5,000 psi (344.7 bar) max          |
| 563200                                       | 35 psi (2.4 bar) nominal cracking pressure, 1/8 in (3.2 mm) NPSF (F) x 1/8 in (3.2 mm) NPTF (M), steel body/ball, 5,000 psi (344.7 bar) max          |
| 563201                                       | 60 psi (4.1 bar) nominal cracking pressure, 1/8 in (3.2 mm) NPSF (F) x 1/8 in (3.2 mm) NPTF (M), steel body/ball, 5,000 psi (344.7 bar) max          |
| 563197                                       | 125 psi (8.6 bar) nominal cracking pressure, 1/8 in (3.2 mm) NPTF (M) x 1/8 in (3.2 mm) NPSF (F), steel body/ball, 5,000 psi (344.7 bar) max         |
| 563198                                       | 250 psi (17.2 bar) nominal cracking pressure, 1/8 in (3.2 mm) NPTF (M) x 1/8 in (3.2 mm) NPSF (F), steel body/ball, 5,000 psi (344.7 bar) max        |
| 563202                                       | 250 psi (17.2 bar) nominal cracking pressure, 1/8 in (3.2 mm) NPSF (F) x 1/8 in (3.2 mm) NPTF (M), steel body/ball, 5,000 psi (344.7 bar) max        |
| 563051                                       | 360 psi (24.8 bar) nominal cracking pressure, 1/8 in (3.2 mm) NPTF (M) x 1/8 in (3.2 mm) NPSF (F), Steel Body/Ball, 5,000 psi (344.7 bar) max        |
| 563206                                       | 10 psi (.69 bar) nominal cracking pressure, 1/4 in (6.4 mm) (M) x 1/4 in (6.4 mm) (F), steel body/ball, 5,000 psi (344.7 bar) max                    |

| 563210                   | 10 psi (.69 bar) nominal cracking pressure, 1/4 in (6.4 mm) NPSF (F) x 1/4 in (6.4 mm) NPTF (M), steel body/ball, 5,000 psi (344.7 bar) max                            |
|--------------------------|--|
| 563207                   | 35 psi (2.4 bar) nominal cracking pressure, 1/4 in (6.4 mm) NPTF (M) x 1/4 in (6.4 mm) NPSF (F), steel body/ball, 5,000 psi (344.7 bar) max                            |
| 563211                   | 35 psi (2.4 bar) nominal cracking pressure, 1/4 in (6.4 mm) NPSF (F) x 1/4 in (6.4 mm) NPTF (M), steel body/ball, 5,000 psi (344.7 bar) max                            |
| 563208                   | 100 psi (6.9 bar) nominal cracking pressure, 1/4 in (6.4 mm) NPTF (M) x 1/4 in (6.4 mm) NPSF (F), steel body/ball, 5,000 psi (344.7 bar) max                           |
| 563209                   | 250 psi (17.2 bar) nominal cracking pressure, 1/4 in (6.4 mm) NPSF (F) x 1/4 in (6.4 mm) NPTF (M), steel body/ball, 5,000 psi (344.7 bar) max                          |
| 563054                   | 35 psi (2.4 bar) nominal cracking pressure, 7/16-20 in (14.3 mm-50.8 cm) SAE (M) x 7/16-20 in (14.3 mm-50.8 cm) SAE (F), SS body/steel ball, 3,500 psi (241.3 bar) max |
| 563055                   | 35 psi (2.4 bar) nominal cracking pressure, 9/16-18 in (14.3 mm-45.7 cm) SAE (M) x 9/16-18 in (14.3 mm-45.7 cm) SAE (F), SS body/steel ball, 3,500 psi (241.3 bar) max |
| 563052                   | 35 psi (2.4 bar) nominal cracking pressure, 7/16-20 in (14.3 mm-50.8 cm) SAE (M) x 7/16-20 in (14.3 mm-50.8 cm) SAE (F), SS body/FKM ball, 7,500 psi (517.1 bar) max   |
| 563047                   | 42 psi (2.9 bar) nominal cracking pressure, 1/4 in (6.4 mm) NPSF (F) x 1/4 in (6.4 mm) NPSF (F), SS body/NBR ball, 7,500 psi (517.1 bar) max                           |
| 563046                   | 48 psi (3.3 bar) nominal cracking pressure, 1/4 in (6.4 mm) NPSF (F) x 1/4 in (6.4 mm) NPSF (F), SS body/FKM ball, 7,500 psi (517.1 bar) max                           |
| 563048                   | 35 psi (2.4 bar) nominal cracking pressure, 1/8 in (3.2 mm) NPSF (F) x 1/8 in (3.2 mm) NPTF (M), steel body/FKM ball, 100 psi (6.9 bar) max                            |
| 563049                   | 35 psi (2.4 bar) nominal cracking pressure, 1/8 in (3.2 mm) NPTF (M) x 1/8 in (3.2 mm) NPSF (F), steel body/FKM ball, 100 psi (6.9 bar) max                            |
| Double Ball Check Valves |  |
| 562642                   | 90 psi (6.2 bar) nominal cracking pressure, 1/8 in NPT(F) x 1/8 in NPT(M), carbon steel body, SS ball, 8,000 psi (551.6 bar) max                                       |
| 562647                   | 90 psi (6.2 bar) nominal cracking pressure, 1/8 in NPT(F) x 1/8 in NPT(M), SS body/ball, 8,000 psi (551.6 bar) max   |
| 563203                   | 45 psi (3.1 bar) nominal cracking pressure, twin tandem, 1/4 in (6.4 mm) NPTF (M) x 1/8 in (3.2 mm) NPTF (M), SS body/ball, 10,000 psi (690 bar) max                   |
| 563205                   | 45 psi (3.1 bar) nominal cracking pressure, twin tandem, 1/4 in (6.4 mm) NPTF (M) x 1/4 in (6.4 mm) NPTF (M), SS body/ball, 10,000 psi (690 bar) max                   |
| 563058                   | 100 psi (2.4 bar) nominal cracking pressure, 1/4 in (6.4 mm) IP (F) x 1/4 in (6.4 mm) IP (M), brass body/ball, 3,000 psi (206.9 bar) max                               |
| 563059                   | 100 psi (2.4 bar) nominal cracking pressure, 1/4 in (6.4 mm) in O.D. pipe inlet (F), 1/4 in (6.4 mm) NPT (M) outlet, brass body/ball, 3,000 psi (206.9 bar) max        |
| 563061                   | 48 psi (3.3 bar) nominal cracking pressure, 1/4 in (6.4 mm) NPSF (F) x 1/4 in (6.4 mm) NPSF (F), SS body/FKM ball, 7,500 psi (517.1 bar) max                           |
| 563060                   | 48 psi (3.3 bar) nominal cracking pressure, 1/4 in (6.4 mm) NPSF (F) x 1/4 in (6.4 mm) NPSF (F), SS body/NBR ball, 7,500 psi (517.1 bar) max                           |

# General Accessories

## Installation Accessories – Hose, Tubing, Fittings, and Mounting Hardware

### Ordering Information

| 8.6 mm OD Hoses and Accessories   |   |                              |            |             |
|---|---|------------------------------|------------|-------------|
| <b>Hose</b> – 8.6 mm OD, 5/32 in (4 mm) ID, 3,000 PSI, braided with polyurethane cover                    |   |                              |            |             |
| 17S552  | 82 ft (25 m)  |                              |            |             |
| 17S553  | 164 ft (50 m)   |                              |            |             |
| 17S554  | 328 ft (100 m)  |                              |            |             |
| 17S555  | 656 ft (200 m)  |                              |            |             |
| <b>Hose Ends</b> – threaded, hose sleeve already included   |   |                              |            |             |
| 17Y690  | Field-installable swivel hose end fitting, 8.6 mm OD hose, #4 JIC, SAE 7/16-20 female |                              |            |             |
| 17Y691  | Field-installable swivel hose end fitting, 8.6 mm OD hose, 1/8 NPT Male               |                              |            |             |
| <b>Hose Ends</b> – 6 mm OD studs  |   |                              |            |             |
| 17L648  | Hose sleeve, 8.6 mm OD hose – combine with any of the hose studs below                |                              |            |             |
| G-Lock P-T-C  | Compression   |                              |            |             |
| 17L649  | 17R565  | Straight 6 mm hose stud      |            |             |
| 17L650  | 17R566  | 90 deg. elbow 6 mm hose stud |            |             |
| <b>NPT and BSP Fittings</b> – 6 mm ID on one end to receive 6 mm hose stud, male pipe thread on other end |   |                              |            |             |
| G-Lock P-T-C  |   | Compression                  |            |             |
| Straight  | Elbow (90)  | Straight                     | Elbow (90) | Pipe Thread |
| 17Y689  | N/A   | 17T780                       | 17T781     | 1/8 in NPT  |
| N/A   | N/A   | 17T782                       | 17T783     | 1/4 in NPT  |
| 17L545  | 17L449  | 17L548                       | 17L546     | 1/8 in BSP  |
| 17R569  | N/A   | 17R571                       | 17R572     | 1/4 in BSP  |
| 1/8 in ID Hoses and Accessories   |   |                              |            |             |
| 128570  | Hose, 1/8 in ID, 3,000 PSI, 200 feet, braided with polyurethane cover                 |                              |            |             |
| 128571  | Hose, 1/8 in ID, 3,000 PSI, 400 feet, braided with polyurethane cover                 |                              |            |             |
| 128862  | Hose, 1/8 in ID, 3,000 PSI, 2,000 feet, braided with polyurethane cover               |                              |            |             |
| 128579  | Hose guard, 3/8 in ID, 160 feet   |                              |            |             |
| 128580  | Hose guard, 3/8 in ID, 320 feet   |                              |            |             |
| 128561  | Field-installable swivel hose end fitting, 1/8 in ID hose, #4 JIC, SAE 7/16-20 female |                              |            |             |
| 128562  | Field-installable swivel hose end fitting, 1/8 in ID hose, 1/8 NPT male               |                              |            |             |
| 128006  | Clamp, 3/8 in OD hose   |                              |            |             |
| 17L941  | Hose repair kit, 1/8 in OD  |                              |            |             |
| 1/4 in ID Hoses and Accessories   |   |                              |            |             |
| 128572  | Hose, 1/4 in ID, 2,750 PSI, 100 feet, braided with polyurethane cover                 |                              |            |             |
| 128573  | Hose, 1/4 in ID, 2,750 PSI, 125 feet, braided with polyurethane cover                 |                              |            |             |
| 130281  | Hose, 1/4 in ID, 2,750 PSI, 250 feet, braided with polyurethane cover                 |                              |            |             |
| 131164  | Hose, 1/4 in ID, 2,750 PSI, 500 feet, braided with polyurethane cover                 |                              |            |             |
| 128581  | Hose guard, 1/2 in ID 80 feet   |                              |            |             |
| 128582  | Hose guard, 1/2 in ID 100 feet  |                              |            |             |
| 128563  | Field-installable swivel hose end fitting, 1/4 in ID hose, #4 JIC, SAE 7/16-20 female |                              |            |             |
| 128564  | Field-installable swivel hose end fitting, 1/4 in ID hose, 1/4 NPT male               |                              |            |             |
| 128565  | Field-installable swivel hose end fitting, 1/4 in ID hose, 1/8 NPT male               |                              |            |             |
| 557944  | Clamp, 7/16 in OD hose  |                              |            |             |
| 17L942  | Hose repair kit, 1/4 in OD  |                              |            |             |
| 3/8 in ID Hoses and Accessories   |   |                              |            |             |
| 17P336  | Hose, 3/8 in ID, 4750 PSI, 100 feet, steel braided with synthetic rubber cover        |                              |            |             |
| 17P337  | Field-installable swivel hose end fitting, 3/8 in ID hose, #6 JIC, SAE 9/16-18 female |                              |            |             |
| 117832  | Fitting, #6 JIC SAE 9/16-18 male x 3/8 in NPT male                                    |                              |            |             |
| 1/8 in OD Tubing and Accessories  |   |                              |            |             |
| 127554  | Tubing, 1/8 in OD, 625 PSI, 100 feet  |                              |            |             |
| 127551  | 1/8 in tube x 1/8 in NPT straight compression fitting                                 |                              |            |             |
| 1/4 in OD Tubing and Accessories  |   |                              |            |             |
| 127555  | Tubing, 1/4 in OD, 625 PSI, 100 feet  |                              |            |             |
| 127552  | 1/4 in tube x 1/4 in NPT straight compression fitting                                 |                              |            |             |
| 555726  | 1/4 in tube x 1/4 in NPT elbow compression fitting                                    |                              |            |             |
| 127553  | 1/4 in tube x 1/8 in NPT straight compression fitting                                 |                              |            |             |
| 556634  | 1/4 in tube x 1/8 in NPT elbow compression fitting                                    |                              |            |             |



# General Accessories

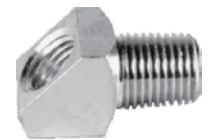
## Installation Accessories – Hose, Tubing, Fittings, and Mounting Hardware

### Ordering Information

| 3/16 in OD Tubing and Bulk Fittings |  |
|-------------------------------------|--|
| 16A169                              | Tubing, 3/16 in OD, Single Tube, 1,350 PSI, 100 Feet           |
| 16A171                              | Tubing, 3/16 in OD, Double Tube, 1,350 PSI, 100 Feet           |
| 16A172                              | Tubing, 3/16 in OD, Triple Tube, 1,350 PSI, 100 Feet           |
| 127722                              | Male Elbow, 3/16 in Tube x 1/8 in NPT, Brass, Quantity 250     |
| 127723                              | Male Connector, 3/16 in Tube x 1/8 in NPT, Brass, Quantity 250 |
| 127724                              | Union, 3/16 in Tube, Brass, Quantity 50                        |
| 127725                              | Union, 5/16 in Tube, Brass, Quantity 50                        |
| Elbows                              |  |
| 556763                              | #4 JIC SAE 7/16-20 male x 1/8 in NPT male                      |
| 556764                              | #4 JIC SAE 7/16-20 male x 1/4 in NPT male                      |
| 15K740                              | 1/4-28 NPT male x 1/8 in NPT female                            |
| 15K783                              | 1/8 NPT male x 1/8 NPT female, PTF SAE Short                   |
| 560530                              | 1/8 NPT male x 1/4 NPT female                                  |
| 15M045                              | 1/4 NPT male x 1/4 NPT female                                  |
| 560533                              | 1/4 NPT male x 1/8 NPT female                                  |
| 560534                              | 3/8 NPT male x 3/8 NPT female                                  |
| 158683                              | 1/2 NPT male x 1/2 NPT female                                  |
| 45° Elbows                          |  |
| 557395                              | 1/8 NPT male x 1/8 NPT female                                  |
| 560532                              | 1/4 NPT male x 1/4 NPT female                                  |
| Reducing Bushings                   |  |
| 556402                              | 1/4 NPT male x 1/8 NPT female                                  |
| 556403                              | 3/8 NPT male x 1/8 NPT female                                  |
| 556404                              | 3/8 NPT male x 1/4 NPT female                                  |
| 100206                              | 1/2 NPT male x 1/4 NPT female                                  |
| Expanding Bushings                  |  |
| 556416                              | 1/8 NPT male x 1/4 NPT female                                  |
| 156580                              | 1/8 NPT male x 3/8 NPT female                                  |
| 150287                              | 1/4 NPT male x 3/8 NPT female                                  |
| 159842                              | 1/4 NPT male x 1/2 NPT female                                  |
| 156022                              | 3/8 NPT male x 1/2 NPT female                                  |
| Pipe Extensions M x F               |  |
| 557392                              | 1/8 NPT male x 1/8 NPT female, 3/4 long                        |
| 557393                              | 1/8 NPT male x 1/8 NPT female, 1-1/4 long                      |
| 563178                              | 1/8 NPT male x 1/8 NPT female, 2-1/4 long                      |
| Adapter                             |  |
| 555749                              | #4 JIC SAE 7/16-20 male x 1/8 in NPT male                      |
| 556762                              | #4 JIC, SAE 7/16-20 male x 1/4 in NPT male                     |
| 555453                              | 1/4 NPT male x 1/4 NPT male                                    |
| 556408                              | 1/4 NPT male x 1/8 NPT male                                    |
| 156296                              | 3/8 NPT male x 1/8 NPT male                                    |
| 165198                              | 3/8 NPT male x 1/4 NPT male                                    |
| 156849                              | 3/8 NPT male x 3/8 NPT male                                    |
| 17G422                              | 1/8 NPT female x 1/8 BSPT male short                           |
| 17K061                              | 1/8 NPT female x 1/8 BSPT male elbow                           |
| 17K062                              | 1/8 NPT female x 1/8 BSPT male long                            |



15K783



557395



556402



556416



557392



555453

# General Accessories

## Installation Accessories – Hose, Tubing, Fittings, and Mounting Hardware

### Ordering Information

| Anchor Mounts       |  |
|---------------------|--|
| 560540              | 180° Straight Anchor Fitting, 1/8 in NPSF            |
| 560541              | 180° Straight Anchor Fitting, 1/4 in NPSF            |
| 558910              | 180° Straight Anchor Fitting, 1/2 in NPSF            |
| 560542              | Cross Anchor Fitting, 1/4 in NPSF                    |
| 560543              | Cross Anchor Fitting, 1/8 in NPSF                    |
| 561430              | 180° Straight Anchor Fitting, 2 lines, 1/4 in NPSF   |
| 560535              | 90° Drop Elbow Brass, 1/8 in NPSF                    |
| 560537              | Wing Tee, 1/4 in NPTF                                |
| Grease Zerks        |  |
| 557969              | Grease Zerk Cover                                    |
| 555888              | 1/8 in NPT, 5,000 PSI, Straight, Leakproof           |
| 556429              | 1/8 in NPTF, 5,000 PSI, 90 Degree, Leakproof, Buna-N |
| 100054              | 1/8 in, 10,000 PSI                                   |
| 100848              | 1/4 in, 10,000 PSI                                   |
| Fill Studs          |  |
| 24M644              | QD Style w/Cap                                       |
| 110712              | 1/4 in Button Head                                   |
| 100854              | 3/8 in Button Head                                   |
| Mounting Weld Studs |  |
| 127512              | 1/4-20 x 0.710 in long                               |
| 127513              | 1/4-20 x 0.96 in long                                |
| 127514              | 1/4-20 x 1.2 in long                                 |
| 17D024              | 1/4-20 x 2 in long                                   |
| 17D023              | 3/8-16 x 1.25 in long                                |
| Clamps              |  |
| 127012              | 3/8 in clamp diameter x 9/32 mounting hole           |
| 557944              | 1/2 in clamp diameter x 9/32 mounting hole           |
| 127515              | 1 1/2 in clamp diameter x 9/32 mounting hole         |
| Bulkheads           |  |
| 128566              | 1/4 NPT  |
| 557950              | 1/8 NPT  |
| Hose Vise Block     |  |
| 127145              | 1/8 in, 1/4 in, 1/2 in ID hose                       |
| Hex Coupling        |  |
| 560528              | 1/8 NPT female x 1/8 NPT female                      |
| 113093              | 1/4 NPT female x 1/4 NPT female                      |
| 162024              | 3/8 NPT female x 3/8 NPT female                      |
| Male Run Tee        |  |
| 556419              | 1/8 NPT male x 1/8 NPT female (2)                    |
| 556420              | 1/4 NPT male x 1/4 NPT female (2)                    |
| 128568              | 3/8 NPT male x 3/8 NPT female (2)                    |
| Male Branch Tee     |  |
| 558795              | 1/8 NPT male x 1/8 NPT female (2)                    |
| 556407              | 1/4 NPT male x 1/4 NPT female (2)                    |
| 128567              | 3/8 NPT male x 3/8 NPT female (2)                    |
| Plugs               |  |
| 557349              | 1/8 in NPT socket head                               |
| 111697              | 1/4 in NPT square head                               |
| 100040              | 3/8 in NPT square head                               |
| Cable Tie           |  |
| 17K063              | Cable tie 14 in x .30 in, qty 100                    |



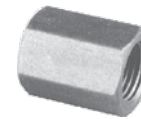
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24M644



557950



560528



556419



100040

# General Accessories

## Fittings

### Ordering Information

| Pipe Fittings              |   |
|----------------------------|---|
| 560532                     | 45° Street Elbow - 1/4 in (6.4 mm) Female x 1/4 in (6.4 mm) male, steel                           |
| 560530                     | 90° Street Elbow - 1/4 in (6.4 mm) Female x 1/8 in (3.2 mm) male, steel                           |
| 15M045                     | 90° Street Elbow - 1/4 in (6.4 mm) Female x 1/4 in (6.4 mm) male, steel                           |
| 560533                     | 90° Street Elbow - 1/8 in (3.2 mm) Female x 1/4 in (6.4 mm) male, steel                           |
| 560534                     | Fitting - Street Elbow, 3/8 in (9.5 mm) Male x 3/8 in (9.5 mm) female                             |
| 560528                     | Hex Coupling - 1/8 in (3.2 mm) female, steel  |
| 556402                     | Reducing Brushing - 1/4 in (6.4 mm) male x 1/8 in (6.4 mm) female, steel                          |
| 563178                     | Extension Nipple - 1/8 in (6.4 mm) female x 1/8 in (6.4 mm) male, 2-1/4 in (5.7 cm) length, steel |
| 556632                     | Male Connector - 1/4 in (6.4 mm) T x 1/8 in (3.2 mm) male, brass                                  |
| 556633                     | Male Connector - 1/4 in (6.4 mm) T x 1/4 in (6.4 mm) male, brass                                  |
| 556634                     | Male Elbow - 1/4 in (6.4 mm) T x 1/8 in (3.2 mm) male, brass                                      |
| 555726                     | Male Elbow - 1/4 in (6.4 mm) T x 1/4 in (6.4 mm) male, brass                                      |
| 555727                     | Tube Sleeve - 3/16 in (4.8 mm) T, brass   |
| 556635                     | Tube Sleeve - 1/4 in (6.4 mm) T, brass  |
| Straight and Angle Swivels |   |
| 563212                     | 90° Angle Swivel - 1/8 in (3.2 mm)  |
| 563214                     | 90° Angle Swivel - 1/4 in (6.4 mm)  |
| 564350                     | 90° Angle Swivel - 1/2 in (12.7 mm)   |
| 563213                     | 180° Straight Swivel - 1/8 in (3.2 mm)  |
| 563215                     | 180° Straight Swivel - 1/4 in (6.4 mm)  |
| 563154                     | 180° Straight Swivel - 1/2 in (12.7 mm)   |
| 564352                     | 180° Straight Swivel - 1 in (2.5 cm)  |
| 563146                     | 90° Compact Swivel - 1/4 in (6.4 mm)  |
| 563147                     | 180° Compact Swivel - 1/4 in (6.4 mm)   |
| 563150                     | 180° Compact Swivel - 1/8 in (3.2 mm)   |
| 563148                     | 90° Swivel Adapter - 1/8 in (3.2 mm) NPT x 1/8 in (3.2 mm) NPT female                             |
| Tube Fittings              |   |
| 556448                     | Zerk Adapter Quick Fitting  |
| 556636                     | Male Tee - 5/16 in (7.9 mm) tube, 1/8 in (3.2 mm) NPTF  |
| 556637                     | Union Tee - 5/16 in (7.9 mm) tube   |
| 556638                     | Male Elbow - 3/16 in (4.8 mm) tube 1/8 in (3.2 mm) NPTF   |
| 556639                     | Male Elbow - 5/16 in (7.9 mm) tube, 1/8 in (3.2 mm) NPTF  |
| 556640                     | Male Elbow - 5/16 in (7.9 mm) tube, 1/4 in (6.4 mm) NPT   |
| 556642                     | Female Connector - 3/16 in (4.8 mm) tube, 1/8 in (3.2 mm) NPT                                     |
| 556643                     | Female Connector - 5/16 in (7.9 mm) tube, 1/8 in (3.2 mm) NPT                                     |
| 556644                     | Male Connector - 3/16 in (4.8 mm) tube, 1/8 in (3.2 mm) NPTF                                      |
| 556645                     | Male Connector - 5/16 in (7.9 mm) tube, 1/8 in (3.2 mm) NPTF                                      |
| 556646                     | Male Connector - 5/16 in (7.9 mm) tube, 1/4 in (6.4 mm) NPT                                       |
| 556647                     | Union - 3/16 in (4.8 mm) tube   |
| 556648                     | Union - 5/16 in (7.9 mm) tube   |
| 556649                     | Nut - 3/16 in (4.8 mm) tube   |
| 556650                     | Nut - 5/16 in (7.9 mm) tube   |
| 556652                     | Sleeve - 3/16 in (4.8 mm) tube  |
| 556653                     | Sleeve - 5/16 in (7.9 mm) tube  |
| 556656                     | 5/16 in (7.9 mm) Tube Brass Insert - minimum order of 20 (price each)                             |
| 556660                     | 3/16 in (4.8 mm) Tube Nut and Sleeve  |
| 562995                     | Male Connector - 3/16 in (4.8 mm) Tube, 1/4-28 in (6.4 mm-71.1 cm) SAE male                       |

| 556661                                    | Straight Connector - push-to-connect 3/16 in (4.8 mm) tube, 1/8 in (3.2 mm) PM           |
|---|--|
| 556662                                    | Elbow - 90 ft (27.4 m), push-to-connect 3/16 in (4.8 mm) tube, 1/8 in (3.2 mm) PM        |
| 556666                                    | 5/16 in (7.9 mm) Tube Nut and Sleeve   |
| 556670                                    | 90° Elbow - 3/16 in (4.8 mm) Tube, 1/8 in (3.2 mm) NPT female                            |
| 15K783                                    | 90° Elbow - 1/8 in (3.2 mm) NPTF male/female, PTF SAE short                              |
| 557395                                    | 45° Street Elbow - 1/8 in (3.2 mm) NPTF male/female                                      |
| 560534                                    | Street Elbow Fitting - 3/8 in (9.5 mm) male, 3/8 in (9.5 mm) female                      |
| 563759                                    | Air-Operated Tractor Hardware Package - 30 point   |
| 557954                                    | Adapter - 45° elbow, 1/4-28 in (6.4 mm-71.1 cm) SAE male x 1/8 in (3.2 mm) NPTF female   |
| 557968                                    | Zerk Fitting - 1/8 in (3.2 mm) NPT @ 65° angle   |
| 563776                                    | Zerk Adapter - 90°   |
| 563777                                    | Zerk Adapter - straight  |
| G-Lock Push-to-Connect (PTC) Fittings     |  |
| For use with 1/8 in ID hose only          |  |
| 17L441                                    | 1/4 in stud PTC, M10, CSP outlet   |
| 25M496                                    | 90 degree 1/4 in field-installable stud  |
| 25M497                                    | Straight 1/4 in field-installable stud   |
| 17L442                                    | 1/4 in stud PTC with male 1/8 in NPT, inlet or LP  |
| 17L547                                    | 1/4 in stud PTC with male 1/4 in NPT, pump outlet  |
| Nylon Tube Push-To-Connect (PTC) Fittings |  |
| For use with 1/4 in OD nylon tube         |  |
| 17L440                                    | 1/4 in OD nylon tube PTC, M10, CSP outlet  |
| 17L652                                    | 90 degree 1/4 in OD nylon tube PTC, male 1/8 in NPT, inlet or LP                         |
| 17L653                                    | Straight 1/4 in OD nylon tube PTC, male 1/8 in NPT, inlet or LP                          |
| CSP Outlet Fittings                       |  |
| 25M498                                    | 1/8 in NPT female with check, M10  |
| 25M499                                    | 1/4 in compression with check, M10   |
| Miscellaneous Adapters and Fittings       |  |
| 556403                                    | Reducing Bushing - 3/8 in (9.5 mm) NPT x 1/8 in (3.2 mm) NPT female                      |
| 556407                                    | Fitting Tee - 1/8 in (6.4 mm) male x (2) 1/8 in (6.4 mm) female                          |
| 556420                                    | Fitting Tee - 1/4 in (6.4 mm) male x (2) 1/4 in (6.4 mm) female                          |
| 15M037                                    | Press-to-Fit - 1/8 in (3.2 mm) NPSF  |
| 563148                                    | 90° Swivel Adapter - 1/8 in (3.2 mm) NPT x 1/8 in (3.2 mm) NPT female                    |
| 557392                                    | Extension - 1/8 in (3.2 mm) NPT x 1/8 in (3.2 mm) NPTF, 3/4 in (19 mm) long              |
| 557393                                    | Extension - 1/8 in (3.2 mm) NPT x 1/8 in (3.2 mm) NPTF, 1-1/4 in (3.18 cm) long          |
| 557950                                    | Bulkhead FTG - 1/8 in (3.2 mm) NPT   |
| 15K740                                    | Elbow Adapter - 1/4-28 in (6.4 mm-71.1 cm) SAE male x 1/8 in (3.2 mm) NPTF female        |
| 15K784                                    | Elbow Adapter - 1/4-28 in (6.4 mm-71.1 cm) SAE male x 1/8 in (3.2 mm) NPTF female, short |
| 557955                                    | Straight Adapter - 1/4-28 in (6.4 mm-71.1 cm) SAE male x 1/8 in (3.2 mm) NPTF female     |
| Hose Fittings                             |  |
| 555749                                    | Connector - 1/8 in (3.2 mm) NPT, #4 JIC  |
| 556762                                    | Connector - 1/4 in (6.4 mm) NPT, #4 JIC  |
| 556763                                    | 90° Elbow - 1/8 in (3.2 mm) NPT, #4 JIC  |
| 556764                                    | 90° Elbow - 1/4 in (6.4 mm) NPT, #4 JIC  |

# Graco Controllers-at-a-Glance

## Selecting the Right Controller is Easy!

| Feature                                     | Controller   |                      |  |                    |                              |                            |   |            |           |         |                                 |                                 |
|---|--|----------------------|--|--------------------|------------------------------|----------------------------|---|------------|-----------|---------|---------------------------------|---------------------------------|
|   | GLC 4400 AC (24B596)                               | GLC 4400 DC (24B591) | GLC-X  | GLC 2200 (24N468)  | Grease Jockey Timer (24W482) | Solid State Timer (562872) | G3 Max  | G3 SP      | G3 Pro    | G1 Plus | Electric Grease Jockey          | G-Mini Controller               |
| Voltage                                     | 100-240 VAC  | 9-30 VDC             | 9-30 VDC   | 9-30 VDC           | 9-32 VDC                     | 115/230 VAC                | AC: 88-264 VAC<br>24V: 18-32 VDC<br>12V: 9-16 VDC |            |           |         | 24V: 18-32 VDC<br>12V: 9-16 VDC | 24V: 18-32 VDC<br>12V: 9-16 VDC |
| AC Frequency                                | 50/60 Hz   | N/A                  | N/A  | N/A                |                              | 50/60 Hz                   | AC: 47-63 (50/60) Hz – DC: N/A                    |            |           |         | N/A                             | N/A                             |
| Max amps (pump output)                      | 10 A   | 5 A                  | 10 A   | 7 A                |                              | 3 A                        | N/A   | N/A        | N/A       | N/A     | N/A                             | N/A                             |
| Min On Time                                 | 1 sec  |                      | 10 secs  | 1 sec              |                              | ~ 12 secs                  | 1 sec*  | 4 mins/cyc | 1 sec*    | 1 min   | 1 sec*                          | 1 min                           |
| Max On Time                                 | 100 hrs (99:59:59)                                 |                      | 100 hrs (99:59:59) (Timeout) Must be < Interval    | 60 mins (59:59)    |                              | 13 mins                    | 30 mins   | 4 mins/cyc | 30 mins   | 30 mins | 30 mins                         | 30 mins                         |
| Minimum Cycle Count                         | 1 (optional)                                       |                      | 1  | 1 (optional)       | N/A                          | N/A                        | 1 (optional)                                      | 1          | N/A       | N/A     | N/A                             | 1                               |
| Maximum Cycle Count                         | 9,999  |                      | 100  | 99                 | N/A                          | N/A                        | 9,999   | 99         | N/A       | N/A     | N/A                             | 99                              |
| Pressure Switch Function                    | Configurable for both injectors and divider valves |                      | Configurable for both injectors and divider valves | For injectors only | N/A                          | N/A                        | For injectors only                                | N/A        | N/A       | N/A     | N/A                             | N/A                             |
| Min Off Time                                | 1 sec  |                      | 1 min (Interval) Must be > Timeout                 | 1 min              |                              | 30 secs                    | 1 min   | 15 mins    | N/A       | 1 hr    | 1 min                           | 15 min                          |
| Max Off Time                                | 9,999 hrs  |                      | 100 hrs (99:59) (Interval)                         | 100 hrs (99:59)    |                              | 32 hrs                     | 9,999 hrs   | 9,999 hrs  | 9,999 hrs | 24 hrs  | 100 hrs (99:59)                 | 99 hrs                          |
| Stroke/Machine Count                        | Yes  |                      | Yes  | -                  | -                            | -                          | Yes   | -          | -         | -       | -                               | -                               |
| Minimum Stroke/Machine Count                | 1 (optional)                                       |                      | 1  | -                  | -                            | -                          | 1 (optional)                                      | -          | -         | -       | -                               | -                               |
| Maximum Stroke/Machine Count                | 9,999  |                      | 10,000   | -                  | -                            | -                          | 9,999   | -          | -         | -       | -                               | -                               |
| Pulse mode for pump                         | Yes  |                      | Auto Lube App**                                    | Yes                | -                            | -                          | N/A   | N/A        | N/A       | N/A     | N/A                             | N/A                             |
| PreLube                                     | Yes  |                      | Yes  | -                  | -                            | -                          | Yes   | -          | Yes       | -       | -                               | Yes                             |
| PreLube Delay                               | Yes  |                      | Yes  | -                  | -                            | -                          | Yes   | -          | Yes       | -       | -                               | Yes                             |
| Low Level Input                             | Yes  |                      | Yes  | Yes                | -                            | -                          | N/A   | N/A        | N/A       | N/A     | N/A                             | N/A                             |
| Low Level Output                            | Yes  |                      | Auto Lube App**                                    | Yes                | -                            | -                          | Yes   | Yes        | Yes       | Yes     | Yes                             | Yes                             |
| Alarm Output                                | Yes  |                      | Auto Lube App**                                    | Yes                | -                            | -                          | Yes   | Yes        | LL only   | LL only | Yes                             | Yes                             |
| OK Signal                                   | Yes  |                      | Auto Lube App**                                    | -                  | -                            | -                          | -   | -          | -         | -       | -                               | -                               |
| Manual Run (onboard)                        | Yes  |                      | Yes  | Yes                | Yes                          | Yes                        | Yes   | Yes        | Yes       | Yes     | Yes                             | Yes                             |
| Remote Manual Run                           | Yes  |                      | Auto Lube App**                                    | -                  | -                            | -                          | Yes   | Yes        | Yes       | Yes     | Yes                             | Yes                             |
| Enclosure Rating (None are explosion proof) | IP69K  |                      | IP69K  | IP54               | IP54                         | N/A                        | IP69K   | IP69K      | IP69K     | IP69K   | Yes                             | IP69K                           |

\*Note: The 22 rpm motor needs 3 seconds to stroke the G3 or EGJ piston pump once; Graco recommends a minimum of 6 seconds On Time for G3 and EGJ pumps.

\*\*These features are available via a Bluetooth connection to the Graco Auto Lube app on your smartphone or tablet.



# Controllers

## GLC™ 2200 Controller

### Features and Benefits

- Easy to mount without having to open up the control box
- LEDs let you know what your system is doing at a glance
- Easy to read digital display makes it simple to program and monitor your equipment
- In-cab visual and audible alarms let the operator know your equipment needs attention. Or set up a remote alarm to alert service or maintenance staff
- Simple icon based push buttons make programming easy
- Color coded wiring harness with flying leads and easy to follow wiring diagrams makes installations efficient

### Available Inputs

- Pressure/cycle switch
- Low level switch

### Available Outputs

- Pump power control
- External alarms—both low level and pressure/cycle faults

### Typical Applications

- Heavy construction, mining, other mobile on-road and off-road equipment

### Technical Specifications

|                            |                                |
|----------------------------|--------------------------------|
| Height.....                | 5.53 in (140 mm)               |
| Width.....                 | 2.75 in (70 mm)                |
| Depth.....                 | 1.38 in (35 mm)                |
| Protection Grade.....      | IP54                           |
| Operating Temperature..... | -40°F to 176°F (-40°C to 80°C) |
| Standards.....             | CE Marked                      |
| Power Source DC.....       | 9 - 30 VDC                     |
| Manual.....                | 3A2960A                        |

### Ordering Information

| GLC 2200 |  |
|----------|--|
| 24N468   | GLC 2200 controller  |
| 24P314   | GLC 2200 wiring harness – 5 feet (150 cm) with flying leads  |
| 24W981   | GLC 2200 wiring harness – 10 feet (300 cm) with flying leads |
| 24P686   | GLC 2200 connector (1) and pins (12)                         |
| 24P687   | GLC 2200 connectors (5) and pins (60)                        |
| 16T671   | Crimper  |
| 24X606   | Mounting bracket kit   |
| 17G007   | Yellow iron mounting bracket with slide adjustment           |



# Controllers

## GLC™ 4400 Controller

### Features and Benefits

- Customize your lubrication time, pressure, cycle counts and machine counts for maximum precision and productivity
- Simple icon- and menu-based user interface is easy to setup and operate, saving valuable technician time
- Special operation modes save setup and inspection time
- Rugged and weatherproof, meeting stringent IP69K protection requirements
- Works with single line resistive, single line parallel, series progressive and dual line systems

### Available Inputs

- Pressure/cycle switch
- Machine count switch
- Reservoir level switch
- Remote manual run switch

### Available Outputs

- Pump control signal
- Low level alarm signal
- Pressure/cycle alarm
- System okay signal

### Typical Applications

- Heavy construction, mining, other mobile off-road equipment
- In plant machinery, food and beverage, wind energy

### Technical Specifications

|                             |                                |
|-----------------------------|--------------------------------|
| Height .....                | 4.7 in (120 mm)                |
| Width .....                 | 4.8 in (122 mm)                |
| Depth .....                 | 3.6 in (91 mm)                 |
| Protection Grade .....      | IP 69K                         |
| Operating Temperature ..... | -40°F to 145°F (-40°C to 63°C) |
| Net Weight .....            | 2 lbs (0.9 kg)                 |
| Standards .....             | CE Marked                      |
| Manual .....                | 313855                         |

### Ordering Information

| GLC 4400 |             |
|----------|-------------|
| 24B591   | 9-30 VDC    |
| 24B596   | 100-240 VAC |



24B591

# Controllers

## GLC™ X Controller

### Drive More Productivity

The powerful, easy-to-use Graco GLC X automatic lubrication controller captures more information so operators, technicians and managers can make faster, smarter decisions. Paired with the intuitive Auto Lube app, users can monitor system performance and make adjustments with incredible speed, precision and freedom from their personal mobile device.



#### Indoor/Outdoor Mountable (IP69K)

Designed to withstand all the elements, including high-pressure washes and inclement weather encountered at the harshest and dirtiest sites.

#### Easy-to-Read Screen

High-contrast screen features text codes, faults and other data clearly in any ambient light without distracting operators.

#### Real-Time System Reporting

Program and display a wide range of customizable functions – including lubrication intervals, pressure limits, lubricant levels and more.

#### Smart Device and Mobile App

With the Auto Lube™ app, monitor lubrication levels, configure settings, track history and share important diagnostics.



#### Universal Compatibility

One controller for all your lubrication systems simplifies training and inventory.

#### Quick Technical Information Access

Easily scan this QR code for access to manuals, guides, video tutorials and more.



**Scan Me!**

#### Active Current Protection

9-30 VDC, 10 amp continuous power supply protects grease pumps from overcurrent and entire system from misfires, electrical shorts and surges.

### Typical Applications

- Heavy construction, mining, other mobile on-road and off-road equipment

### Technical Specifications

|                             |   |
|-----------------------------|---|
| Inputs/Outputs .....        | 4/2   |
| Power Source .....          | 9-30 VDC  |
| Modes .....                 | Pressure / Cycle / Timer  |
| Dimensions .....            | 3.62 in (92 mm) wide x 6.66 in (169 mm) high x 1.98 in (50 mm) deep |
| Operating Temperature ..... | -22°F to 158°F (-30°C to 70°C)                                      |
| Protection Grade .....      | IP69K   |
| Manual .....                | 3A7031  |

### Ordering Information

| GLC X Controller  |  |
|-------------------|--|
| 26A855            | GLC X controller with 20 ft (6 m) cable      |
| 26A814            | GLC X controller                             |
| GLC X Accessories |  |
| 26A853            | GLC X pump simulator                         |
| 26A882            | GLC X 20 ft (6 m) cable                      |
| 26A883            | GLC X to Compact Dyna-Star® 3 ft (1 m) cable |
| 26A888            | 14-pin mating connector kit                  |

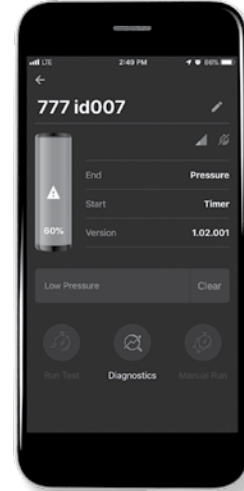
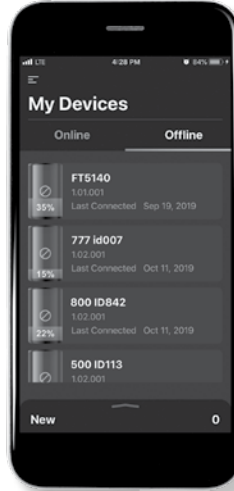
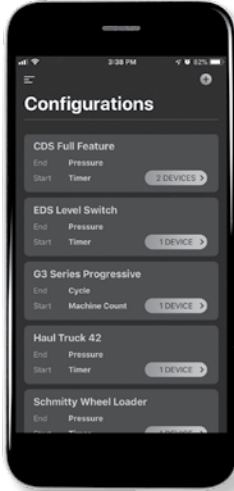
# Controllers

## GLC™ X Controller and Auto Lube™ App



### Productivity Leads to Profitability

Help your crews work faster and minimize downtime by simplifying their everyday lubrication tasks. Designed for today's modern personal mobile device user, the **Graco Auto Lube App** is intuitive and easy to learn for users in the field. They can view historical performance charts, access support and share information with a tap or swipe.



### Control Lubrication Profile Configurations

- Customize profiles for equipment and end users
- Quickly and easily assign a Lube Profile Configuration with a GLCX Controller

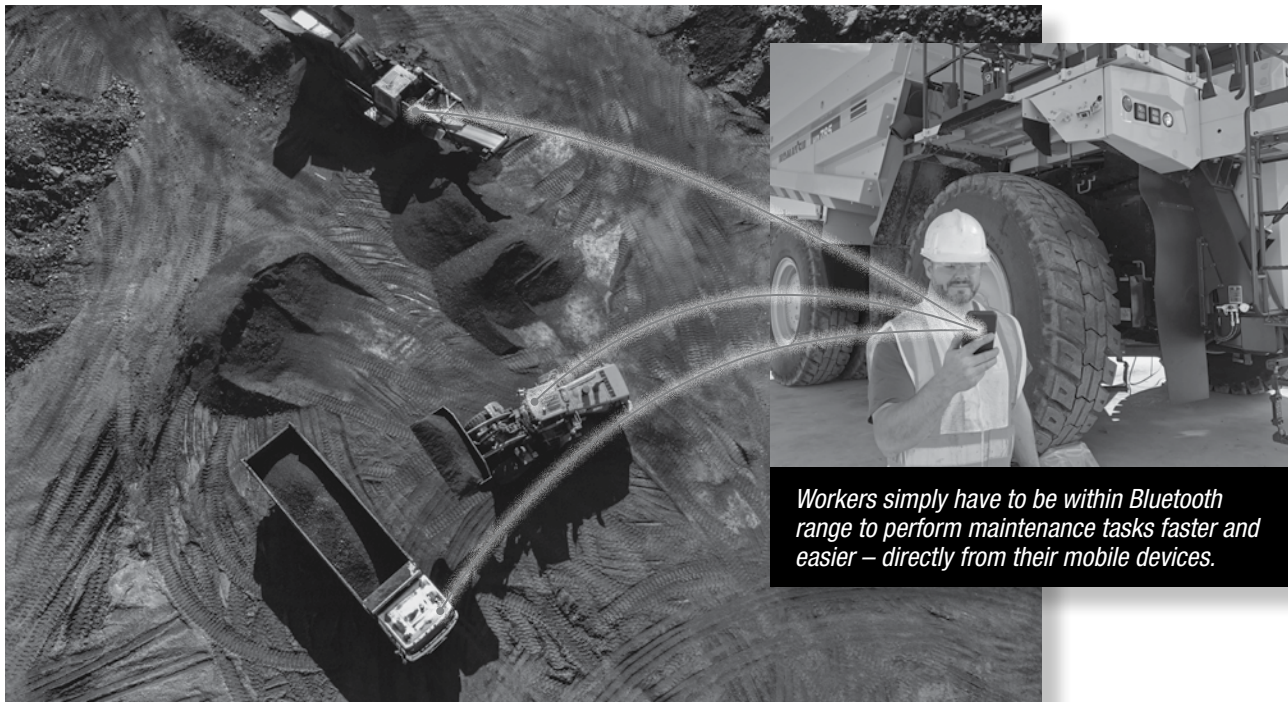
### Manage Devices

- Connect via Bluetooth to get instant status
- Review last-known state on any historical device

### Communicate in Real Time

- See, control, check and clear alarms
- Complete a manual run
- Review and share system history

Controllers



*Workers simply have to be within Bluetooth range to perform maintenance tasks faster and easier – directly from their mobile devices.*

Download the **Graco Auto Lube** app from Google Play or the App Store (iOS) and perform all controller functions from the convenience of a smartphone or tablet.

# Controllers

## Solid-State Timer

### Features and Benefits

The Solid-State Timer from Graco operates on standard 115/230 VAC 50/60 Hz input power, and provides a total on and off cycle with “on” periods to meet your specific lubrication system’s requirements. Total cycle times can be set from 1/2 minute to 32 hours. “On” time during the total cycle time can be set from 12 seconds to 13 minutes. The “on” time occurs at the beginning of each period.

- Solid-state technology combined with multiple-level protection ensures dependable performance
- Exceptional flexibility of settings allows this timer to be used with many types of simple or sophisticated lubrication systems
- Manual run button can be used to check system integrity as well as to simplify system filling and air purging
- Face-mounted LED displays timer status at a glance
- Tamper-resistant design puts cycle setting controls inside the covered case
- Easy mounting and installation
- Built-in memory keeps the timer “alive” for 1-1/2 hours during power failures and machine shutdown



562872

### Technical Specifications

|  |  |
|--|--|
| Electrical .....                           | 115/230 VAC; 50/60 hz; 3 ampere (max.) |
| Temperature Range:                         |  |
| Operating .....                            | 0° to 131°F (-18°C to 55°C)            |
| Storage .....                              | -67° to 185°F (-55°C to 85°C)          |
| Enclosure .....                            | High Impact Plastic                    |
| Component Technology .....                 | Solid-State CMOS                       |
| Cycle Interval, Adjustable:                |  |
| Range 1 .....                              | 0.5 to 30 minutes                      |
| Range 2 .....                              | 0.5 to 32 hours                        |
| “On” Time .....                            | 0.2 to 13 minutes                      |
| Vibration .....                            | 5g’s 50 Hz                             |
| Standard: LED Indicator, Manual Run Button |  |

### Ordering Information

| Solid State Timer |   |
|-------------------|---|
| 562872            | 115/230 VAC   |
| 558031            | Solid state (SS) timer board only without enclosure |

# On-Road Mobile Lubrication Systems

## Electric Grease Jockey®



### Ruggedized Construction

U.V., chemical, and high-impact resistant – rigorously tested and field-proven.

### NLGI #2 Compatible

NLGI #000 to #2 and 2000 psi (138 bar).

### Low Level Signal

Alerts when out of grease.

### Electrical Drive

12 VDC (7 Amp) or 24 VDC (4 Amp) power. Protected against motor burn-out.

### Data Management System\*

Track critical lubrication data. Fast programming.

### Integrated Controls

Includes adjustable ON/OFF times, PIN code lockout and on-panel alerts.

### In-Cab Feedback\*

Tri-color LED system feedback indicator with Manual Run button.



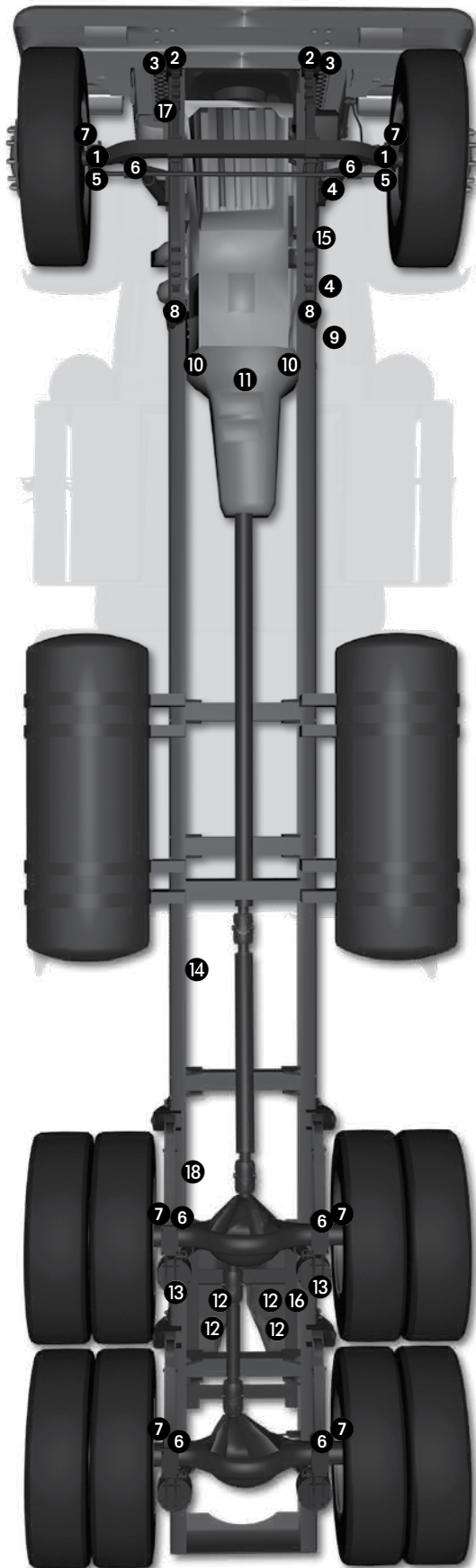
\*DMS version optional equipment

## Technical Specifications

|                               |   |
|-------------------------------|---|
| Lubricant.....                | NLGI #0 to #2 grease  |
| Maximum Pressure.....         | 2,000 psi (352 bar)   |
| Power.....                    | 12 or 24 VDC  |
| Operating Temperature.....    | -40° F to 158° F (-40° C to 70° C)  |
| Reservoir Capacity.....       | 2 liters  |
| Maximum Run Time.....         | 30 min  |
| Output per Element/Min.....   | 0.5 in <sup>3</sup> (24.6 cm <sup>3</sup> )   |
| Certifications/Standards..... | IP69K, CE, ROHS, EMC, Pressurized Equipment Directive, National Fluid Power Association |
| Instruction Manual.....       | 3A5082  |

# On-Road Mobile Lubrication Systems

Electric Grease Jockey®



## Truck and tractor lubrication systems lubricate these parts:

- |                   |                            |
|-------------------|----------------------------|
| ① Upper King Pins | ⑧ Spring Hangers           |
| ② Lower King Pins | ⑨ Clutch Pedal             |
| ③ Hood Pins       | ⑩ Clutch Cross Shafts      |
| ④ Spring Pins     | ⑪ Clutch Throw Out Bearing |
| ⑤ Drag Links      | ⑫ 5th Wheel Plate          |
| ⑥ Tie Rod Ends    | ⑬ 5th Wheel Pivots         |
| ⑦ Slack Adjusters |                            |
| ⑧ S-Cams          |                            |
- 
- |                     |                      |
|---------------------|----------------------|
| ⑭ Pump              | ⑰ Right Front Module |
| ⑮ Left Front Module | ⑱ Rear Module        |
| ⑯ 5th Wheel Module  |                      |

Whatever you drive,  
there's a Graco system  
to fit your needs



# On-Road Mobile Lubrication Systems

## Electric Grease Jockey®

### Ordering Information



#### Electric Grease Jockey Pump Packages

|                  | Package Number         | 25C990 | 25C991 | 25C992 | 25C993 |
|------------------|------------------------|--------|--------|--------|--------|
| Package Includes | Pump                   | 24Z764 | 24Z959 | 24Z660 | 24Z958 |
|                  | Power                  | 12V    | 24V    | 12V    | 24V    |
|                  | Data Management System | –      | –      | Yes    | Yes    |
|                  | Power Cable            | 129644 | 129644 | 127782 | 127782 |
|                  | Manual Run Button      | –      | –      | 25C981 | 25C982 |

#### Electric Grease Jockey System Installation Kits

|                  | Package Number                                  | Truck with Greaseable Spring Pins |                         |                         | Truck with Sealed Spring Pins (non-greaseable) |                         |                         |
|------------------|---|-----------------------------------|-------------------------|-------------------------|--|-------------------------|-------------------------|
|                  |   | Drum Brakes                       |                         | Disc Brakes             | Drum Brakes                                    |                         | Disc Brakes             |
|                  |   | 6 x 4 Tandem Axle                 | 4 x 2 Single Axle       |                         | 6 x 4 Tandem Axle                              | 4 x 2 Single Axle       |                         |
|                  |   | 32 Point / 4 Module Kit           | 28 Point / 3 Module Kit | 20 Point / 3 Module Kit | 26 Point / 4 Module Kit                        | 22 Point / 3 Module Kit | 14 Point / 3 Module Kit |
|                  | 25C971  | 25C972                            | 25C973                  | 25C974                  | 25C975   | 25C976                  |                         |
| Package Includes | 12 VDC Grease Jockey pump                       | 25C990                            |                         |                         | 25C990   |                         |                         |
|                  | 18 ft mainline section/installable end kit      | 17S970                            |                         |                         | 17S970   |                         |                         |
|                  | 12 ft mainline section/installable end kit      | 17S969                            |                         |                         | 17S969   |                         |                         |
|                  | 6 ft mainline section/installable end kit (qty) | 17S968 (2)                        | 17S968 (1)              | 17S968 (1)              | 17S968 (2)                                     | 17S968 (1)              | 17S968 (1)              |
|                  | Mainline tee (qty)                              | 129759 (3)                        | 129759 (2)              | 129759 (2)              | 129759 (3)                                     | 129759 (2)              | 129759 (2)              |
|                  | Mainline elbow (2)                              | 129755                            |                         |                         | 129755   |                         |                         |
|                  | Front left meter module                         | 25C854                            | 25C854                  | 25C857                  | 25C858   | 25C858                  | 25C849                  |
|                  | Front right meter module                        | 25C859                            | 25C859                  | 25C850                  | 25C851   | 25C851                  | 25C852                  |
|                  | 5th wheel meter module                          | 25C853                            | 25C855                  | 25C853                  | 25C853   | 25C855                  | 25C853                  |
|                  | Rear axle meter module                          | 25C856                            |                         | –                       | 25C856   |                         | –                       |
|                  | 3/16 in to 1/8 NPT elbows, 10-Pack (qty)        | 25C977 (3)                        | 25C977 (3)              | 25C977 (2)              | 25C977 (3)                                     | 25C977 (2)              | 25C977                  |
|                  | 3/16 in to 1/8 NPT straights, 10-Pack           | 25C978                            |                         |                         | 25C978   |                         |                         |
|                  | 1/4-28 SAE to 1/8 NPT(F), 5-Pack                | 25C979                            |                         |                         | 25C979   |                         |                         |
|                  | Mounting bracket                                | 25T767                            |                         |                         | 25T767   |                         |                         |
|                  | Zip ties, 100-count                             | 17K063                            |                         |                         | 17K063   |                         |                         |
|                  | Zip ties, looped, 10-count (qty)                | 25C980 (3)                        | 25C980 (2)              | 25C980 (1)              | 25C980 (3)                                     | 25C980 (2)              | 25C980 (1)              |

#### Electric Grease Jockey Pump Accessories

|   | Part Number | Description           |
|---|-------------|-----------------------|
|  | 24Z962      | Protective pump cover |
|  | 25C983      | Output doubling kit   |

On-Road Mobile Lubrication Systems

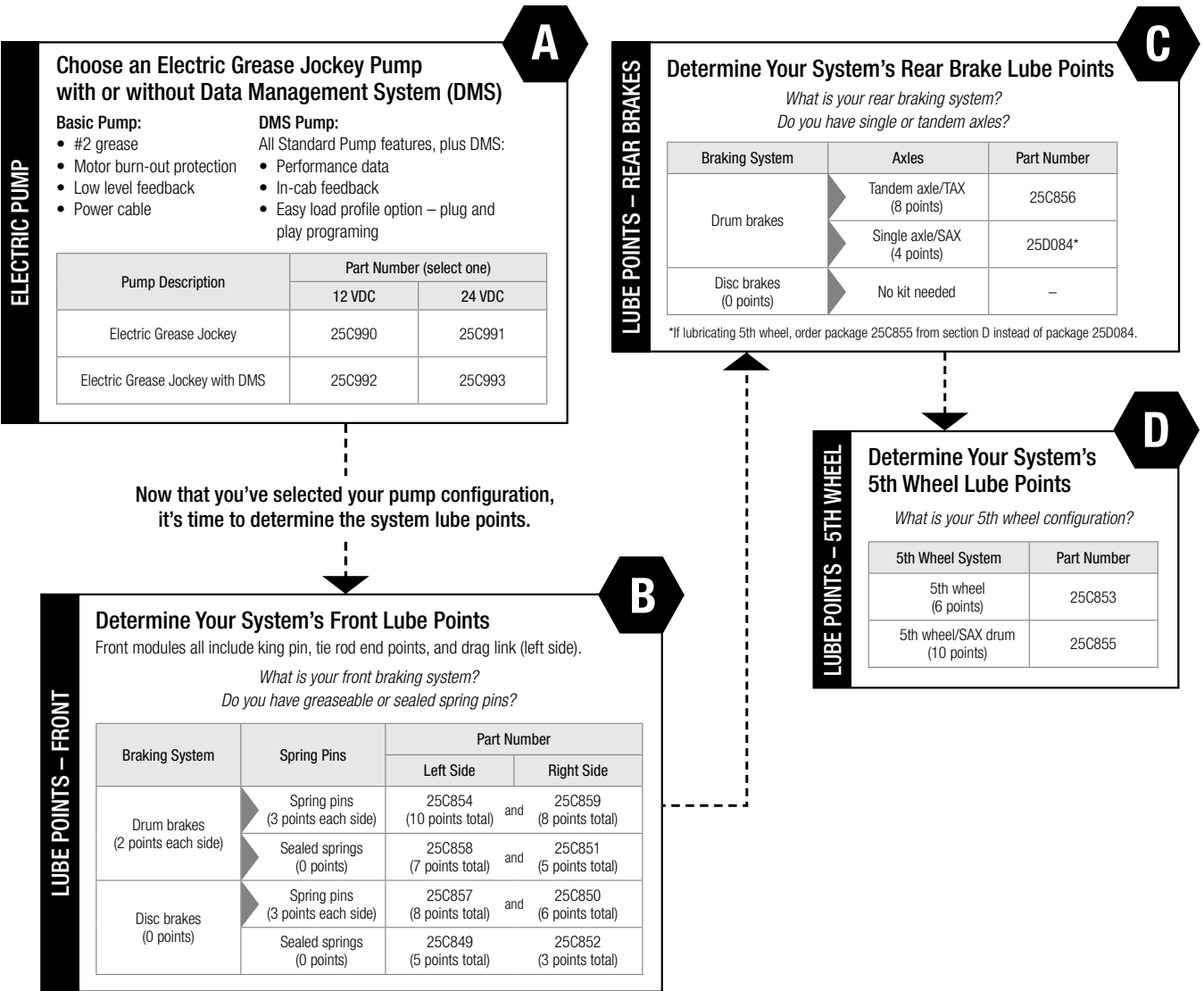


# On-Road Mobile Lubrication Systems

## Electric Grease Jockey®

### How to Select Your Graco Electric Grease Jockey Automatic Lubrication System

Determining the Electric Grease Jockey system best suited to your needs is accomplished by following steps A-D.

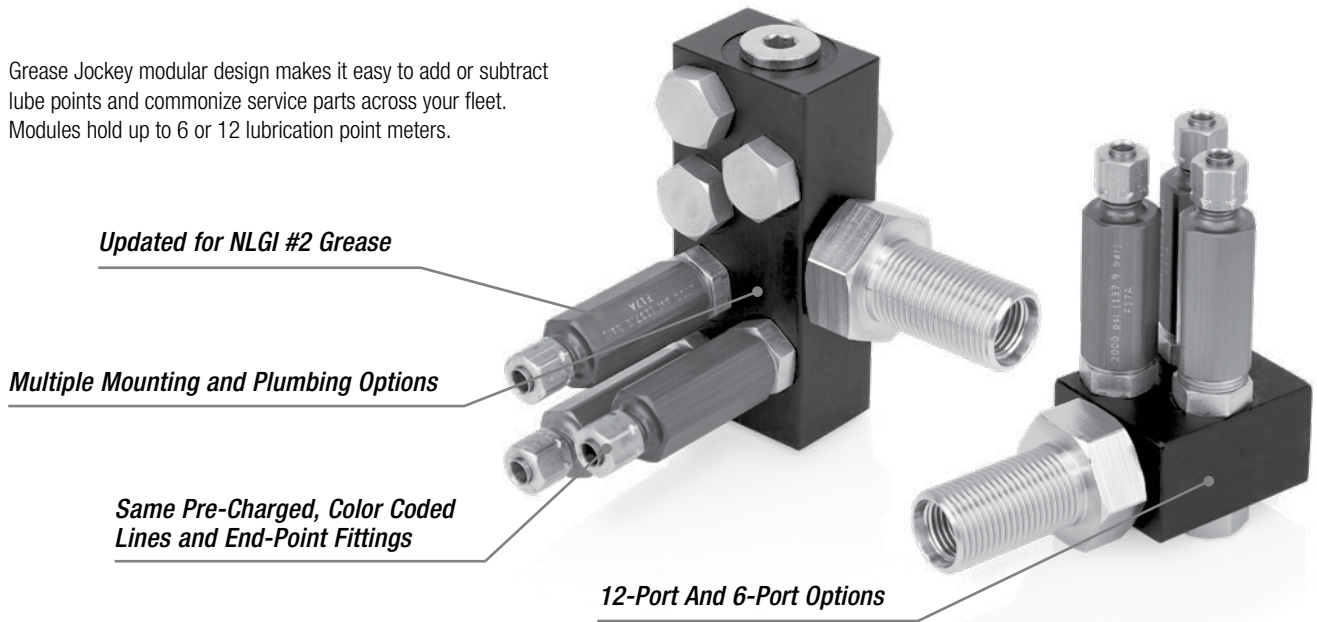


The **NEW G-Mini Compact Electric Pump** is also suitable for on-road mobile lubrication applications. Refer to page 8 for details.

# On-Road Mobile Lubrication Systems

## Electric Grease Jockey® Manifolds

Grease Jockey modular design makes it easy to add or subtract lube points and commonize service parts across your fleet. Modules hold up to 6 or 12 lubrication point meters.



Updated for NLGI #2 Grease

Multiple Mounting and Plumbing Options

Same Pre-Charged, Color Coded Lines and End-Point Fittings

12-Port And 6-Port Options

### Build Your Own Module / Service Parts

| Part Number                          | 24Z682        | 24Z683                     | 24Z684                 | 24Z685               | 24Z686              | 24Z681               |
|--------------------------------------|---------------|----------------------------|------------------------|----------------------|---------------------|----------------------|
| Grease Jockey Injector Size          | #0            | #1                         | #2                     | #3                   | #4                  | #8                   |
| Output Spacers                       | 0             | 1                          | 2                      | 3                    | 4                   | 4                    |
| Dispense Amount in <sup>3</sup> (cc) | 0.002 (0.03)  | 0.005 (0.08)               | 0.009 (0.15)           | 0.012 (0.20)         | 0.015 (0.25)        | 0.026 (0.43)         |
| Typical Truck/Trailer Lube Points    | S-Cam, Clutch | Slack Adjuster, Pivot Pins | Tie-Rod End, Drag Link | King Pin, Spring Pin | 5th Wheel Cylinders | 5th Wheel Face Plate |

| Part Number | Description                        |
|-------------|------------------------------------|
| 25C988      | 6 port manifold and mounting stem  |
| 25C989      | 12 port manifold and mounting stem |

| Part Number | Description                            |
|-------------|--|
| 564086      | Single tube, pre-charged, 10 ft        |
| 563984      | Double tube bundle, pre-charged, 10 ft |
| 563994      | Triple tube bundle, pre-charged, 10 ft |

### Grease Jockey System Accessories

#### Expander Kit Accessories

| Part Number | Description  |
|-------------|--|
| 25D012      | Single, #3 injector and 10 ft, 3/16 in tube        |
| 25D013      | Two, #3 injectors and 2-tube 10 ft, 3/16 in bundle |
| 24Z808      | Hex-head manifold plug with o-ring                 |

#### Grease Options

| Part Number | Description                              |
|-------------|--|
| 557941      | NLGI #00 EP lithium grease, 35 lb bucket |

#### Refill Pump Kits

| Part Number | Description                |
|-------------|----------------------------|
| 26A318      | Fireball 225 35 lb bucket  |
| 26A319      | Fireball 225 120 lb keg    |
| 26A320      | Fireball 225 400 lb barrel |
| 247886      | 35 lb hand pump            |

#### Fill Extension Kit

| Part Number | Description        |
|-------------|--------------------|
| 25A170      | Fill extension kit |

# On-Road Mobile Lubrication Systems

## Electric Grease Jockey® Accessories

### Electric Grease Jockey Pump Accessories

| Part Number | Description   |
|-------------|---|
| 24Z962      | Control panel protective cover  |
| 25T767      | Pump mounting flat bracket with mounting bolts  |
| 25T567      | Pump mounting offset bracket. For use inside of frame rail; requires 25T767 flat bracket. |
| 17S107      | Pump mounting S-bracket   |
| 557966      | Universal "Swiss Cheese" Flat Mounting Adapter  |
| 25A170      | Fill extension kit  |
| 25C983      | Output doubling kit (2nd pump element and union)  |
| 25C985      | Fuse kit, in-line, 12 VDC   |
| 25C986      | Fuse kit, in-line, 24 VDC   |

### Electric Grease Jockey Pump Service Items

| Part Number | Description   |
|-------------|---|
| 24Z764      | 12 VDC, 2L, bare pump with vent valve                             |
| 24Z959      | 24 VDC, 2L, bare pump with vent valve                             |
| 24Z660      | DMS, 12 VDC, 2L, bare pump with vent valve                        |
| 24Z958      | DMS, 24 VDC, 2L, bare pump with vent valve                        |
| 129644      | Power cable, 30 ft (9.1 m), 2-wire CPC to flying leads            |
| 127782      | DMS power cable, 30 ft (9.1 m), 5-wire CPC to flying leads        |
| 17S477      | Power cable, 3 ft (1 m), 2-wire CPC to 2-pin automotive connector |
| 25C981      | Manual run button, 12 VDC   |
| 25C982      | Manual run button, 24 VDC   |
| 25C987      | Electric Grease Jockey pump element                               |
| 25C965      | Vent valve assembly, 12 VDC                                       |
| 25C966      | Vent valve assembly, 24 VDC                                       |
| 129801      | Vent valve power cable  |

### Mainline and Fittings

| Part Number | Description   |
|-------------|---|
| 17S968      | 6 ft (1.8 m) Mainline cut-to-length hose and fitting kit                                |
| 17S969      | 12 ft (3.7 m) Mainline cut-to-length hose and fitting kit                               |
| 17S970      | 18 ft (5.5 m) Mainline cut-to-length hose and fitting kit                               |
| 25D338      | 36 ft (11 m) Mainline, cut-to-length hose and 4*131200 fitting kit                      |
| 131200      | Field-installable, mainline hose end fitting  |
| 129759      | Tee fitting, 6 ORB x 9/16, 37° Flare (2)  |
| 129755      | 90° elbow, 6 ORB x 9/16, 37° Flare  |
| 129763      | Straight connector, 6 ORB x 9/16, 37° Flare   |
| 131169      | Meter manifold to meter manifold union, 6 ORB x 6 ORB                                   |
| 129761      | Mainline Tee Fitting, 9/16, 37° Flare (3)   |
| 129872      | 45° mbf flare elbow fitting   |
| 129871      | Manifold inlet adapter - 6 ORB (M) x 1/8 in NPT(F) (for Classic Grease Jockey Mainline) |

# On-Road Mobile Lubrication Systems

## Electric Grease Jockey® Accessories

### Metering Modules

Front Modules all include king pin and tie rod end points.

| Part Number | Description   |
|-------------|---|
| 25C849      | Left Front - 5 points (Drag Link)                                       |
| 25C850      | Right Front - 6 points (Spring Pins)                                    |
| 25C851      | Right Front - 5 points (Drum Brakes)                                    |
| 25C852      | Right Front - 3 points  |
| 25C853      | 5th Wheel - 6 points (Plate, Pivot pins)                                |
| 25C854      | Left Front - 10 points (Spring Pins, Drum Brakes, Drag Link)            |
| 25C855      | 5th Wheel - 10 points (Single Axle Drum Brakes, Plate, Pivot pins)      |
| 25C856      | Tandem axle - 8 points (Drum Brakes)                                    |
| 25C857      | Left front - 8 points (Spring Pins, Drag Link)                          |
| 25C858      | Left front - 7 points (Drum Brakes, Drag Link)                          |
| 25C859      | Right Front - 8 points (Spring Pins, Drum Brakes)                       |
| 25D084      | Single axle - 4 points (Drum Brakes)                                    |
| 26C081      | TAX/5th Wheel - 14 point (Drum Brakes, Plate, Pivot pins) Double Module |
| 26C101      | Drop Axle, 8 Point (King Pins, drum brakes)                             |
| 26C100      | Drop Axle, 10 Point (King Pins, Tie-rod ends, drum brakes)              |
| 26C104      | Dump Body, 10 Point   |
| 25D216      | 6 point (#3) meter module, pre-charged lines                            |
| 25D217      | 12 point (#3) meter module, pre-charged lines                           |

Notes: **Meter modules do not include end-point fittings.** Customized meter modules available upon request, minimum order 50 units.

### Metering Module Service Items and Accessories

| Part Number | Description  |
|-------------|--|
| 24Z682      | #0, Grease Injector Meter  |
| 24Z683      | #1, Grease Injector Meter  |
| 24Z684      | #2, Grease Injector Meter  |
| 24Z685      | #3, Grease Injector Meter  |
| 24Z686      | #4, Grease Injector Meter  |
| 24Z681      | #8, Grease Injector Meter  |
| 25D012      | One replacement #3 meter with pre-charged, 15 ft tube                  |
| 25D013      | Two replacement #3 meters with pre-charged, 15 ft 2-tube bundle        |
| 26C105      | Two replacement #4 meters with pre-charged 30 ft 2-tube bundle         |
| 15W165      | Feed Line 3/16 in tube, pre-charged, 30 ft, black                      |
| 563789      | Feed Line 3/16 in tube, pre-charged, 15 ft, orange                     |
| 564090      | Feed Line 3/16 in 2-tube bundle, pre-charged, 30 ft, orange/black      |
| 563796      | Feed Line 3/16 in 3-tube bundle, pre-charged, 30 ft, orange/blue/black |
| 24Z808      | Manifold meter port plugs with o-rings                                 |
| 129752      | Manifold inlet plugs   |
| 25C988      | Bare manifold with stem, nut, and washer, 6 port                       |
| 25C989      | Bare manifold with stem, nut, and washer, 12 port                      |

# On-Road Mobile Lubrication Systems

## Electric Grease Jockey® Accessories

### End-Point Fittings (not included with injector manifolds) and Installation Accessories

| Part Number | Description  |
|-------------|--|
| 25C977      | 10 pack of P/N 556638, 3/16 in OD tube to 1/8 NPT elbows               |
| 26A405      | 200 pack of P/N 556638, 3/16 in OD tube to 1/8 NPT elbows              |
| 25C978      | 10 pack of P/N 556644, 3/16 in OD tube to 1/8 NPT straight connectors  |
| 26A404      | 200 pack of P/N 556644, 3/16 in OD tube to 1/8 NPT straight connectors |
| 25C979      | 5 pack of P/N 15K740, 1/4-28 SAE (m) to 1/8 NPT(F) elbow, 90°          |
| 26A406      | 100 pack of P/N 15K740, 1/4-28 SAE (m) to 1/8 NPT(F) elbow, 90°        |
| 556660      | 3/16 in tube nut sleeve with captivated ferrule                        |
| 15K783      | 1/8 NPT(M) to 1/8 NPT(F) elbow, 90°                                    |
| 560534      | 1/8 NPT(M) to 1/8 NPT(F) elbow, 45°                                    |
| 557392      | 0.75 in extension, 1/8 NPT(M) to 1/8 NPT(F)                            |
| 557393      | 1.25 in extension, 1/8 NPT(M) to 1/8 NPT(F)                            |
| 25M544      | 6 ft conduit sleeve  |
| 17K063      | Cable ties, 100 pack   |
| 25C980      | Figure-8 cable ties, 10 pack   |
| 26C326      | Mainline purge adapter, JIC-6 x 1/4 in QD male                         |

### Lubricant

| Part Number | Description                   |
|-------------|-------------------------------|
| 557941      | NLGI #00 grease, 35 lb bucket |

### Grease Jockey Fill Pump Kits

| Part Number | Description                                     |
|-------------|---|
| 26A318      | Mini Fire-Ball 35 lb fill pump kit              |
| 26A319      | Mini Fire-Ball 120 lb fill pump kit             |
| 26A320      | Mini Fire-Ball 400 lb fill pump kit             |
| 247886      | Manual 35 lb fill pump kit                      |
| 121474      | Coupler, hydraulic quick disconnect, 1/4 in NPT |

### Electric Grease Jockey Tractor Kits

| Part Number | Description   |
|-------------|---|
| 25C971      | EGJ spring pins, drum brakes, 6 x 4, 32 points        |
| 25C972      | EGJ spring pins, drum brakes, 4 x 2, 28 points        |
| 25C973      | EGJ spring pins, disc brakes, 20 points               |
| 25C974      | EGJ sealed spring pins, drum brakes, 6 x 4, 26 points |
| 25C975      | EGJ sealed spring pins, drum brakes, 4 x 2, 22 points |
| 25C976      | EGJ sealed spring pins, disc brakes, 14 points        |

# On-Road Mobile Lubrication Systems

## Pneumatic Grease Jockey®

### Features and Benefits

- Keeps your chassis operating, even in harsh on-road conditions
- Lubricant goes where it's supposed to, automatically, with little or no waste
- Field-proven—some of the largest fleets have been using Grease Jockey for decades!

#### High-strength, shatter-resistant reservoir

Utilizes a high-quality, polycarbonate reservoir that is securely mounted to the pump with rigid tie rods for optimal sealing

#### High-Capacity Fill Port

Saves time and keeps you on the road

#### Field-Proven Reliability

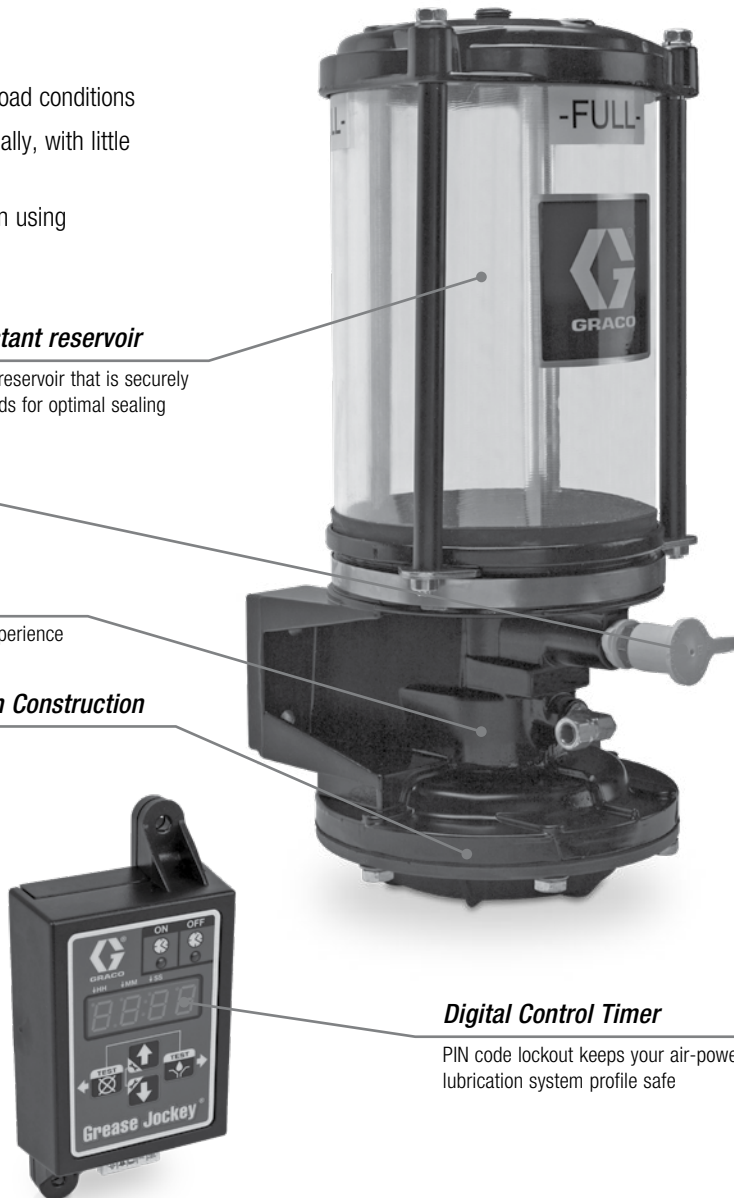
Over four decades of over-the-road experience

#### Rugged Cast Aluminum Construction

9:1 pump with 6 lb capacity

#### Digital Control Timer

PIN code lockout keeps your air-powered lubrication system profile safe



### Technical Specifications

|                                       |  |
|---------------------------------------|--|
| Construction.....                     | Cast aluminum body and bracket               |
| Lubricant.....                        | NLGI #0, #00 or #000 grease                  |
| Output per Cycle.....                 | 1.5 in <sup>3</sup> (24.6 cm <sup>3</sup> )  |
| Reservoir Capacity.....               | 6 lb (2.7 kg), 12 lb (5.4 kg)                |
| Inlet supply (dry) (air pump).....    | 150 psi (1034 kPa) max; 60 psi (414 kPa) min |
| Air-to-lube Ratio (max.).....         | 9:1  |
| Solenoid Voltage (air).....           | 12 or 24 VDC                                 |
| Electrical.....                       | 9 to 32 VDC (12 or 24 VDC Nominal)           |
| Enclosure (air pump).....             | High-impact sealed plastic                   |
| Component Technology.....             | Solid-state                                  |
| Pump "ON" Time.....                   | Programmable: 1 sec. to 99 min               |
| Lube Cycle Frequency.....             | Programmable: 1 min to 99 hrs                |
| Main Supply to Modules.....           | .5/16 in O.D. heavywall nylon                |
| Module to Point.....                  | .3/16 in O.D. heavywall nylon                |
| Operating Pressure (nylon lines)..... | 1,350 psi (9,310 kPa)                        |
| Instruction Manual.....               | 312054                                       |

# On-Road Mobile Lubrication Systems

## Pneumatic Grease Jockey®

### Ordering Information

#### Pneumatic Grease Jockey Pumps

|                  | Package Number           | 563625    | 563589   | 563590   | 563593 | 563888 | 563854   | 563874   |
|------------------|--------------------------|-----------|----------|----------|--------|--------|----------|----------|
| Package Includes | Reservoir size           | Pump only | 6 lb     | 12 lb    | 6 lb   | 6 lb   | 6 lb     | 12 lb    |
|                  | Fill port                | Straight  | Straight | Straight | Elbow  | Elbow  | Straight | Straight |
|                  | Solenoid                 | -         | -        | -        | -      | 12 VDC | 12 VDC   | 12 VDC   |
|                  | Timer/wiring harness kit | -         | -        | -        | -      | -      | 25A118   | 25A118   |
|                  | Mounting plate           | -         | -        | -        | -      | -      | Yes      | Yes      |
|                  | Mainline and hardware    | -         | -        | -        | -      | -      | Yes      | Yes      |
|                  | Extra fittings kit       | -         | -        | -        | -      | -      | Yes      | Yes      |

#### Pneumatic Grease Jockey System Installation Kits

| Package Includes                        | Package Number  | Truck with Greaseable Spring Pins |                         |                         | Truck with Sealed Spring Pins (non-greaseable) |                         |                         |
|---|-----------------|-----------------------------------|-------------------------|-------------------------|--|-------------------------|-------------------------|
|   |                 | Drum Brakes                       |                         | Disc Brakes             | Drum Brakes                                    |                         | Disc Brakes             |
|   |                 | 6 x 4 Tandem Axle                 | 4 x 2 Single Axle       |                         | 6 x 4 Tandem Axle                              | 4 x 2 Single Axle       |                         |
|   |                 | 34 Point / 4 Module Kit           | 28 Point / 3 Module Kit | 20 Point / 3 Module Kit | 26 Point / 4 Module Kit                        | 22 Point / 3 Module Kit | 14 Point / 3 Module Kit |
|   | 563814          | 563814                            | 24Z809                  | 24Z810                  | 24Z811   | 24Z812                  | 24Z813                  |
| 12 VDC Grease Jockey pump and reservoir | 563589 / 563854 | 563589 / 563854                   | 24Z526                  | 24Z526                  | 24Z526   | 24Z526                  | 24Z526                  |
| Front left meter module                 | 563644          | 563644                            | 24W623                  | 563654                  | 563706   | 563706                  | 563728                  |
| Front right meter module                | 563645          | 563645                            | 563858                  | 563655                  | 24W335   | 24W335                  | 24H994                  |
| 5th wheel meter module                  | 563648          | 563648                            | 258348                  | 563648                  | 563648   | 258348                  | 563648                  |
| Rear axle meter module                  | 563646          | 563646                            |                         | -                       | 563646   |                         | -                       |
| Mounting bracket                        | 128256          | 128256                            | 128256                  | 128256                  | 128256   | 128256                  | 128256                  |
| Control Timer                           |                 |                                   | 25A118                  |                         | 25A118   | 25A118                  |                         |

#### Pneumatic Grease Jockey Pump Accessories

|        |   |
|--------|---|
| 128256 | Mounting bracket                              |
| 24W482 | Digital control timer for air-powered systems |

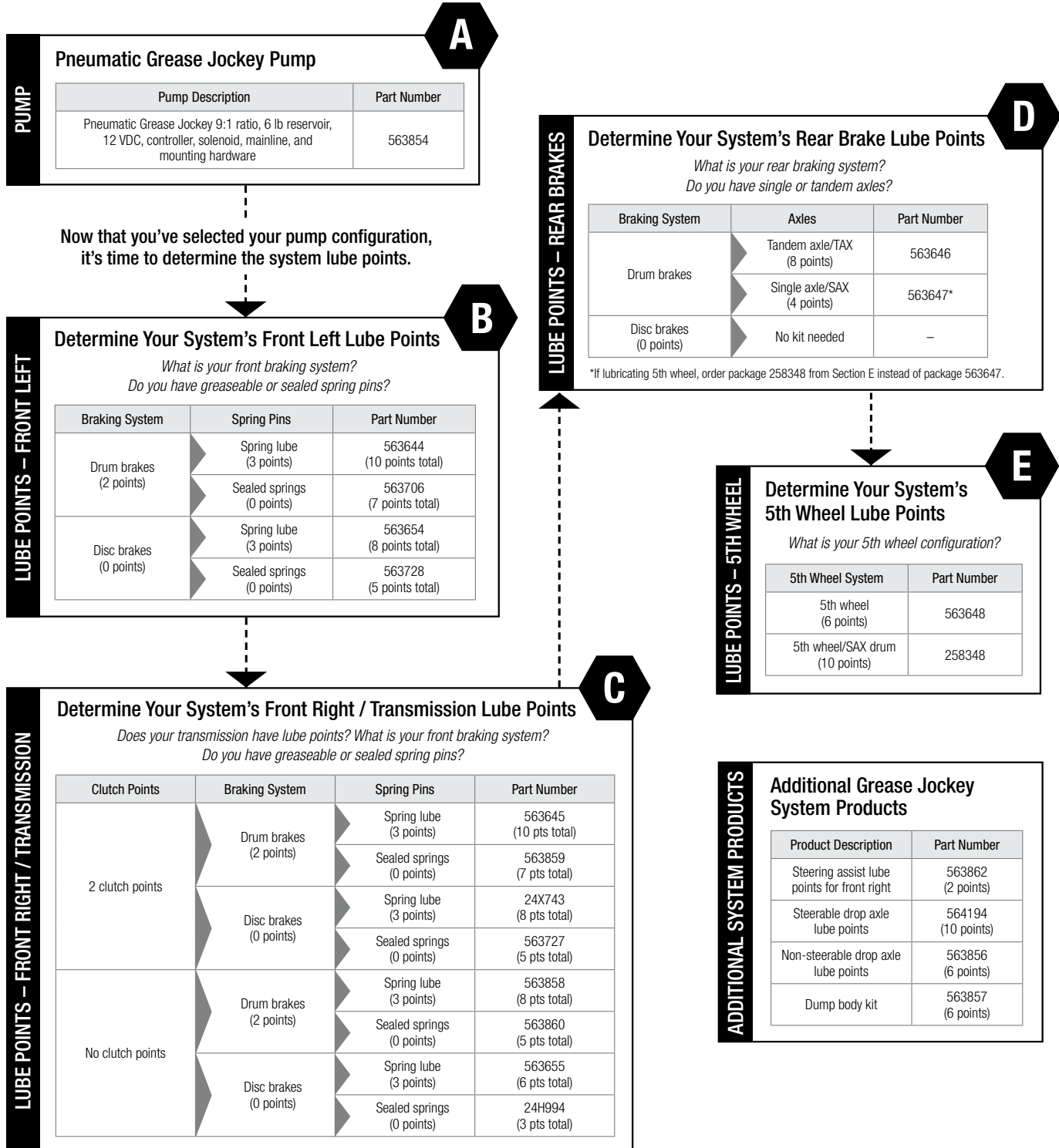


# On-Road Mobile Lubrication Systems

## Pneumatic Grease Jockey®

### How to Select Your Graco Pneumatic Grease Jockey Automatic Lubrication System

Determining the Pneumatic Grease Jockey system best suited to your needs is accomplished by using the following steps.





# On-Road Mobile Lubrication Systems

## Trailer Lubrication Systems

### Features and Benefits

- Smooth landing gear operation
- Innovative design works with your parking or service brakes—no electrical power needed
- Adjustable pump output volume puts you in control
- Slack adjuster and S-Cam lubrication help stop brakes from sticking—improves brake operation and extends component life

### Typical Applications

- Pre-designed kits for all popular trailer types
- Tractors with 1, 2, 3, 4, 5, and 6 axles

### Typical Fluids Handled

- Grease up to NLGI #2

### Technical Specifications

|   |  |
|---|--|
| Construction .....                            | Cast aluminum body and steel mounting bracket  |
| Lubricant .....                               | NLGI #2 or lower                               |
| Output per Cycle .....                        | 0.010-0.030 cu. in (0.16-.49 cm <sup>3</sup> ) |
| Reservoir Capacity (rigid clear plastic)..... | 4 lb (1.8 kg)                                  |
| Inlet supply (dry) (air pump) .....           | 40-150 psi (3-10 bar)                          |
| Air-to-lube Ratio (max.) .....                | 20:1   |
| Main Supply to Modules .....                  | 1/4 in I.D. hose                               |
| Module to Point.....                          | 3/16 in O.D. heavywall nylon                   |
| Operating Pressure (nylon lines).....         | 1,350 psi (9,310 kPa)                          |



### Universal Trailer Kits Ordering Information

*Pneumatic (Trailer Pump Included)*

|   | Part # | Grease points covered in kit |       |            |              | Total # of Grease Points |
|---|--------|------------------------------|-------|------------|--------------|--------------------------|
|   |        | Slack Adjuster               | S-Cam | Clevis Pin | Landing Gear |                          |
| One Axle w/ Inner and Outer S-Cams                  | 563829 | 2                            | 4     | -          | -            | 6                        |
| Two Axle w/ Enclosed S-Cams                         | 563850 | 4                            | 4     | -          | -            | 8                        |
| Two Axle w/ Inner and Outer S-Cams                  | 563842 | 4                            | 8     | -          | -            | 12                       |
| Two Axle w/ Enclosed S-Cams and Clevis Pins         | 563878 | 4                            | 4     | 4          | -            | 12                       |
| Two Axle w/ Inner and Outer S-Cams and Clevis Pins  | 563851 | 4                            | 8     | 4          | -            | 16                       |
| Two Axle w/ Inner and Outer S-Cams and Landing Gear | 563840 | 4                            | 8     | -          | 5            | 17                       |
| Three Axle w/ Enclosed S-Cams                       | 563880 | 6                            | 6     | -          | -            | 12                       |
| Four Axle w/ Enclosed S-Cams and Clevis Pins        | 563881 | 8                            | 8     | 8          | -            | 24                       |
| Five Axle w/ Enclosed S-Cams                        | 563866 | 10                           | 10    | -          | -            | 20                       |
| Five Axle w/ Inner and Outer S-Cams and Clevis Pins | 563848 | 10                           | 20    | 10         | -            | 40                       |
| Six Axle w/ Enclosed S-Cams                         | 563865 | 12                           | 12    | -          | -            | 24                       |
| Six Axle w/ Inner and Outer S-Cams and Clevis Pins  | 563852 | 12                           | 24    | 12         | -            | 48                       |

# On-Road Mobile Lubrication Systems

EZ Greaser®

## Features and Benefits

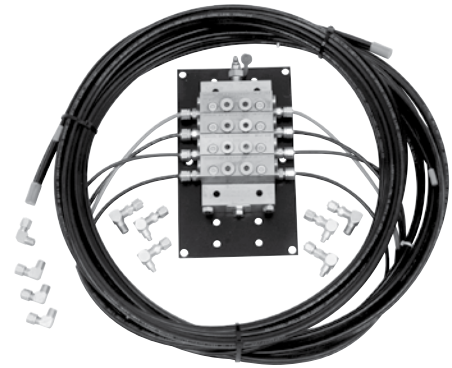
- 11 different kits let you customize your EZ Greaser system
- Once installed, use your manual grease gun to lubricate multiple lube points from one fitting

## Typical Applications

- Truck, tractor, and trailer chassis lubrication

## Typical Fluids Handled

- Grease up to NLGI #2



563853

## Technical Specifications

Recommended Fluids..... Grease up to NLGI #2  
 Maximum Operating Pressure..... 3,500 psi (241 bar)

On-Road Mobile Lubrication Systems

### Truck Kit Ordering Information

| Total Number of Grease Points               | Part Number | Upper King Pin          | Lower King Pin | Drag Link | Slack Adjuster | S-Cam | Tie Rod | Spring Pin | Spring Hanger-Upper | Spring Hanger-Lower | Steer Assist | Steer Assist | Upper King Pin | Lower King Pin | Drag Link | Slack Adjuster | S-Cam | Tie Rod | Spring Pin          | Spring Hanger-Upper | Spring Hanger-Lower | Slack Adjuster | S-Cam | Slack Adjuster | S-Cam |   |
|---|-------------|-------------------------|----------------|-----------|----------------|-------|---------|------------|---------------------|---------------------|--------------|--------------|----------------|----------------|-----------|----------------|-------|---------|---------------------|---------------------|---------------------|----------------|-------|----------------|-------|---|
|   |             | Left Front              |                |           |                |       |         |            |                     |                     |              |              | Right Front    |                |           |                |       |         | Left and Right Rear |                     |                     |                |       |                |       |   |
|   |             | Number of Grease Points |                |           |                |       |         |            |                     |                     |              |              |                |                |           |                |       |         |                     |                     |                     |                |       |                |       |   |
| Front Brakes                                | 4           | 563895                  |                |           | 1              | 1     |         |            |                     |                     |              |              |                |                |           | 1              | 1     |         |                     |                     |                     |                |       |                |       |   |
| Front Left and Right                        | 8           | 563853                  | 1              | 1         | 1              |       | 1       |            |                     |                     |              |              | 1              | 1              | 1         |                |       | 1       |                     |                     |                     |                |       |                |       |   |
| Front Left and Right                        | 14          | 563855                  | 1              | 1         | 1              |       | 1       | 1          | 1                   | 1                   |              |              | 1              | 1              | 1         |                |       | 1       | 1                   | 1                   | 1                   |                |       |                |       |   |
| Front Left and Right                        | 16          | 563864                  | 1              | 1         | 1              |       | 1       | 1          | 1                   | 1                   | 1            | 1            | 1              | 1              | 1         |                |       | 1       | 1                   | 1                   | 1                   |                |       |                |       |   |
| Tandem Axle w/Spring Trunnions - Dump Truck | 10          | 563893                  |                |           |                |       |         | 1          |                     |                     |              |              |                |                |           |                |       |         |                     | 1                   |                     |                | 2     | 2              | 2     | 2 |
| Tandem Axle w/Spring Pivots - Dump Truck    | 10          | 563896                  |                |           |                |       |         | 1          |                     |                     |              |              |                |                |           |                |       |         |                     | 1                   |                     |                | 2     | 2              | 2     | 2 |

### Trailer Kit Ordering Information

|  | Total Number of Grease Points | Part Number | Slack Adjuster              | S-Cam | Bearing | Gear Nut | Crank |
|--|-------------------------------|-------------|-----------------------------|-------|---------|----------|-------|
|  |                               |             | Number of Grease Points     |       |         |          |       |
|  |                               |             | EZ Greaser Landing Gear Kit | 5     | 563824  |          |       |
| Single Axle Trailer Kit - EZ Greaser MSP Manual with Standard Fittings | 6                             | 563810      | 2                           | 4     |         |          |       |
| EZ Greaser Tandem Axle with Enclosed S-Cams                            | 8                             | 563863      | 4                           | 4     |         |          |       |
| EZ Greaser Trailer Tandem Axle Kit with Non-enclosed S-Cams            | 12                            | 563877      | 4                           | 8     |         |          |       |

# Hydraulic Pumps

## Dyna-Star® 10:1 High Ratio Hydraulically-Powered Lubrication Pump

### Features and Benefits

- Achieve full pressure performance by tapping low pressure hydraulics
- Pre-packaged modules ready-to-work with both injector and divider valve systems
- Multiple pump and accessory options for use with refinery drum and custom tank installations
- Self-lubricating vertical design for long life and reliable operation in high vibration environments
- Ultra-quiet hydraulic motor—no need for add-on mufflers
- High efficiency motor design uses less hydraulic oil

### Typical Applications

- Heavy-duty construction and mining equipment
- Any application requiring durable, high-performing grease delivery

### Typical Fluids Handled

- NLGI #2 grade grease

### Technical Specifications

| Part Number                            | 247540                    | 247443                    | 247450                    | 25A189                    |
|--|---------------------------|---------------------------|---------------------------|---------------------------|
| Drum Size                              | 60 lb (27 kg)*            | 90/120 lb (41/55 kg)*     | 400 lb (180 kg)           | 120 lb (55 kg)            |
| Overall Pump Length                    | 33.9 in (861 mm)          | 41.5 in (1054 mm)         | 48.5 in (1232 mm)         | 41.5 in (1054 mm)         |
| Pump Lower Length                      | 19.15 in (501 mm)         | 26.75 in (679 mm)         | 33.75 in (857 mm)         | 26.75 in (679 mm)         |
| Maximum Hydraulic Input Pressure       | 600 psi (41 bar)          | 600 psi (41 bar)          | 600 psi (41 bar)          | 900 psi (62 bar)          |
| Maximum Hydraulic Fluid Input Volume   | 3 gpm (11.4 lpm)          | 3 gpm (11.4 lpm)          | 3 gpm (11.4 lpm)          | 3 gpm (11.4 lpm)          |
| Maximum Flow Output Rate               | 1.1 lb/min (0.5 kg/min)   | 1.1 lb/min (0.5 kg/min)   | 1.1 lb/min (0.5 kg/min)   | 1.1 lb/min (0.5 kg/min)   |
| Maximum CPM                            | 60                        | 60                        | 60                        | 60                        |
| Maximum Fluid Output Pressure          | 7,500 psi (517 bar)       | 7,500 psi (517 bar)       | 7,500 psi (517 bar)       | 10,000 psi (689 bar)      |
| Hydraulic Supply Inlet                 | 3/4 in–16 JIC (37° Flare) | 3/4 in–16 JIC (37° Flare) | 3/4 in–16 JIC (37° Flare) | 3/4 in–16 JIC (37° Flare) |
| Hydraulic Return Outlet                | 3/4 in NPT                | 3/4 in NPT                | 3/4 in NPT                | 3/4 in NPT                |
| Fluid Outlet                           | 1/2 in NPT                | 1/2 in NPT                | 1/2 in NPT                | 13/16 - 16 UNC            |
| Maximum Incoming Hydraulic Fluid Temp. | 200°F (93°C)              | 200°F (93°C)              | 200°F (93°C)              | 200°F (93°C)              |
| Manual                                 | 312350                    | 312350                    | 312350                    | 3A3005                    |

### Ordering Information

|        |   |
|--------|---|
| 247540 | Dyna-Star 10:1, 60 lb (27 kg) pump*                       |
| 247443 | Dyna-Star 10:1, 90/120 lb (41/55 kg) pump*                |
| 247450 | Dyna-Star 10:1, 400 lb (180 kg) pump                      |
| 25A189 | Dyna-Star 10:1, 10,000 psi (689 bar), 120 lb (55 kg) pump |

\*Used in Graco 60 or 90 lb (27 or 41 kg) reservoirs.



# Off-Road Mobile Lubrication Systems

## Dyna-Star® 10:1, 5:1 and Fire-Ball® 300 50:1

### Ordering Information

| Dyna-Star 10:1 Modules And Kits |  |
|---------------------------------|--|
| 24Y407                          | Dyna-Star 10:1 90 lb pump kit – injector – mechanical AFSSO  |
| 24Y408                          | Dyna-Star 10:1 60 lb pump kit – injector – mechanical AFSSO  |
| 247574                          | Dyna-Star 10:1 60 lb (27 kg) pump module – injector – overall height 35.15 in (842 mm). Includes pump (247540), reservoir assembly (247575), hydraulic control assembly (247538) and vent valve assembly (243170). Fully assembled.  |
| 247706                          | Dyna-Star 10:1 60 lb (27 kg) pump kit – divider valve – overall height 35.15 in (842 mm). Includes pump (247540), reservoir assembly (247575) and hydraulic control assembly (247538). Not assembled.                                |
| 247444                          | Dyna-Star 10:1 90 lb (41 kg) pump module – injector – overall height 42.75 in (1086 mm). Includes pump (247443), reservoir assembly (241486), hydraulic control assembly (247538) and vent valve assembly (243170). Fully assembled. |
| 247707                          | Dyna-Star 10:1 90 lb (41 kg) pump kit – divider valve – overall height 42.75 in (1086 mm). Includes pump (247443), reservoir assembly (241486) and hydraulic control assembly (247538). Not assembled.                               |
| 247902                          | Pressure relief kit for 247706 and 247707  |
| 312349                          | Manual for 247574, 247706, 247444, 247707  |

| Dyna-Star 10:1 Refinery Drum And Custom Tank Applications |                |           |          |                          |          |          |           |           |
|---|----------------|-----------|----------|--------------------------|----------|----------|-----------|-----------|
| Description   | Refinery Drums |           |          | Custom Tank Applications |          |          |           |           |
| Weight lbs (kg)   | 120 (55)       | 400 (180) | 60 (27)  | 60 (27)                  | 120 (55) | 120 (55) | 400 (180) | 400 (180) |
| Divider Valve (DV) or Injector Based                      | DV             | DV        | Injector | DV                       | Injector | DV       | Injector  | DV        |
| Pump  | 247443         | 247450    | 247540   | 247540                   | 247443   | 247443   | 247450    | 247450    |
| Hydraulic Control*  | 247705         | 247705    | 247538   | 247538                   | 247538   | 247538   | 247538    | 247538    |
| Vent Valve  | –              | –         | 243170   | –                        | 243170   | –        | 243170    | –         |
| Cover   | 247703         | 247704    | –        | –                        | –        | –        | –         | –         |
| Pump Gasket   | 15M442         | 15M442    | 15M442   | 15M442                   | 15M442   | 15M442   | 15M442    | 15M442    |
| Custom Tank Kit**   | –              | –         | 247970   | –                        | 247456   | –        | 247457    | –         |

\*Hydraulic control assembly (247705) includes longer hoses to enable remote mounting.

\*\*Kits include pump (247540, 247443 or 247450), hydraulic control assembly (247538), vent valve (243170), and pump gasket (15M442).

| Dyna-Star 10:1 Module Accessories |  |
|-----------------------------------|--|
| 243170                            | Vent valve   |
| 247538                            | Hydraulic control module                                     |
| 247700                            | Follower plate for 60 lb (27 kg) and 90 lb (41 kg) modules   |
| 244023                            | Level indicator for 60 lb (27 kg) and 90 lb (41 kg) modules† |
| 115124                            | Pressure switch  |
| 247575                            | Reservoir – 60 lb (27 kg)                                    |
| 241486                            | Reservoir – 90 lb (41 kg)                                    |

†Requires follower plate, order with part number 247700.

| Fireball 300 And Dyna-Star 5:1 Modules and Accessories |   |
|--|---|
| 241573   | Fireball 300, 50:1 90 lb (41 kg) pump module. Includes pump (239887), reservoir assembly (241486), and vent valve assembly (241572)                                 |
| 25D096   | Fireball 300, 50:1 60 lb (27 kg) pump module. Includes pump (239877), reservoir assembly (247575), and vent valve assembly (241572)                                 |
| 241485   | Follower plate (fits 241573 and 25D096)   |
| 243159   | Dyna-Star 5:1 90 lb (41 kg) pump module. Includes pump (224751), reservoir assembly (241486), hydraulic control assembly (243501), and vent valve assembly (243170) |
| 243191   | Follower plate (fits 243159)  |



247574

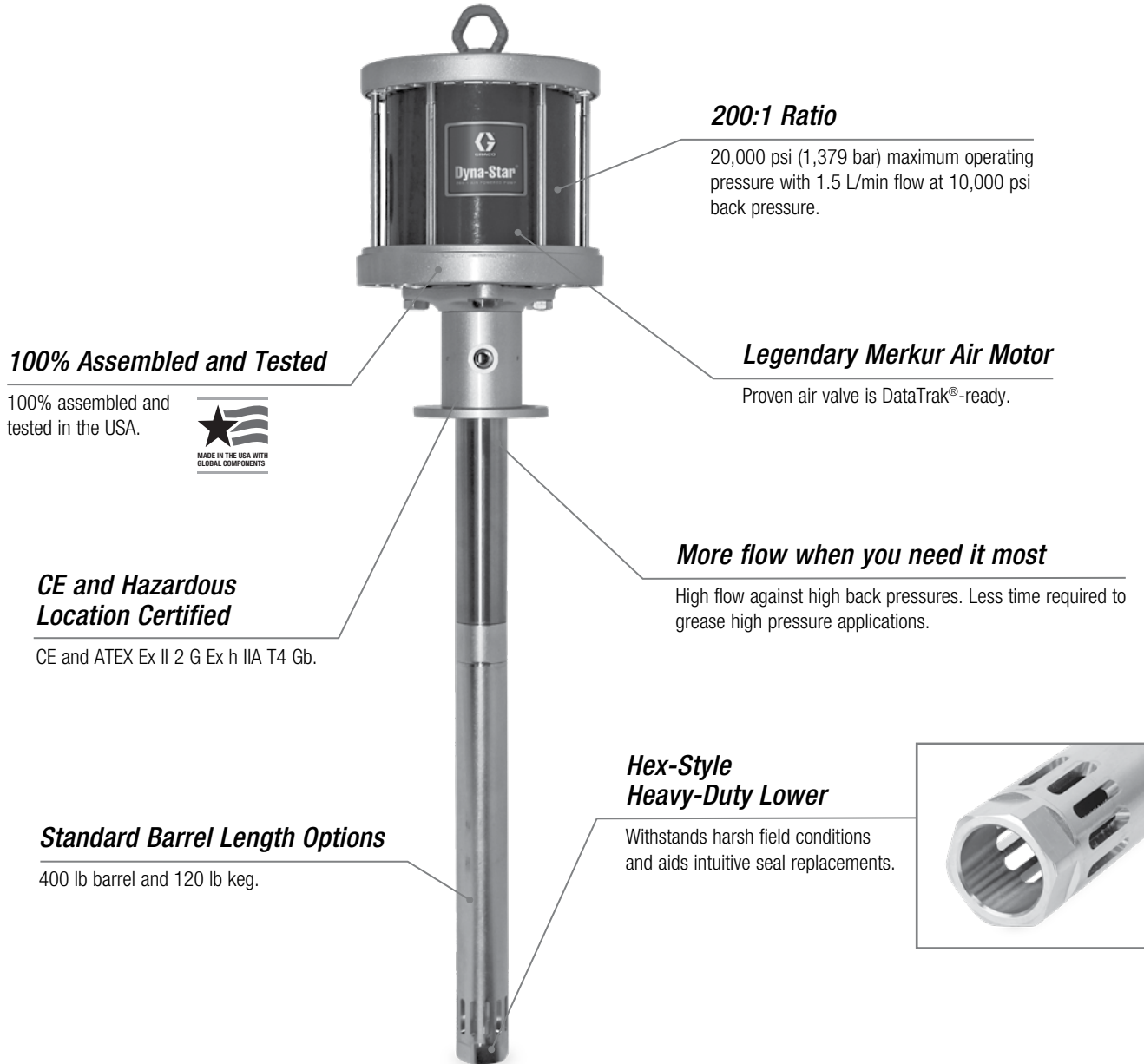


241573

# Off-Road Mobile Lubrication Systems

## Dyna-Star® Air Powered 200:1 and 120:1

Reliability you can trust to provide fast grease delivery against high back pressures in an easy-to-service package.



### 200:1 Ratio

20,000 psi (1,379 bar) maximum operating pressure with 1.5 L/min flow at 10,000 psi back pressure.

### 100% Assembled and Tested

100% assembled and tested in the USA.



### Legendary Merkur Air Motor

Proven air valve is DataTrak®-ready.

### CE and Hazardous Location Certified

CE and ATEX Ex II 2 G Ex h IIA T4 Gb.

### More flow when you need it most

High flow against high back pressures. Less time required to grease high pressure applications.

### Standard Barrel Length Options

400 lb barrel and 120 lb keg.

### Hex-Style Heavy-Duty Lower

Withstands harsh field conditions and aids intuitive seal replacements.



## Typical Applications

- Aggregates
- Mining
- Construction

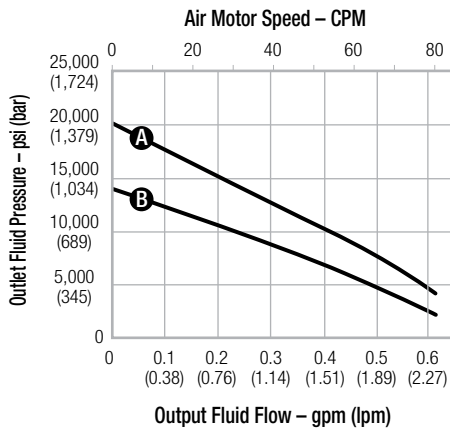
## Technical Specifications

|                           | Dyna-Star 200:1  | Dyna-Star 120:1      |
|---------------------------|--|----------------------|
| Fluids Handled            | Grease up to NLGI #2 and gate valve, plug valve and wireline greases |                      |
| Maximum Fluid Temperature | 180°F (82.2°C)   |                      |
| Output Pressure           | 20,000 psi (1,379 bar)   | 12,000 psi (827 bar) |
| Certificates              | CE<br>ATEX Rating - Ex II 2 G Ex h IIA T4 Gb                         |                      |
| Instruction Manual        | 3A7519   |                      |

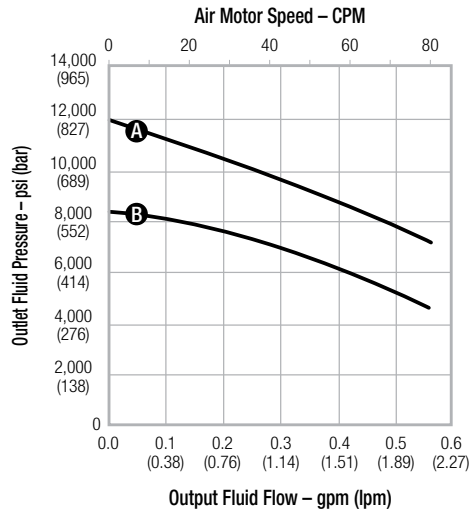
# Off-Road Mobile Lubrication Systems

## Dyna-Star® Air Powered 200:1 and 120:1

**Dyna-Star 200:1 Pump Performance Curve**



**Dyna-Star 120:1 Pump Performance Curve**



**Inlet Air Pressures:**  
**A** = 100 psi (6.9 bar)    **B** = 70 psi (4.8 bar)  
 Test Fluid: Chevron Multifak EP 2

### Ordering Information

| Dyna-Star 200:1 and 120:1 Pumps and Packages |  |
|--|--|
| 25P785                                       | Dyna-Star 200:1 Air-Powered Bare Grease Pump for 400 lb (180 kg) Barrel                |
| 25P784                                       | Dyna-Star 200:1 Air-Powered Bare Grease Pump for 120 lb (55 kg) Keg                    |
| 26A968                                       | Dyna-Star 120:1 Air-Powered Bare Grease Pump for 400 lb (180 kg) Barrel                |
| 26A967                                       | Dyna-Star 120:1 Air-Powered Bare Grease Pump for 120 lb (55 kg) Keg                    |
| 20A560                                       | Dyna-Star 200:1 Air-Powered Grease Pump with Cover (25U202) for 400 lb (180 kg) Barrel |
| 20A561                                       | Dyna-Star 200:1 Air-Powered Grease Pump with Cover for (25U203) 120 lb (55 kg) Keg     |
| 20A562                                       | Dyna-Star 120:1 Air-Powered Grease Pump with Cover (25U202) for 400 lb (180 kg) Barrel |
| 20A563                                       | Dyna-Star 120:1 Air-Powered Grease Pump with Cover (25U203) for 120 lb (55 kg) Keg     |

| Dyna-Star 200:1 and 120:1 Accessories |   |
|---------------------------------------|---|
| 26B069                                | Dyna-Star 200:1 and 120:1 Air-Powered Grease Pump Seal Repair Kit   |
| 26B416                                | Dyna-Star 200:1 or 120:1 Air-Powered Grease Pump Lower Shortening Conversion Kit - 400 lb (180 kg) Barrel to 120 lb (55 kg) Keg |
| 26B399                                | Dyna-Star 200:1 or 120:1 Air-Powered Grease Pump Lower Extension Conversion Kit - 120 lb (55 kg) Keg to 400 lb (180 kg) Barrel  |
| 25U200                                | Heavy-Duty Follower Plate with Handles and Retrieval Chain for 400 lb (180 kg) Barrel   |
| 25U201                                | Heavy-Duty Follower Plate with Handles and Retrieval Chain for 120 lb (55 kg) Keg   |
| 25U202                                | Drum Cover with Retrieval Chain Connection for 400 lb (180 kg) Barrel   |
| 25U203                                | Drum Cover with Retrieval Chain Connection for 120 lb (55 kg) Keg   |
| 207361                                | Tie-Down Kit - 400 lb Barrel  |
| 222061                                | Tie-Down Kit - 120 lb Keg   |



# Lubrication Systems

## Dyna-Star® Electrically-Powered HP and HF 24 VDC

### Features and Benefits

- High-quality helical hardened steel gears are lubricated for life and sealed to keep contaminants out for longer lasting performance
- Ability to adjust motor controls like power input, motor speed, current control and signal input to perfectly match the pump to your application and environmental changes
- Mechanical auto-fill shutoff and remote-mounted fill port ensures clean and efficient refills
- Vent valve mounts directly to pump with no special brackets or hoses for a compact design and less parts to break or wear out
- IP69K rated
- Built-in pressure relief for safety and compact, efficient installations
- Cavitation-free fill and vent path provides simple and direct venting and filling to the foot of the pump
- Built-in lift ring is rated to 500 lbs (226 kg)
- Strong 12 gauge steel reservoir available in 60 lb (27 kg) or 90 lb (41 kg) size
- AC to DC Converter Box for fixed and in-plant applications

### Typical Applications

- Mining Operations
- Milling and Crushing
- Heavy-duty Construction
- Well Services
- Industrial (see next page for AC to DC Converter)

### Technical Specifications

| Maximum Lubricant Outlet Pressure |   |
|-----------------------------------|---|
| HF models                         | 3500 psi (24.1 MPa, 241 bar)  |
| HP models                         | 5000 psi (34.47 MPa, 344 bar)   |
| Electrical Requirements           |   |
| All models                        | 24 VDC  |
| Input Voltage Range               |   |
| 24 VDC                            | 18 to 32 VDC  |
| Flow Rate Range                   |   |
| HF models                         | 1.5 in <sup>3</sup> - 25 in <sup>3</sup> /min (24.6 cm <sup>3</sup> - 410 cm <sup>3</sup> /min) |
| HP models                         | 1.5 in <sup>3</sup> - 18 in <sup>3</sup> /min (24.6 cm <sup>3</sup> - 295 cm <sup>3</sup> /min) |
| Inlet/Outlet Sizes                |   |
| Tank/reservoir fill port          | 1/2 in NPT  |
| Overflow port                     | 1/2 in NPT  |
| Fluid outlet size                 | 3/8 in NPT  |
| Operating Temperature             |   |
| HF models                         | 14° to 149° F (-10° to 65° C)   |
| HP models                         | -40° to 149° F (-40° to 65° C)  |
| Audible Sound Pressure            |   |
| 71 dB(A)                          |   |

**Product Manuals:** Pumps 332514, Pump Systems 332540, Auto-Fill Shutoff 332518, Low Level 332515, Electric Vent Valve 332519, Drum Covers and Follower Plates 312738, Remote Fill Port 333393



77X202



77X001

# Lubrication Systems

## Dyna-Star® Electrically-Powered HP and HF AC to DC Converter Box

### Features and Benefits

- Convenience of AC power and maintain the advantages of DC speed and amp control
- In-plant and fixed plant applications without expensive pneumatic and hydraulic power requirements
- Convenient hardware kit to make installation easy
- Two DC 20 amp outputs to power both pump and control
- On/off switch and detachable power cord to meet health and safety requirements

### Typical Applications

- Rock crushers
- Food processing
- Steel milling
- Fixed and in-plant applications

### Technical Specifications

|                                      |                               |
|--------------------------------------|-------------------------------|
| Input Voltage.....                   | 110-240 VAC                   |
| Input Frequency.....                 | 50/60 Hz                      |
| Output Voltage.....                  | 24 VDC                        |
| Output Current.....                  | 20 amps                       |
| IP Rating.....                       | IP24                          |
| Environmental Temperature Range..... | 14° to 122° F (-10° to 50° C) |
| Power Cord Length.....               | 9 ft (2.7 m)                  |
| Manual.....                          | 333391                        |



Installation Hardware Included

### Dyna-Star® Electrically-Powered HP and HF 24 VDC

#### Ordering Information

| Stand Alone Pumps         |  |
|---------------------------|--|
| 77X000                    | 24 VDC HP stand-alone pump for 35 or 60 pound reservoir  |
| 77X001                    | 24 VDC HP stand-alone pump with tube-in-tube for 35 or 60 pound reservoir  |
| 77X002                    | 24 VDC HP stand-alone pump with tube-in-tube for 90 or 120 pound reservoir   |
| 77X003                    | 24 VDC HP stand-alone pump with tube-in-tube for 400 pound reservoir   |
| 77X014                    | 24 VDC HF stand-alone pump for 35 or 60 pound reservoir  |
| 77X015                    | 24 VDC HF stand-alone pump for 120 pound reservoir   |
| 77X016                    | 24 VDC HF stand-alone pump for 400 pound reservoir   |
| Custom Tank Injector Kits |  |
| 77X011                    | 24 VDC HP pump and vent valve with tube-in-tube for 35 or 60 pound reservoir   |
| 77X012                    | 24 VDC HP pump and vent valve with tube-in-tube for 90 or 120 pound reservoir  |
| 77X013                    | 24 VDC HP pump and vent valve with tube-in-tube for 400 pound reservoir  |
| System Installation Kits  |  |
| 77X960                    | 24 VDC HP pump with auto-fill shutoff and low-level monitor, GLC2200 controller, wiring harness, low-level sensor cable, power cable, pressure switch, and remote fill manifold for 60 pound reservoir |
| 77X990                    | 24 VDC HP pump with auto-fill shutoff and low-level monitor, GLC2200 controller, wiring harness, low-level sensor cable, power cable, pressure switch, and remote fill manifold for 90 pound reservoir |





# Lubrication Systems

## Dyna-Star® Electrically-Powered HP and HF 24 VDC

| HP Pump Modules |                |       |            |           |                        |                |                        |                    |
|-----------------|----------------|-------|------------|-----------|------------------------|----------------|------------------------|--------------------|
| Part Number     | Reservoir Size |       | Vent Valve | Dip Stick | Low Level 77X522 (DIN) | Follower Plate | Low Level 17L372 (M12) | Auto-Fill Shut Off |
|                 | 60 lb          | 90 lb |            |           |                        |                |                        |                    |
| 77X100          | •              |       | •          | •         |                        |                |                        |                    |
| 77X101          |                | •     | •          | •         |                        |                |                        |                    |
| 77X102          | •              |       | •          |           |                        |                |                        | •                  |
| 77X103          |                | •     | •          |           |                        |                |                        | •                  |
| 77X104          | •              |       | •          |           | •                      | •              |                        |                    |
| 77X105          |                | •     | •          |           | •                      | •              |                        |                    |
| 77X202          | •              |       | •          |           |                        |                | •                      | •                  |
| 77X203          |                | •     | •          |           |                        |                | •                      | •                  |
| 77X204          | •              |       | •          |           |                        |                | •                      |                    |
| 77X205          |                | •     | •          |           |                        |                | •                      |                    |
| 77X300          | •              |       |            | •         |                        |                |                        |                    |
| 77X301          |                | •     |            | •         |                        |                |                        |                    |
| 77X304          | •              |       |            |           | •                      | •              |                        |                    |
| 77X305          |                | •     |            |           | •                      | •              |                        |                    |
| 77X402          | •              |       |            |           |                        |                | •                      | •                  |
| 77X403          |                | •     |            |           |                        |                | •                      | •                  |

| Standard Drum Injector Kits |   |
|-----------------------------|---|
| 77X111                      | 24 VDC HP pump, vent valve, and cover with tube-in-tube for 120 pound reservoir |
| 77X112                      | 24 VDC HP pump, vent valve, and cover with tube-in-tube for 400 pound reservoir |

| Standard Drum Kits |  |
|--------------------|--|
| 77X121             | 24 VDC HF pump and cover for 120 pound reservoir |
| 77X122             | 24 VDC HF pump and cover for 400 pound reservoir |

| Accessories |  |
|-------------|--|
| 77X500      | Follower plate for Graco 60 pound and 90 pound Graco tank for tube-in-tube                       |
| 77X510      | Follower plate for 35 pound bucket with and without tube-in-tube                                 |
| 247701      | Follower plate for 120 pound drum without tube-in-tube   |
| 77X511      | Follower plate for 120 pound drum with tube-in-tube  |
| 247702      | Follower plate for 400 pound drum without tube-in-tube   |
| 77X512      | Follower plate for 400 pound drum with for tube-in-tube  |
| 77X513      | Cover, cylinder, tie-rods and base to convert 60 pound length to 35 pound bucket                 |
| 77X514      | Cover for 120 pound drum   |
| 77X515      | Cover for 400 pound drum   |
| 77X521      | Auto-fill shutoff (AFSO) – diaphragm, plate, valve, coupler, and pipes                           |
| 77X522      | Low level kit sight glass, electric low level switch, and cable (requires follower plate 77X500) |
| 77X523      | 400 micron inline filter, maximum 5,000 psi (344 bar) inlet pressure (replacement filter 77X541) |
| 17L366      | Red alert filter with 380µm, 36 in² steel mesh filter (replacement filter 129031)                |
| 24R952      | Red alert filter with reservoir mounting kit (includes 17L366)                                   |
| 16V678      | Red alert filter mounting bracket  |
| 77X524      | 110-230 VAC to 24 VDC converter box  |
| 77X540      | 24 VDC electric vent valve with pressure relief  |
| 77X542      | Remote-fill port manifold with vent  |
| 77X543      | HF manifold with 4,000 psi pressure relief   |
| 77X544      | HP manifold with 5,000 psi pressure relief   |
| 77X545      | Power cable for series progressive systems, M23 connector, 15 ft (4.6 m)                         |
| 77X546      | Power cable for injector systems, M23 connector, 15 ft (4.6 m)                                   |
| 115124      | Pressure switch – pressure adjustment visible in window  |
| 24N180      | Pressure switch, 1/4 in BSPP inlet, DIN 43650 connector (1 NO/1 NC), 7,250 psi (500 bar)         |
| 24N181      | Pressure switch, 1/4 in NPT(F) inlet, DIN 43650 connector (1 NO/1 NC), 7,250 psi (500 bar)       |



Lubrication Systems

# Lubrication Systems

## Compact Dyna-Star®

### Right-Sized Solution

The Graco Compact Dyna-Star automatic lubrication system delivers high-capacity flow, robust durability and innovative control in a smaller footprint to extend uptime for today's toughest earth-moving machines and users in the harshest environments.

#### *Rugged Durability*

Metal construction ensures trustworthy operation in the most extreme environments.

#### *Integrated Auto-Fill Shut-Off*

Option enables single-person, powered-down, ground-level refills, without the need to climb or worry about spills.

#### *Smart Power Train*

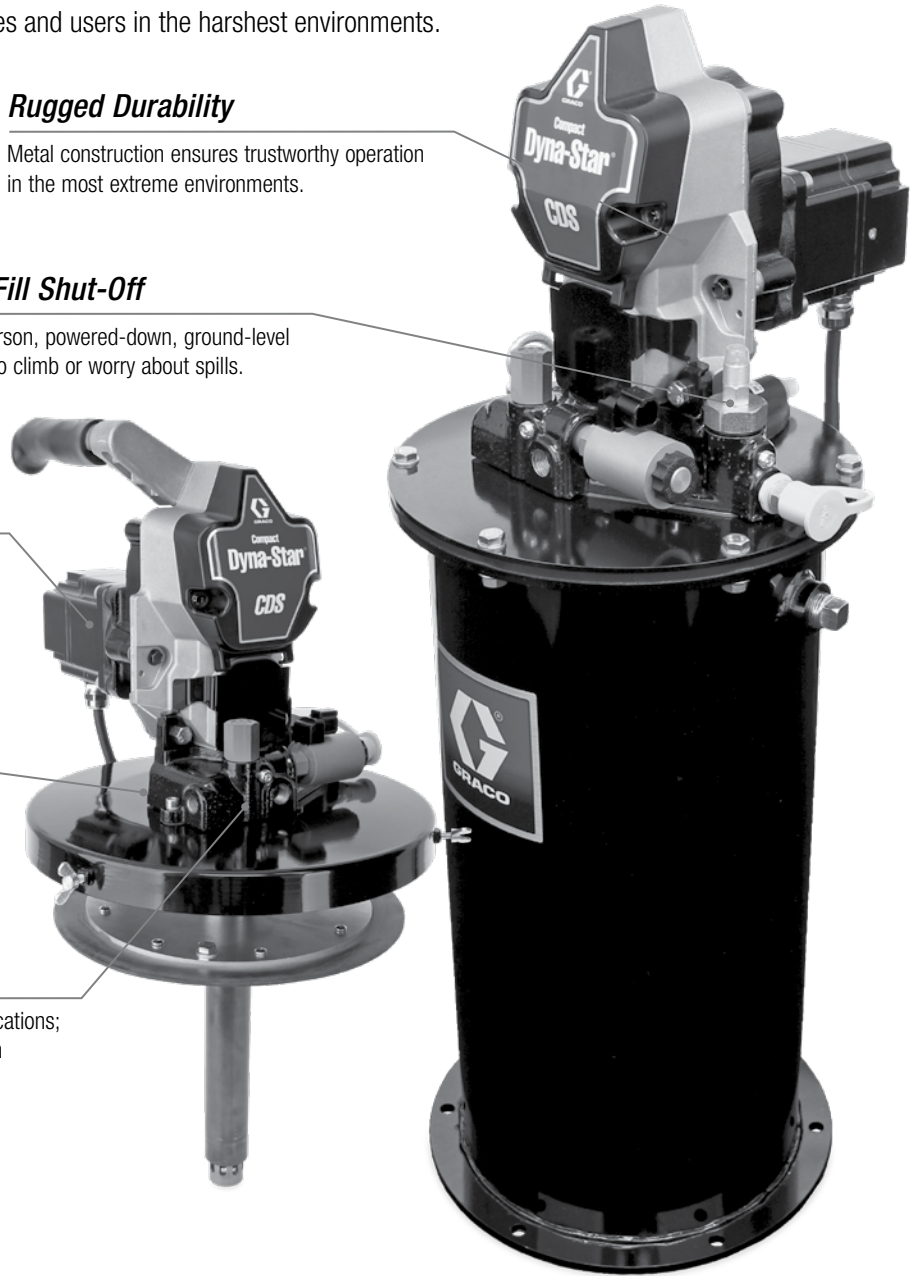
24 VDC, brushless motor and zero-maintenance gear drive deliver lubricants on time, even at -40° F (-40° C).

#### *Intelligent Monitoring*

Optional pressure and lubricant level sensors provide useful system information in real time.

#### *Compact Power*

Fits easily in space-limited applications; powerful enough to keep up with aggressive lubrication interval.



### Typical Applications

- Aggregates
- Mining
- Construction
- Hydraulic Fracturing Units

### Technical Specifications

|                                |  |
|--------------------------------|--|
| Maximum Working Pressure ..... | 3,500 psi (241 bar)                                |
| Operating Temperature .....    | -40 to 149° F (-40 to 65° C)                       |
| Reservoir Size .....           | 12 liter, 20 liter and 60 lb                       |
| Maximum Flow Output Rate ..... | 4.5 in <sup>3</sup> /min (74 cm <sup>3</sup> /min) |
| Lube Type .....                | Oil and grease up to NLGI #2                       |
| Certifications/Ratings .....   | IP69K  |
| Manual .....                   | 3A6941   |

# Lubrication Systems

## Compact Dyna-Star®, GLC™ X Controller and Auto Lube™ App

### Ordering Information

CD - X - X - X - X

#### Pump Description

| Code | Description                        |
|------|------------------------------------|
| 1    | 12 L / 35 lb bucket length, 24 VDC |
| 2    | 20 L reservoir length, 24 VDC      |
| 3    | 60 pound reservoir length, 24 VDC  |

#### Metering System Feedback

| Code | Description  |
|------|--|
| 0    | Series progressive, no vent-valve, no pressure feedback (plugged outlet) |
| 1    | Vent-valve, no pressure feedback (plugged outlet)                        |
| 2    | Vent-valve, pressure switch  |
| 3    | Vent-valve, pressure-reporting transducer                                |

#### Reservoir

| Code | Description  |
|------|--|
| 0    | No reservoir, bare pump  |
| 1    | 12 L steel reservoir, follower plate                                   |
| 2    | 20 L steel reservoir, follower plate                                   |
| 3    | 35 lb plastic bucket kit – cover, follower plate (bucket not included) |
| 4    | 12 L steel reservoir, no follower plate                                |
| 5    | 20 L steel reservoir, no follower plate                                |
| 6    | 60 pound steel reservoir, follower plate                               |
| 7    | 60 pound steel reservoir, no follower plate                            |

#### Reservoir Accessories

| Code | Description                                       |
|------|---|
| 0    | Bare pump or bucket kit (no reservoir)            |
| 1    | Low-level switch                                  |
| 2    | Level-reporting transducer                        |
| 3    | Auto-fill shut-off and low-level switch           |
| 4    | Auto-fill shut-off and level-reporting transducer |



CD2324

### Ordering Information

| CDS Accessories |  |
|-----------------|--|
| 26A883          | GLC X to CDS 3 ft (1 m) cable  |
| 26A884          | CDS extension cable, 12-wire, 20 ft (6 m) with flying leads  |
| 26A889          | 12-pin DT female CDS mating connector kit  |
| 25R001          | 12 liter reservoir wall mount bracket  |
| 25R318          | 12 and 20 liter mounting bracket for GLC X, Red Alert filter, 3- and 5-section MSP assemblies or 3- and 5-bank GL-1 series injectors |
| 25U220          | 60 pound mounting bracket for GLC X, Red Alert filter, 3- and 5-section MSP assemblies or 3- and 5-bank GL-1 series injectors        |

## Pair with the GLC X Controller and Auto Lube App

### Drive More Productivity

The powerful, easy-to-use Graco GLC X automatic lubrication controller captures more information so operators, technicians and managers can make faster, smarter decisions. Paired with the intuitive Auto Lube app, users can monitor system performance and make adjustments with incredible speed, precision and freedom from their personal mobile device.

#### Easy-to-Read Screen

High-contrast screen features text codes, faults and other data clearly in any ambient light without distracting operators.

#### Real-Time System Reporting

Program and display a wide range of customizable functions – including lubrication intervals, pressure limits, lubricant levels and more.

#### Smart Device and Mobile App

With the Auto Lube app, monitor lubrication levels, configure settings, track system history and share important diagnostics.



### Ordering Information

| GLC X Controller  |  |
|-------------------|--|
| 26A855            | GLC X controller with 20 ft (6 m) cable                      |
| 26A814            | GLC X controller   |
| 26A882            | GLC X wiring harness, 12-wire, 20 ft (6 m) with flying leads |
| GLC X Accessories |  |
| 26A853            | GLC X pump simulator   |
| 26A882            | GLC X 20 ft (6 m) cable                                      |
| 26A883            | GLC X to Compact Dyna-Star® 3 ft (1 m) cable                 |
| 26A888            | 14-pin mating connector kit                                  |

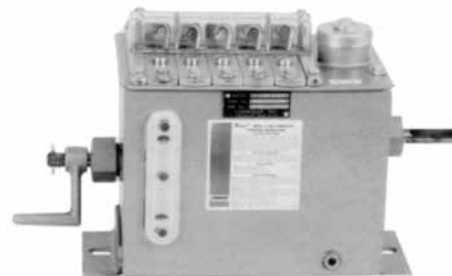
Download the **Graco Auto Lube App** from Google Play or the App Store (iOS) and perform all controller functions from the convenience of a smartphone or tablet.

# Compressor Lubrication

## Manzel® Model 25 Lubricator

### Features and Benefits

- General-Purpose Lubrication: automatic, precision metering for all types of machinery
- The preferred lubricator of food processors who want to minimize the spare pumps they keep in stock
- Model 25 pumps manufactured today will fit in working Model 25 box lubricators no matter what their age – even 100 years old!
- Hand Crank: Standard. Convenient for rapid priming of lines before start-up or for momentarily increasing supply of lubricant. Does not affect adjustment of individual pumping units. Direct replacement for Kipp Model 50 Box Lubricators



### Typical Applications

- Provide lubrication to cylinder walls, bearings and other moving parts of equipment such as continuous cookers, steam peelers, closing machines and other food processing equipment.
- Also used to replace existing Model 25 lubricators installed on other equipment.

### Typical Fluids Handled

- Mineral oil base or synthetics

### Technical Specifications

| Piston Size<br>Inches (mm) | Max Pressure<br>psi (bar) | Drops Per<br>Stroke |     | Cubic Inches<br>Per Stroke |       | Cubic cm Per<br>Stroke |      | Strokes Per<br>Minute |     |
|----------------------------|---------------------------|---------------------|-----|----------------------------|-------|------------------------|------|-----------------------|-----|
|                            |                           | Min.                | Max | Min.                       | Max   | Min.                   | Max  | Min.                  | Max |
| 3/16 (4.8)                 | 1,000 (69)                | 1/6                 | 6   | .0003                      | .0122 | .008                   | .399 | 3                     | 60  |
| 5/16 (7.9)                 | 1,000 (69)                | 1/4                 | 12  | .0005                      | .0245 | .005                   | .199 | 3                     | 60  |



562949

### Pumps and Accessories

| Model 25 Replacement Pumps  |                                  |
|-----------------------------|----------------------------------|
| 562949                      | 3/16 in (4.8 mm) diameter        |
| 562950                      | 5/16 in (7.9 mm) diameter        |
| Accessories and Spare Parts |                                  |
| 564317                      | Ratchet drive arm assembly       |
| 562988                      | Replacement hand crank           |
| 563939                      | Low level, fits into a pump slot |

| Replacement Site Glasses |             |        |
|--------------------------|-------------|--------|
| Feeds                    | Sight Glass | Gasket |
| 1                        | 556687      | 556721 |
| 2                        | 556688      | 556722 |
| 3                        | 556689      | 555741 |
| 4                        | 556690      | 556723 |
| 5                        | 556691      | 555742 |
| 6                        | 556692      | 556724 |
| 7                        | 556693      | 555743 |
| 8                        | 556694      | 556725 |

# Compressor Lubrication

## Manzel® Model 25 Box Lubricator Configurator

### Ordering Information

MA - X - X - X - X

#### Reservoir

##### Code Former Codes and Descriptions

- A R1 - 6.25 pt, 4 pump stations max
- B R2 - 9.25 pt, 8 pump stations max
- C R3 - 13 pt, 12 pump stations max
- D R4 - 16 pt, 16 pump stations max
- E R5 - 19.75 pt, 20 pump stations max

**NOTE : Unused pump stations covered with blanking plate(s)**

#### Pump Size

##### Code Former Codes and Descriptions

- A P-1 - 3/16 in (4.8 mm) Diameter Plunger, 1,000 psi (68.9 bar) max Operating Pressure
- B P-2 - 5/16 in (7.9 mm) Diameter Plunger, 1,000 psi (68.9 bar) max Operating Pressure

#### Pump Quantity

| Code | Qty | Code | Qty | Code | Qty | Code | Qty |
|------|-----|------|-----|------|-----|------|-----|
| A    | 0   | G    | 6   | N    | 12  | V    | 18  |
| B    | 1   | H    | 7   | P    | 13  | W    | 19  |
| C    | 2   | J    | 8   | R    | 14  | X    | 20  |
| D    | 3   | K    | 9   | S    | 15  |      |     |
| E    | 4   | L    | 10  | T    | 16  |      |     |
| F    | 5   | M    | 11  | U    | 17  |      |     |

#### Drive Options

##### Code Former Codes and Descriptions

- A D1R - Direct Rotary Right Hand Mount
- B D2R - Standard Ratchet - Right Hand Mount\*
- C D3R - 37.5:1 Ratio - Right Hand Mount
- D D4R - 75:1 Ratio - Right Hand Mount
- E D1L - Direct Rotary Left Hand Mount
- F D2L - Standard Ratchet - Left Hand Mount\*
- G D3L - 37.5:1 Ratio - Left Hand Mount
- H D4L - 75:1 Ratio - Left Hand Mount

\*Requires drive arm 564317, sold separately.

# Compressor Lubrication

## Manzel® Model 25 Box Lubricators

### Ordering Information

| MAA - Up to 4 pumps |                |
|---------------------|----------------|
| MAAACB              | R1-P1-2-D2R-LO |
| MAAADB              | R1-P1-3-D2R-LO |
| MAAAEB              | R1-P1-4-D2R-LO |
| MAAAEC              | R1-P1-4-D3R-LO |
| MAABBB              | R1-P2-1-D2R-LO |
| MAABBC              | R1-P2-1-D3R-LO |
| MAABBF              | R1-P2-1-D2L-LO |
| MAABBG              | R1-P2-1-D3L-LO |
| MAABDB              | R1-P2-3-D2R-LO |
| MAABDC              | R1-P2-3-D3R-LO |
| MAABEB              | R1-P2-4-D2R-LO |
| MAABEF              | R1-P2-4-D2L-LO |
| MAB - Up to 8 pumps |                |
| MABAAB              | R2-P1-0-D2R-LO |
| MABACH              | R2-P1-2-D4L-LO |
| MABAFC              | R2-P1-5-D3R-LO |
| MABAFG              | R2-P1-5-D3L-LO |
| MABAHC              | R2-P1-7-D3R-LO |
| MABAHG              | R2-P1-7-D3L-LO |
| MABAJA              | R2-P1-8-D1R-LO |
| MABBAC              | R2-P2-0-D3R-LO |
| MABBCC              | R2-P2-2-D3L-LO |
| MABBEC              | R2-P2-4-D3R-LO |
| MABBEE              | R2-P2-4-D1L-LO |
| MABBFF              | R2-P2-5-D2L-LO |
| MABBFG              | R2-P2-5-D3L-LO |
| MABBGA              | R2-P2-6-D1R-LO |
| MABBGB              | R2-P2-6-D2R-LO |
| MABBGC              | R2-P2-6-D3R-LO |
| MABBGF              | R2-P2-6-D2L-LO |
| MABBHC              | R2-P2-7-D3R-LO |
| MABBHG              | R2-P2-7-D3L-LO |

| MAC - Up to 12 pumps |                 |
|----------------------|-----------------|
| MACAAA               | R3-P1-0-D1R-LO  |
| MACAEH               | R3-P1-4-D4L-LO  |
| MACAGH               | R3-P1-6-D4L-LO  |
| MACAHF               | R3-P1-7-D2L-LO  |
| MACAKE               | R3-P1-9-D1L-LO  |
| MACALC               | R3-P1-10-D3R-LO |
| MACANB               | R3-P1-12-D2R-LO |
| MACBJB               | R3-P2-8-D2R-LO  |
| MACBKA               | R3-P2-9-D1R-LO  |
| MACBLC               | R3-P2-10-D3R-LO |
| MACBLG               | R3-P2-10-D3L-LO |
| MAD - Up to 16 pumps |                 |
| MADBCC               | R4-P2-2-D3R-LO  |
| MADBLH               | R4-P2-10-D4L-LO |
| MADBSG               | R4-P2-15-D3L-LO |
| MAE - Up to 20 pumps |                 |
| MAEAAB               | R5-P1-0-D2R-LO  |
| MAEBGE               | R5-P2-6-D1L-LO  |

# Compressor Lubrication

## Manzel® MBL Box Lubricators

### Features and Benefits

- Provide a proven, cost-effective way to assemble customized oil systems that meet specific requirements by using standard modular components
- Increase opportunities to standardize lube system components and reduce lube maintenance and service costs
- Dependable and backed by the industry's most comprehensive international distributor network—with application expertise, parts stocks, and factory-trained service nearby, wherever you are located



### Typical Fluids Handled

- Mineral oil base or synthetics

### Typical Applications

- Provide lubrication to cylinder walls, bearings and other moving parts of equipment such as refineries, injection and storage, general manufacturing, air systems, and food processing equipment

| Application                | Industry   | Use   |
|----------------------------|--|---|
| Compressors                | Petrochemical, Refineries, Gas Transmission, Injection and Storage, Cold Storage, General Manufacturing, Air Systems | Lubricate cylinder walls and piston shaft packing             |
| Edgers, Planers, Band Saws | Lumber   | Lubricate slides and ways. Blade coolant.                     |
| Mixers                     | Rubber   | Used in the bleeding process and to lubricate dust stop seals |
| Can Lid Presses            | Food Processing  | Lubricate high-speed bearings                                 |
| Band Saws                  | Lumber   | Saw guides  |

### Modularity

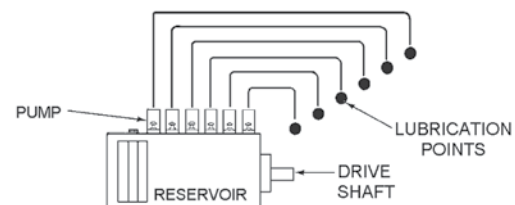
Force Feed Box Lubricators provide true modularity that permits customizing a pump-to-point lubrication system from off-shelf components. The modular variables consist of the following categories of components:

- Pumps
- Reservoir
- Reservoir Heaters
- Reservoir Oil Level Controls
- Drives
- Shaft Rotation Alarm
- Motor and Motor Mounting Bases

In addition to these Force Feed Box Lubricator components, Graco offers a complete line of auxiliary equipment. Also, MBL pumping packages can be used with divider valves in a series progressive installation. Graco's performance-proven products that may be used with Modular Box Lubricators are listed on the next page along with the respective literature number.

### Description

A basic pump-to-point system is shown in the illustration which depicts six pumps mounted on a common reservoir from which each pump is dispensing oil to a single lubrication point. These pumps are operated by individual cams on one common drive shaft.



**Pump-to-Point System**

### Interchangeability, Conversion and Retrofits

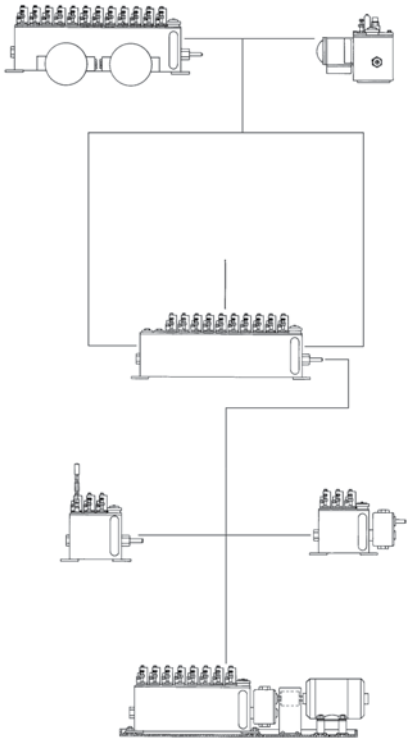
Graco GBL 7500 Pumps have been designed to be easily interchangeable with other manufacturers' pumps. For details contact your local Graco representative or call on us for system design and application assistance.

# Compressor Lubrication

## Manzel® MBL Box Lubricators

### MBL Force Feed Box Lubricator = True Modularity

Wide choice of standard modular components helps you meet application requirements more exactly without the added costs of a custom system.



### Pumps

Graco GBL 7500 pumps for pressures up to 7,500 psi.

**24J391** – GBL 7500 Suction Pump, 3/16 in

**24J392** – GBL 7500 Suction Pump, 1/4 in

**24J393** – GBL 7500 Suction Pump, 3/8 in

- Ideal for heavy duty applications
- Interchangeable with pumps from competitive lubricators
- Suction (vacuum feed) pumps are available installed
- Pressure feed and gravity feed pumps are sold separately
- See manual 3A2257 for more information

### Alarm Pump

Shaft Rotation/Low Level alarm based on GBL 7500 pump.

- Available as part number 24K466.
- Mounts in a pump slot
- Order separately for field installation.

### Reservoirs and Mounting Bases

Eight reservoir capacities are available to hold from 4 to 40 pints and accommodate from 1 to 24 pumps. Blank cover assemblies included on unused pump stations. Eight sizes of motor mounting bases are available to accommodate the various reservoir sizes.

### Reservoir Accessories

Automatic fill, low level, and electric heater options.

### Drive Options

Over twenty drive options are available from direct drive to a reduction ratio of 400:1. Options provide left- or right-hand end of reservoir mounting, end or rear rotary drives, end ratchet drives and gear reducers. For details, see pages 9 and 10. See literature 352389 for MB60 (60:1) and MB118 (118:1) specialty box lubricators. See Graco manual 3A2953 for center rear drive options.

### Motors

Single- and three-phase motors are available at ratings of 1/3, 1/4 and 1/2 HP, for 115/230 volt or 230/460 volt, in explosion-proof, TEFC or TENV configuration. Some motor configurations are available foot-mounted and/or face-mounted.

### “Smart” Part Numbers

- Graco part numbers are 6-digits long
- MBL Smart Part Numbers start with “MB”
- The next four letters each specify one or more options:
  - **Option A:** Reservoir and Motor Mounting Base
  - **Option B:** Pump Style and Monitor
  - **Option C:** Pump Quantity
  - **Option D:** Drive
- MBabcd – replace lower case letters with selections offered in **Smart Menu Code** to form a **Smart Part Number**

### Literature


|        |                                     |
|--------|-------------------------------------|
| L54000 | Lube Line Alert                     |
| L15831 | Lube Sentry                         |
| L15825 | Check Valves                        |
| L15200 | In-Line Filters                     |
| L10103 | MH Modular Divider Valves           |
| 3A2100 | Modular Box Lubricator (MBL) manual |
| 3A2257 | GBL7500 pumps manual                |
| 352389 | Manzel MB60 & MB118 flyer           |
| 3A2953 | Center Drive Box Lubricator manual  |



# Compressor Lubrication

## Manzel® MBL Pump/Reservoir Combinations

**NOTE:** LH option currently available only on MBL-G01, G02, G03, G04, and G12 drives. All part numbers on the chart below use "OA" to indicate assemblies with NO pumps. Refer to Smart Code ordering details.

 = Not compatible

|      |                   | Reservoirs Without Motor Mounting Bases |                 |                 |                  |                   |                   |                   |                   | Reservoirs Combined With Motor Mounting Bases |                 |                 |                  |                   |                   |                   |                   |
|------|-------------------|---|-----------------|-----------------|------------------|-------------------|-------------------|-------------------|-------------------|---|-----------------|-----------------|------------------|-------------------|-------------------|-------------------|-------------------|
|      |                   | T1                                      | T2              | T3              | T4               | T5                | T6                | T7                | T8                | T1 + P1                                       | T2 + P2         | T3 + P3         | T4 + P4          | T5 + P5           | T6 + P6           | T7 + P7           | T8 + P8           |
|      |                   | 4 pint / 2 feed                         | 6 pint / 3 feed | 8 pint / 5 feed | 12 pint / 8 feed | 16 pint / 12 feed | 24 pint / 16 feed | 32 pint / 20 feed | 40 pint / 24 feed | 4 pint / 2 feed                               | 6 pint / 3 feed | 8 pint / 5 feed | 12 pint / 8 feed | 16 pint / 12 feed | 24 pint / 16 feed | 32 pint / 20 feed | 40 pint / 24 feed |
| G01R | Direct, 1:1       | MBA0AA                                  | MBB0AA          | MBC0AA          | MBD0AA           | MBE0AA            | MBF0AA            | MBG0AA            | MBH0AA            |   |                 |                 |                  |                   |                   |                   |                   |
| G02R | End Ratchet       | MBA0AB                                  | MBB0AB          | MBC0AB          | MBD0AB           | MBE0AB            | MBF0AB            | MBG0AB            | MBH0AB            |   |                 |                 |                  |                   |                   |                   |                   |
| G03R | 37.5:1 Ratchet    | MBA0AC                                  | MBB0AC          | MBC0AC          | MBD0AC           | MBE0AC            | MBF0AC            | MBG0AC            | MBH0AC            |   |                 |                 |                  |                   |                   |                   |                   |
| G04R | 75:1 Ratchet      | MBA0AD                                  | MBB0AD          | MBC0AD          | MBD0AD           | MBE0AD            | MBF0AD            | MBG0AD            | MBH0AD            |   |                 |                 |                  |                   |                   |                   |                   |
| G01L | Direct, 1:1       | MBA0AE                                  | MBB0AE          | MBC0AE          | MBD0AE           | MBE0AE            | MBF0AE            | MBG0AE            | MBH0AE            |   |                 |                 |                  |                   |                   |                   |                   |
| G02L | End Ratchet       | MBA0AF                                  | MBB0AF          | MBC0AF          | MBD0AF           | MBE0AF            | MBF0AF            | MBG0AF            | MBH0AF            |   |                 |                 |                  |                   |                   |                   |                   |
| G03L | 37.5:1 Ratchet    | MBA0AG                                  | MBB0AG          | MBC0AG          | MBD0AG           | MBE0AG            | MBF0AG            | MBG0AG            | MBH0AG            |   |                 |                 |                  |                   |                   |                   |                   |
| G04L | 75:1 Ratchet      | MBA0AH                                  | MBB0AH          | MBC0AH          | MBD0AH           | MBE0AH            | MBF0AH            | MBG0AH            | MBH0AH            |   |                 |                 |                  |                   |                   |                   |                   |
| G05R | 25:1 End Rotary   | MBA0AJ                                  | MBB0AJ          | MBC0AJ          | MBD0AJ           | MBE0AJ            |                   |                   |                   | MBJOAJ  | MBKOAJ          | MBLOAJ          | MBMOAJ           | MBNOAJ            |                   |                   |                   |
| G06R | 50:1 End Rotary   | MBA0AK                                  | MBB0AK          | MBC0AK          | MBD0AK           | MBE0AK            |                   |                   |                   | MBJOAK  | MBKOAK          | MBLOAK          | MBMOAK           | MBNOAK            |                   |                   |                   |
| G07R | 100:1 End Rotary  | MBA0AL                                  | MBB0AL          | MBC0AL          | MBD0AL           | MBE0AL            |                   |                   |                   | MBJOAL  | MBKOAL          | MBLOAL          | MBMOAL           | MBNOAL            |                   |                   |                   |
| G08R | 200:1 End Rotary  | MBA0AM                                  | MBB0AM          | MBC0AM          | MBD0AM           | MBE0AM            |                   |                   |                   | MBJOAM  | MBKOAM          | MBLOAM          | MBMOAM           | MBNOAM            |                   |                   |                   |
| G09R | 400:1 End Rotary  | MBA0AN                                  | MBB0AN          | MBC0AN          | MBD0AN           | MBE0AN            |                   |                   |                   | MBJOAN  | MBKOAN          | MBLOAN          | MBMOAN           | MBNOAN            |                   |                   |                   |
| G10R | 25:1 Right Angle  | MBA0AP                                  | MBB0AP          | MBC0AP          | MBD0AP           | MBE0AP            |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G11R | 50:1 Right Angle  | MBA0AR                                  | MBB0AR          | MBC0AR          | MBD0AR           | MBE0AR            |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G12R | 188:1 Right Angle | MBA0AS                                  | MBB0AS          | MBC0AS          | MBD0AS           | MBE0AS            |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G13R | 375:1 Right Angle | MBA0AT                                  | MBB0AT          | MBC0AT          | MBD0AT           | MBE0AT            |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G14R | 100:1 Heavy Duty  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   | MBPOAU            | MBROAU            | MBSOAU            |
| G15R | 150:1 Heavy Duty  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   | MBPOAV            | MBROAV            | MBSOAV            |
| G16R | 200:1 Heavy Duty  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   | MBPOAW            | MBROAW            | MBSOAW            |
| G17R | 300:1 Heavy Duty  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   | MBPOAX            | MBROAX            | MBSOAX            |
| G18R | 400:1 Heavy Duty  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   | MBPOAY            | MBROAY            | MBSOAY            |
| G12L | 188:1 Right Angle | MBA0AZ                                  | MBB0AZ          | MBC0AZ          | MBD0AZ           | MBE0AZ            |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G05L | 25:1 End Rotary   |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G06L | 50:1 End Rotary   |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G07L | 100:1 End Rotary  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G08L | 200:1 End Rotary  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G09L | 400:1 End Rotary  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G10L | 25:1 Right Angle  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G11L | 50:1 Right Angle  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G14L | 100:1 Heavy Duty  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G15L | 150:1 Heavy Duty  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G16L | 200:1 Heavy Duty  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G17L | 300:1 Heavy Duty  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |
| G18L | 400:1 Heavy Duty  |   |                 |                 |                  |                   |                   |                   |                   |   |                 |                 |                  |                   |                   |                   |                   |

# Compressor Lubrication

## Manzel® MBL Box Lubricator Configurator

### MBL Smart Code Ordering Menu

MB – X – X – X – X

#### Reservoir (Smart Code Option A)

| Code | Former Code(s) | Description                 | Code | Former Code(s) | Description                                    |
|------|----------------|-----------------------------|------|----------------|--|
| A    | T1             | 4 pt, 2 pump stations max   | J    | T1 and P1      | 4 pt, 2 pump stations max, motor mount base    |
| B    | T2             | 6 pt, 3 pump stations max   | K    | T2 and P2      | 6 pt, 3 pump stations max, motor mount base    |
| C    | T3             | 8 pt, 5 pump stations max   | L    | T3 and P3      | 8 pt, 5 pump stations max, motor mount base    |
| D    | T4             | 12 pt, 8 pump stations max  | M    | T4 and P4      | 12 pt, 8 pump stations max, motor mount base   |
| E    | T5             | 16 pt, 12 pump stations max | N    | T5 and P5      | 16 pt, 12 pump stations max, motor mount base  |
| F    | T6             | 24 pt, 16 pump stations max | P    | T6 and P6      | 24 pt, 16 pump stations max, motor mount base* |
| G    | T7             | 32 pt, 20 pump stations max | R    | T7 and P7      | 32 pt, 20 pump stations max, motor mount base* |
| H    | T8             | 40 pt, 24 pump stations max | S    | T8 and P8      | 40 pt, 24 pump stations max, motor mount base* |

\*Cannot use double reduction or right angle drives.

#### Pump Size – GBL 7500 Suction Pumps (Smart Code Option B)

| Code | Former Code(s) | Description                                      |
|------|----------------|--|
| 0    | 00             | No pumps   |
| 1    | 76/88B         | 3/16 in Suction Pump 24J391                      |
| 2    | 76/88C         | 1/4 in Suction Pump 24J392                       |
| 3    | 76/88E         | 3/8 in Suction Pump 24J393                       |
| 4    | 76/88B and F3  | 3/16 in Suction Pump plus RENS Level Controller  |
| 5    | 76/88C and F3  | 1/4 in Suction Pump plus RENS Level Controller   |
| 6    | 76/88E and F3  | 3/8 in Suction Pump plus RENS Level Controller   |
| 7    | 76/88B and F4  | 3/16 in Suction Pump plus GARZO Level Controller |
| 8    | 76/88C and F4  | 1/4 in Suction Pump plus GARZO Level Controller  |
| 9    | 76/88E and F4  | 3/8 in Suction Pump plus GARZO Level Controller  |

#### NOTES:

1. When pump quantity is less than maximum pump stations of specified reservoir, a blank cover assembly is installed at Graco.
2. When low level is specified, deduct one pump for each option.
3. When ordering a ratchet drive, the maximum number of pumps allowable is 20.

#### Pump Quantity (Smart Code Option C)

| Code | Qty | Code | Qty | Code | Qty | Code | Qty | Code | Qty | Code | Qty |
|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| A    | 0   | E    | 4   | J    | 8   | N    | 12  | T    | 16  | X    | 20  |
| B    | 1   | F    | 5   | K    | 9   | P    | 13  | U    | 17  | Y    | 21  |
| C    | 2   | G    | 6   | L    | 10  | R    | 14  | V    | 18  | Z    | 22  |
| D    | 3   | H    | 7   | M    | 11  | S    | 15  | W    | 19  |      |     |

#### Drive Options (Smart Code Option D)

| Code | Former Code | Description  | Code | Former Code | Description                       | Code | Former Code | Description                |
|------|-------------|--|------|-------------|-----------------------------------|------|-------------|----------------------------|
| A    | G01R        | Direct End Rotary (50 rpm max)                     | J    | G05R        | Double Reduction End Rotary 25:1  | T    | G13R        | RT Angle Rotary 375:1      |
| B    | G02R        | End Ratchet (without drive arm 563005)             | K    | G06R        | Double Reduction End Rotary 50:1  | U    | G14R        | 100:1 Ratio Gear Reducer** |
| C    | G03R        | End Rotary Ratchet 37-1/2:1 – max input of 800 RPM | L    | G07R        | Double Reduction End Rotary 100:1 | V    | G15R        | 150:1 Ratio Gear Reducer** |
| D    | G04R        | End Rotary Ratchet 75:1 – max input of 800 RPM     | M    | G08R        | Double Reduction End Rotary 200:1 | W    | G16R        | 200:1 Ratio Gear Reducer** |
| E    | G01L        | Direct End Rotary                                  | N    | G09R        | Double Reduction End Rotary 400:1 | X    | G17R        | 300:1 Ratio Gear Reducer** |
| F    | G02L        | End Ratchet (without drive arm 563005)             | P    | G10R        | RT Angle Rotary 25:1              | Y    | G18R        | 400:1 Ratio Gear Reducer** |
| G    | G03L        | End Rotary Ratchet 37-1/2:1 – max input of 800 RPM | R    | G11R        | RT Angle Rotary 50:1              | Z    | G12L        | Left Angle Rotary 188:1    |
| H    | G04L        | End Rotary Ratchet 75:1 – max input of 800 RPM     | S    | G12R        | RT Angle Rotary 188:1             |      |             |                            |

\*\*U (G14) through Y (G18) require motor mounting base; can only be used with reservoir options P, R, and S.

# Compressor Lubrication

## Manzel® MBL Box Lubricator Accessories

### Ordering Information

| Manzel® MBL Box Lubricator Motors  |   |
|--|---|
| 558289   | M2 – 1/4 hp, 1,725 rpm, 115/230V, 1 ph., TENV, Foot-Mounted (56F)   |
| 558293   | M3 – 1/4 hp, 1,725 rpm, 115/230V, 1 ph., Hazardous Area, Class 1, Group D, Foot-Mounted (56F)   |
| 558290   | M5 – 1/4 hp, 1,725 rpm, 230/460V, 3 ph., TENV, Foot-Mounted (56F)   |
| 558292   | M6 – 1/4 hp, 1,725 rpm, 230/460V, 3 ph., Hazardous Area, Class 1, Group D, Foot-Mounted (56F)   |
| 558294   | M7 – 1/2 hp, 1,725 rpm, 115/230V, 1 ph., Hazardous Area, Class 1, Group C, Severe Duty, Tropical Insulation, Face-Mounted or Foot-mounted (56C with feet) |
| 558295   | M8 – 1/2 hp, 1,725 rpm, 230/460V, 3 ph., Hazardous Area, Class 1, Group C, Severe Duty, Tropical Insulation, Face-Mounted or Foot-mounted (56C with feet) |
| 558291   | M10 – 1/2 hp, 1,725 rpm, 230/460V, 3 ph., 60Hz, Class 1, Group D, Face-Mounted (56C)  |
| 557271   | M11 – 1/2 hp, 1,725 rpm, 115/230V, 1 ph., 60Hz, TEFC, Face-Mounted (56C)  |
| 557270   | M12 – 1/2 hp, 1,725 rpm, 230/460V, 3 ph., 60Hz, TEFC, Face-Mounted (56C)  |
| Note: Heavy Duty drives (G14 - G18) require 56C, face-mount. Normally a 1/2 hp motor would be used because more pumps are being operated by the HD drives. |   |
| Auto-Fill Options  |   |
| 559037   | F1 Gravity Supply   |
| Note: F2 – obsolete, use F1 instead. F3 – ordered with pumps (see page 133). F4 – ordered with pumps (see page 133).                                       |   |
| Low Level Switches   |   |
| 563013   | L1 – Low Level Switch Hazardous Area. Class 1, Group C and D; Class 2 Group, E, F and G.  |
| 564015   | L2 – Low Level, 10 Watts at 120 VAC, SPST Reed Switch, NC   |
| Shaft Rotation Arm   |   |
| 24K466   | GBL 7500 Suction Alarm Pump   |
| Heater Options   |   |
| 557207   | 120 VAC Electric Heater, Hazardous Area, Class 1, Group B, one-prong heater. Can be installed in 1 in NPT port on MBL reservoirs.                         |
| 557208   | 240 VAC Electric Heater, Hazardous Area, Class 1, Group B, one-prong heater. Can be installed in 1 in NPT port on MBL reservoirs.                         |
| Note: Former codes H3, H4 and H6 use 557207. For H1, H2 and H5, contact factory for details about part number 564058 (two prong heater) Class 1, Group D   |   |

# Compressor Lubrication

## Manzel® MB Specialty Box Lubricators

### Features and Benefits

- Provide a proven, cost-effective way to assemble customized oil systems that meet specific requirements by using standard modular components
- Increase opportunities to standardize lube system components and reduce lube maintenance and service costs
- 60:1 – 2 or 4 pump stations max, use with GBL 7500 Gravity-Fed or Pressure-Fed Box Lubricator
- 118:1 – 4 or 6 pump stations max, use with any GBL 7500 pump

### Typical Applications

- MB60 is perfect for bolt-on gas compressor box lubrication solutions
- MB118 is the right size and durable for triplex and quintuplex mud pump applications

### Typical Fluids Handled

- Mineral oil base or synthetics

### Ordering Information

| Manzel® MB Specialty Box Lubricators |        |   |
|--------------------------------------|--------|---|
| MB60                                 | 24V068 | 2 pint reservoir (2 pump stations max), no pumps installed, 60:1            |
|                                      | 24U750 | 6 pint reservoir (4 pump stations max), no pumps installed, 60:1            |
| MB118                                | 24W633 | 4 pint reservoir (4 pump stations max), no pumps installed, 118:1           |
|                                      | 24W634 | 6 pint reservoir (6 pump stations max), no pumps installed, 118:1           |
|                                      | 24W636 | 4 pint reservoir (4 pump stations max), 1/4 in GBL 7500 pump (qty 3), 118:1 |
|                                      | 24W635 | 6 pint reservoir (6 pump stations max), 1/4 in GBL 7500 pump (qty 5), 118:1 |



24V068



24W636

# Compressor Lubrication

## Manzel® GBL 7500 Pump

### Features and Benefits

Each GBL 7500 single-piston pump is mechanically driven from a camshaft in the reservoir. They are adjustable from 1 to 27 drops per stroke and develop pressures up to 7500 psi (517 bar), depending on the piston size. All working parts are totally enclosed away from dirt, water, and impurities and are self-lubricated at all times by the fluid in the reservoir. Rugged construction for high performance and durability with easy to adjust pump output.

### Typical Applications

- Compressors

### Typical Fluids Handled

- Mineral or synthetics oil

### Technical Specifications

| Piston Size |     | Max Outlet Pressure |      |     | Drops/Stroke |      | Cubic Inch/Stroke |       | Cubic cm/Stroke |       | Strokes/minute |      |
|-------------|-----|---------------------|------|-----|--------------|------|-------------------|-------|-----------------|-------|----------------|------|
| inches      | mm  | PSI                 | MPa  | bar | Min.         | Max. | Min.              | Max.  | Min.            | Max.  | Min.           | Max. |
| 3/16        | 4.8 | 7500                | 51.7 | 517 | 0            | 7    | 0                 | 0.014 | 0               | 0.229 | 3              | 50   |
| 1/4         | 6.4 | 6000                | 41.4 | 414 | 0            | 12   | 0                 | 0.024 | 0               | 0.393 | 3              | 50   |
| 3/8         | 9.5 | 3500                | 24.1 | 241 | 0            | 27   | 0                 | 0.054 | 0               | 0.885 | 3              | 50   |

### Ordering Information

| GBL 7500                        |   |
|---------------------------------|---|
| 24J391                          | 3/16 in (4.8 mm) suction  |
| 24J392                          | 1/4 in (6.4 mm) suction   |
| 24J393                          | 3/8 in (9.5 mm) suction   |
| 24J394                          | 3/16 in (4.8 mm) gravity  |
| 24J395                          | 1/4 in (6.4 mm) gravity   |
| 24J396                          | 3/8 in (9.5 mm) gravity   |
| 24J397                          | 3/16 in (4.8 mm) pressure   |
| 24J398                          | 1/4 in (6.4 mm) pressure  |
| 24J399                          | 3/8 in (9.5 mm) pressure  |
| 24K466                          | Suction alarm pump  |
| GBL Accessories and Spare Parts |   |
| 564332                          | Outlet Check Valve Assembly – maintains prime when changing out pumps       |
| 126070                          | Replacement Pump Gasket – used by all pumps                                 |
| 24T306                          | Sight Glass Replacement Kit – for use with suction, gravity and alarm pumps |
| 563101                          | Replacement Suction Strainer – for use with suction and alarm pumps         |



Suction  
24J391



Gravity  
24J394



Pressure  
24J397



Alarm  
24K466

# Compressor Lubrication

## Manzel® DSL Lubricators and Pumps

### Features and Benefits

- Rugged construction for high performance and durability
- Complete assembly–includes level sight gauge, fill cup and drain plug
- Precise camshaft alignment insures proper lubrication by all pumps
- Can be used in outdoor and ammonia (sour gas) environment
- Easy serviceability-pumps can be added or replaced quickly
- Pump output is easily adjustable
- DSL pumps fit in both SVK and DSL boxes
- For SVH, SV and other legacy KLS box lubricators, the entire lubricator must be replaced with a new DSL or MBL box lubricator assembly



### Typical Applications

- Compressors and industrial equipment

### Typical Fluids Handled

- Mineral or synthetic oil

### Technical Specifications

| Ordering Code | Piston Size (inches) | Max. Pressure psi | Drops Per Stroke |      | Cubic Inches Per Stroke |       | Cubic cm Per Stroke |      | Strokes Per Minute |      |
|---------------|----------------------|-------------------|------------------|------|-------------------------|-------|---------------------|------|--------------------|------|
|               |                      |                   | Min.             | Max. | Min.                    | Max.  | Min.                | Max. | Min.               | Max. |
| D1            | 9/32                 | 3,000             | 2.0              | 6.25 | .0048                   | 0.015 | .079                | .245 | 3                  | 25   |
| D2            | 9/32                 | 3,000             | 2.0              | 6.25 | .0048                   | 0.015 | .079                | .245 | 3                  | 25   |

### Ordering Information

|        |   |
|--------|---|
| 256907 | (D1) 9/32 vacuum inlet pump                             |
| 256908 | (D2) 9/32 pressurized inlet pump                        |
| 256929 | Vacuum inlet pump w/suction tube length reduced by 1 in |
| 25E893 | DSL Shaft Rotation Alarm Pump                           |

# Compressor Lubrication

## Manzel® DSL Lubricators and Pumps

### Ordering Information

| Drive Ratio and Orientation    | Former Code | Reservoir                |                          |                           |                             |                             |
|--------------------------------|-------------|--------------------------|--------------------------|---------------------------|-----------------------------|-----------------------------|
|                                |             | R3:<br>4 pint, 3 station | R6:<br>8 pint, 6 station | R9:<br>12 pint, 9 station | R12:<br>16 pint, 12 station | R20:<br>20 pint, 15 station |
| 1:1 End Rotary Right-hand (RH) | ER1R        | 24A456                   | 24A458                   | 24A460                    |                             |                             |
| 1:1 End Rotary Left-hand (LH)  | ER1L        | 24A455                   | 24A457                   | 24A459                    |                             |                             |
| 37.5:1 End Rotary RH           | ER3R        | 24A462                   | 24A466                   | 24A470                    | 24A474                      |                             |
| 37.5:1 End Rotary LH           | ER3L        | 24A461                   | 24A465                   | 24A469                    | 24A473                      |                             |
| 75:1 End Rotary RH             | ER4R        | 24A464                   | 24A468                   | 24A472                    | 24A476                      |                             |
| 75:1 End Rotary LH             | ER4L        | 24A463                   | 24A467                   | 24A471                    | 24A475                      |                             |
| 283:1 End Rotary RH            | DR1R        | 24A453                   |                          | 24A454                    |                             |                             |
| 283:1 End Rotary LH            | DR1L        |                          |                          |                           |                             |                             |
| 40:1 Front Rotary RH           | FS1R        | 24A478                   | 24A486                   | 24A494                    |                             |                             |
| 40:1 Front Rotary LH           | FS1L        | 24A477                   | 24A485                   | 24A493                    |                             |                             |
| 60:1 Front Rotary RH           | FS2R        | 24A480                   | 24A488                   | 24A496                    |                             | 24A503                      |
| 60:1 Front Rotary LH           | FS2L        | 24A479                   | 24A487                   | 24A495                    |                             | 24A502                      |
| 40:1 Rear Rotary RH            | BS1R        | 24A482                   | 24A490                   | 24A498                    |                             |                             |
| 40:1 Rear Rotary LH            | BS1L        | 24A481                   | 24A489                   | 24A497                    |                             |                             |
| 60:1 Rear Rotary RH            | BS2R        | 24A484                   | 24A492                   | 24A501                    |                             | 24A505                      |
| 60:1 Rear Rotary LH            | BS2L        | 24A483                   | 24A491                   | 24A499                    |                             | 24A504                      |
| 1:1 Bottom Rotary RH           | BR1R        | 24A506                   | 24A508                   |                           |                             |                             |
| 2.5:1 Bottom Rotary RH         | BR2R        | 24A507                   | 24A509                   |                           |                             |                             |

Pumps sold separately. Please see previous page for pump options.

# Compressor Lubrication

## Model HP-15™ High Pressure Lubricators

### Features and Benefits

The high pressure lubricator comprises one to six integral sight and pump assemblies in a cast iron reservoir. The unit is designed for direct connection to an electric motor/speed reducer power source. A Manzel® terminal check valve is recommended in the lubrication system. When required to maintain proper oil viscosity, the reservoir can be fitted with an electric heater.

### Typical Applications

- Multi-stage gas compression

### Typical Fluids Handled

- Mineral or synthetic oil

### Technical Specifications

| Number of Feeds | Max. Pressure | Reservoir Capacity (Quarts) (1) | Plunger Diameter (inches) | Drops Per Stroke |      | Cubic Inches Per Stroke |       | Cubic cm Per Stroke |       | Strokes Per Minute |      |
|-----------------|---------------|---------------------------------|---------------------------|------------------|------|-------------------------|-------|---------------------|-------|--------------------|------|
|                 |               |                                 |                           | Min.             | Max. | Min.                    | Max.  | Min.                | Max.  | Min.               | Max. |
| 1-6             | 18,000        | 7                               | 1/4                       | 1                | 4    | 0.002                   | 0.008 | 0.033               | 0.113 | 3                  | 36   |

### Ordering Information

|        |   |
|--------|---|
| 562918 | HP-15 6 feed gear box without pumps                 |
| 562919 | HP-15 6 feed gear box with 6 HP-15 pumps            |
| 564272 | HP-15 6 feed gear box with 6 HP-15 pumps and heater |
| 562951 | HP-15 pump  |
| 556700 | HP-15 sight glass                                   |
| 563113 | HP-15 plunger and cylinder assembly                 |
| 564334 | In-line check valve                                 |



562951



# Compressor Lubrication

## Manzel® HP-50™ High Pressure Lubricators

### Features and Benefits

- Operating pressures to 60,000 psi for lubricating compressor and circulator cylinder walls, heavily loaded bearings and other moving parts
- Single plunger force feed design is highly efficient for injecting lubricants and/or compatible fluids into high pressure systems
- Vacuum sight feeds on self-contained pumping units show output of lubricant to individual lubrication points
- All working parts are totally enclosed and self-lubricated
- Individual pumping units easily removed for service
- Feed rate infinitely variable from minimum to maximum with simple hand adjustment



### Typical Applications

- Compressors and industrial equipment

### Typical Fluids Handled

- Mineral or synthetic oil

### Technical Specifications

| Number of Feeds | Max. Pressure | Reservoir Capacity (Quarts) (1) | Plunger Diameter (Inches) | Drops Per Stroke |      | Cubic Inches Per Stroke |       | Cubic cm Per Stroke |       | Strokes Per Minute |      |
|-----------------|---------------|---------------------------------|---------------------------|------------------|------|-------------------------|-------|---------------------|-------|--------------------|------|
|                 |               |                                 |                           | Min.             | Max. | Min.                    | Max.  | Min.                | Max.  | Min.               | Max. |
| 1-4             | 60,000        | 9                               | 1/4                       | 1                | 4    | 0.002                   | 0.008 | 0.033               | 0.113 | 3                  | 36   |

### Ordering Information

| HP-50 Pump             |   |
|------------------------|---|
| 562952                 | HP-50 Pump Assembly   |
| HP-50 Lubricator Boxes |   |
| 564276                 | HP-50 Lubricator without Pumps or Options   |
| 562925                 | HP-50 Lubricator with 4 Pumps   |
| 562926                 | HP-50 Lubricator with 2 Pumps   |
| 562927                 | HP-50 Lubricator with 4 Pumps, Provision for Flange Mounted Auto Fill, and Nitrogen Purge Port                                    |
| 562928                 | HP-50 Lubricator with 4 Pumps, Low Level and Shaft Rotation Alarm   |
| 562929                 | HP-50 Lubricator with 4 Pumps, Provisions for Flange Mounted Auto Fill and Low Level in Fill Plate                                |
| 564277                 | HP-50 Lubricator with 4 Pumps and Steam Heater  |
| 564278                 | HP-50 Lubricator with 3 Pumps and Steam Heater  |
| 564279                 | HP-50 Lubricator with 4 Pumps, Provision for Flange Mounted Auto Fill, Nitrogen Purge and Shaft Rotation/Low Level Alarm on Left  |
| 564280                 | HP-50 Lubricator with 4 Pumps, Provision for Flange Mounted Auto Fill, Nitrogen Purge and Shaft Rotation/Low Level Alarm on Right |

| 564282            | HP-50 Lubricator with 4 Pumps, Shaft Rotation and Low Level Alarm  |
|-------------------|--|
| 564283            | HP-50 Lubricator with 4 Lubricator Boxes with 15 Pumps, Provision for Center Mounted Motor and Base  |
| 258262            | HP-50 Lubricator with 4 Pumps and Low Level  |
| 258263            | HP-50 Lubricator with 4 Pumps, Provisions for Flange Mounted Auto Fill and Low Level in Fill Plate, and Proximity Switch Shaft Rotation Indicator on Right |
| HP-50 Accessories |  |
| 563111            | HP-50 plunger and cylinder   |
| 564336            | HP-50 check valve  |
| 558881            | Electric heater, 120/240 VAC   |
| 563020            | Shaft rotation alarm   |
| 563024            | Low level  |
| 556808            | Ren Oil Level Controller/Auto-fill, 5 psi maximum  |
| 558221            | Garzo Oil Level Controller/Auto-fill, 70 psi maximum, Class 1, Groups C and D, Division I  |

# Compressor Lubrication

## Manzel® MVB Pump

### Features and Benefits

The MVB lubrication system is a single line, series progressive system which divides pump output into predetermined proportional amounts and distributes these amounts to points of lubrication.

- One main supply from single pump
- Central monitoring of normal operation
- Automatic proportioning of lubricant through positive displacement valves
- Quick indication of problem areas

### Typical Applications

- Compressors and reciprocating engines

### Typical Fluids Handled

- Oil

### Technical Specifications

Output per Pump in Pints (Liters) per Day

| Single Camshaft<br>rpm (pump strokes<br>per min) | 1/4 piston         |        |                  |         | 3/8 piston         |        |                  |         |
|--|--------------------|--------|------------------|---------|--------------------|--------|------------------|---------|
|  | Min. Output Adj.   |        | Max. Output Adj. |         | Min. Output Adj.   |        | Max. Output Adj. |         |
|  | 0.12456*(constant) |        | 0.59832          |         | 0.29909*(constant) |        | 1.4902           |         |
| 20   | 2.49               | (1.18) | 11.97            | (5.66)  | 5.98               | (2.83) | 29.92            | (14.15) |
| 30   | 3.74               | (1.77) | 17.95            | (8.49)  | 8.97               | (4.24) | 44.88            | (21.23) |
| 40   | 4.98               | (2.36) | 23.93            | (11.32) | 11.96              | (5.66) | 59.84            | (28.30) |
| 50   | 6.23               | (2.95) | 29.92            | (14.15) | 14.95              | (7.07) | 74.80            | (35.38) |
| 60   | 7.47               | (3.53) | 35.90            | (16.98) | 17.95              | (8.49) | 89.76            | (42.46) |
| 70   | 8.72               | (4.12) | 41.88            | (19.81) | 20.94              | (9.90) | 104.72           | (49.53) |

\*Constant X strokes per minute = output in pints per day. For 2 and 3 lobe cams, multiply camshaft RPM times 2 or 3.

### Ordering Information

|        |                                      |
|--------|--------------------------------------|
| 563565 | MVB 0.250 in (6.35 mm) Piston Pump   |
| 563566 | MVB 0.375 in (9.53 mm) Piston Pump   |
| 563920 | Seal kit for MVB pump                |
| 563919 | 3/8 in piston and sleeve replacement |
| 563918 | 1/4 in piston and sleeve replacement |
| 557824 | 25 micron filter replacement element |
| 557827 | 10 micron filter replacement element |



563565



MVB Box lubricator

# Compressor Lubrication

## Manzel® MVB Box Lubricator Configurator

### Ordering Menu Code

MV – X – X – X – X

#### Drive

| Code | (Former Code) – Description   |
|------|-------------------------------|
| A    | (DAA) Ratchet Drive (102-2)   |
| B    | (DAB) Standard Drive (203-2)  |
| C    | (DAC) Standard Drive (207-2)  |
| D    | (DAD) Reverse Drive (303-2)   |
| E    | (DAE) 90-Degree Drive (401-2) |
| F    | (DAF) Vertical Drive (501-2)  |
| G    | (NA) Tandem Drive             |

#### Gear Box Ratio and Mounting Base Option

| Code | (Former Code) – Description | Code | (Former Code) – Description | Code | (Former Code) – Description              |
|------|-----------------------------|------|-----------------------------|------|--|
| A    | (RAA) 1:1 Ratio Gear Box    | J    | (RAE) 3:1 Ratio Gear Box    | T    | (RAJ) 8:1 Ratio Gear Box                 |
| D    | (RAB) 1:2 Ratio Gear Box    | M    | (RAF) 1:4 Ratio Gear Box    | U    | (NA) 8:1 Ratio Gear Box with a KOA Base  |
| E    | (RAC) 2:1 Ratio Gear Box    | N    | (RAG) 4:1 Ratio Gear Box    | W    | (RAK) 16:1 Ratio Gear Box                |
| H    | (RAD) 1:3 Ratio Gear Box    | S    | (RAH) 1:8 Ratio Gear Box    | X    | (NA) 16:1 Ratio Gear Box with a KOA Base |

#### Pump Station One Configuration\*

| Code | Cam Style   | Pump Size | Gauge PSI | Relief PSI | Code | Cam Style   | Pump Size | Gauge PSI | Relief PSI |
|------|-------------|-----------|-----------|------------|------|-------------|-----------|-----------|------------|
| A    | Single Lobe | No Pump   | None      | None       | K    | Double Lobe | 1/4 in    | 10,000    | 4,600      |
| B    | Single Lobe | 1/4 in    | None      | 6,400      | L    | Double Lobe | 3/8 IN    | None      | 1,750      |
| C    | Single Lobe | 1/4 in    | 3,000     | 2,350      | M    | Double Lobe | 3/8 IN    | 3,000     | 1,750      |
| D    | Single Lobe | 1/4 in    | 10,000    | 6,400      | N    | Triple Lobe | No Pump   | None      | None       |
| E    | Single Lobe | 3/8 in    | None      | 2,350      | P    | Triple Lobe | 1/4 in    | None      | 3,700      |
| F    | Single Lobe | 3/8 IN    | 3,000     | 2,350      | R    | Triple Lobe | 1/4 in    | 3,000     | 2,350      |
| G    | Double Lobe | No Pump   | None      | None       | S    | Triple Lobe | 1/4 in    | 10,000    | 3,700      |
| H    | Double Lobe | 1/4 in    | None      | 4,600      | T    | Triple Lobe | 3/8 IN    | None      | 1,450      |
| J    | Double Lobe | 1/4 in    | 3,000     | 2,350      | U    | Triple Lobe | 3/8 IN    | 3,000     | 1,450      |

\*Former codes AOA and AOC referred to 1/4 in pump. Former codes AOB and AOD referred to 3/8 in pump. Former code POA referred to standard (2,350 psi) blowout indicator. Former codes GOA, GOB, GOC, and GOD referred to gauge options; choose from standard gauge options shown above.

#### Pump Station Two Configuration\*\*

| Code | Cam Style   | Pump Size | Gauge PSI | Relief PSI | Code | Cam Style   | Pump Size | Gauge PSI | Relief PSI |
|------|-------------|-----------|-----------|------------|------|-------------|-----------|-----------|------------|
| A    | Single Lobe | No Pump   | None      | None       | K    | Double Lobe | 1/4 in    | 10,000    | 4,600      |
| B    | Single Lobe | 1/4 in    | None      | 6,400      | L    | Double Lobe | 3/8 IN    | None      | 1,750      |
| C    | Single Lobe | 1/4 in    | 3,000     | 2,350      | M    | Double Lobe | 3/8 IN    | 3,000     | 1,750      |
| D    | Single Lobe | 1/4 in    | 10,000    | 6,400      | N    | Triple Lobe | No Pump   | None      | None       |
| E    | Single Lobe | 3/8 in    | None      | 2,350      | P    | Triple Lobe | 1/4 in    | None      | 3,700      |
| F    | Single Lobe | 3/8 IN    | 3,000     | 2,350      | R    | Triple Lobe | 1/4 in    | 3,000     | 2,350      |
| G    | Double Lobe | No Pump   | None      | None       | S    | Triple Lobe | 1/4 in    | 10,000    | 3,700      |
| H    | Double Lobe | 1/4 in    | None      | 4,600      | T    | Triple Lobe | 3/8 IN    | None      | 1,450      |
| J    | Double Lobe | 1/4 in    | 3,000     | 2,350      | U    | Triple Lobe | 3/8 IN    | 3,000     | 1,450      |

\*\*Former codes BOA and BOC referred to 1/4 in pump. Former codes BOB and BOD referred to 3/8 in pump. Former code HOA referred to standard (2,350 psi) blowout indicator. Former codes JOA, JOB, JOC, and JOD referred to gauge options; choose from standard gauge options shown above.

#### NOTE: Motors for KOA base with 8:1 or 16:1 drives:

558289 (MOA) - 1/4 HP, 115/230 VAC, 60 Hz, single-phase, 1,725 rpm, TENV, 56F

558290 (MOB) - 1/4 HP, 230/460 VAC, 60 Hz, three-phase, 1,725 rpm, TENV, 56F

Pump Station One is located on the left side, above the sight glass, for all MVB configurations.

# Compressor Lubrication Accessories

## Manzel® Lube-Line Alert™

### Features and Benefits

- Indicates Flow or No-Flow at any point in the system ahead of the Lube-Line Alert inlet. Not affected by discharge pressure.
- Operates under continuous or intermittent low-flow rates
- Universal use—operates in any air free force feed lubrication system—any make lubricator
- Sensitive to a wide range of flow from .006 cubic inches to 190 cubic inches per minute
- Many type lubricants and viscosities—mineral or synthetic
- Time delay adjustment to compensate for viscosity and/or flow rate. Quick and easy to adjust.
- Explosion-proof—UL and CSA Listed for Class I Groups C and D and Class II Groups E, F and G. Division 1 and 2 when installed as per NEC 501.
- For connection to any electrical warning system—lights, sound devices, machinery shut-off relays, telephones, etc.
- A low-level and shaft rotation



563030

### Technical Specifications

|  |   |
|--|---|
| UL and CSA Electrical Ratings.....       | Single pole, Throw magnetically operated switch, 115 VAC, 60Hz, 10 watt, 28 VDC, 0.5 amp Resistive, 28 VDC, 0.5 amp Inductive |
| Maximum Switch Rating.....               | 350 VAC/VDC, 50 watt, 2 amp   |
| Maximum Operating Pressure.....          | 10,000 psi  |
| Minimum Pressure Drop Access Alert ..... | 150 psi   |
| Flow Rate .....                          | 0.006 in <sup>3</sup> to 190 in <sup>3</sup> /min @ 100 SUS<br>0.006 in <sup>3</sup> to 75 in <sup>3</sup> /min @ 2000 SUS    |
| Fluid Viscosity.....                     | 100 to 9000 SUS   |
| Weight.....                              | 0.6 lbs   |

### Ordering Information

| Lube-Line Alert     |  |
|---------------------|--|
| 563030              | N.C. Configuration w/Check Valves for 1/4 in O.D. Tube                     |
| 563032              | N.O. Configuration w/Check Valves and Fittings for 1/8 in NPTF Connections |
| Inlet Check Valves  |  |
| 563042              | with 1/4 in O.D. Tube Fitting (supplied with 563030)                       |
| 563041              | with 7/16-20 Straight Female Thread (supplied with 563032)                 |
| Outlet Check Valves |  |
| 563044              | with 1/4 in O.D. Tube Fitting (supplied with 563030)                       |
| 563043              | with 7/16-20 Straight Female Thread (supplied with 563032)                 |
| Fittings            |  |
| 556624              | 7/16-20 Straight Male Thread x 1/8 in NPTF (2 supplied with 563032)        |
| Springs             |  |
| 556944              | Standard Springs (installed at factory)                                    |
| 556939              | Light Spring for Low Flow Applicator*                                      |
| Repair Parts        |  |
| 556812              | Switch Assembly  |
| 563031              | Plunger and Bushing Assembly   |

\*When using the Light Spring 556939, fluid viscosity should not exceed 350 SUS.

# Compressor Lubrication Accessories

## Pneumatic/Electric Lube Sentry Valve

### Features and Benefits

The Lube Sentry Valve provides automatic warning and shutdown of compressors, pumps and engines when oil is not flowing properly to primary dividers in series type lube systems.

- Absence of check valves to avoid trapping contamination from included solids in the lubricant
- Bolted-together components simplifying maintenance. The microswitch assembly on the pneumatic valve can be removed without disturbing existing lines or shutting down the equipment being lubricated.

### Technical Specifications

|  |                                       |
|--|---------------------------------------|
| Material.....  | Steel                                 |
| Max Pressure .....   | 6,000 psi (414 bar)                   |
| Flow Rate (per day) .....  | 4 to 400 pints (1.89 to 189.2 liters) |
| Pressure Drop.....   | 250 psi (17 bar)                      |
| Seals.....   | Fluoroelastomer                       |
| Lubricant.....   | Oil (450-2000 SUS)                    |
| Net Weight .....   | 0.5 lb (2.265 kg)                     |
| Operating Temperature .....  | -20°F to 180°F (-29°C to 82°C)        |
| Air Pressure (Max Pneumatic Valve) .....   | 125 psi (9 bar)                       |
| Electrical Rating .....  | 5 amps @ 125/250 VAC                  |
| A, B or C @ 28 VDC, A- Inductive - 3 amp, B- Resistive - 5 amp, C- Max Inrush - 15 amp |                                       |



563506

### Ordering Information

|        |                                 |
|--------|---------------------------------|
| 563506 | Pneumatic Lube Sentry, Complete |
| 563503 | Pneumatic Valve                 |
| 563502 | Actuator                        |
| 563505 | Electric Lube Sentry, Complete  |
| 563504 | Switch Assembly                 |

# Compressor Lubrication Accessories

## Balancing Valve

### Features and Benefits

The Graco® Balancing Valve assists divider valves to accurately proportion lubricant at high differential pressures. It is recommended for use when a pressure difference greater than 1,000 PSI exists between two or more of the points in a Graco divider valve system.

- Balancing valve is not affected by downstream pressure, assures accurate flow to all lubrication points
- Balancing valve is field adjustable. Reduces on-site inventory costs as one model meets all your system needs.
- Balancing valve is in-line mounted, so it lowers installation costs
- Balancing valve uses a wear-resistant tungsten-carbide ball to reduce maintenance costs



### Technical Specifications

|                             |  |
|-----------------------------|--|
| Material.....               | Steel  |
| Max Operating Pressure..... | 6,500 psi  |
| Adjustable.....             | From 1,000 to 6,500 psi (Factory set at 3,000 psi) |
| Operating Temperature.....  | -10°F to 250°F (-23°C to 121°C)                    |
| Lubricant.....              | Oil  |
| Seals.....                  | Fluoroelastomer                                    |
| Net Weight.....             | 1.19 lb (0.54 kg)                                  |

### Ordering Information

|        |                 |
|--------|-----------------|
| 563230 | Balancing Valve |
| 563911 | Valve Seal Kit  |

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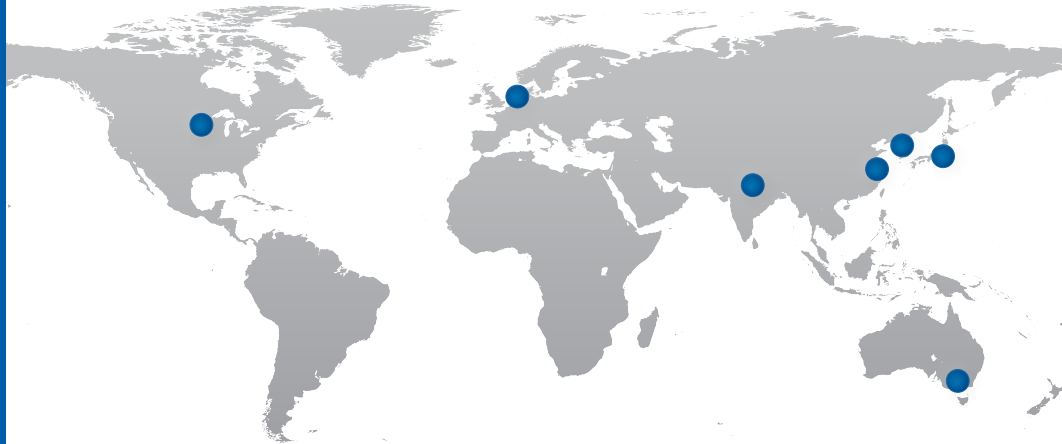
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