



**Program Book/Guidelines for  
Graco Products**

**Document No.: CL- F- Graco**

**Version G 1.4**

Original Date: 10-15-2009

Revised Date: 1-1-2016

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<b>Revision Date</b>	<b>Version No.</b>	<b>Document Name</b>	<b>Revision</b>	<b>Paragraph Affected</b>	<b>Revised By</b>
2009-10-15	G 1.0	CL-F-Trabon	First Version Released	ALL	L Brown
2010-11-1	G 1.1	CL-F-Graco-Trabon	Update contacts in sec 2, update part numbers in sec 3.1, 3.2 and 3.3	ALL	L Brown
2011-5-1	G1.2	CL-F-Graco-Trabon	Update part numbers to insure proper assembly	ALL	L Brown
2014-1-1	G1.3	CL-F-Graco-Trabon	Updated contact information, corrected part number and added 3L version	2.0, 3.2.3	L Brown
2016-1-1	G1.4	CL-F-Graco-Trabon	Update contact information and update seals to viton	2.0, 3.0	L Brown

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## **1.0 INTRODUCTION SCOPE OF DOCUMENT**

- 1.1 THIS DOCUMENT CONTAINS PRODUCT INFORMATION TO BE USED FOR THE SELECTION OF COMPONENTS FOR GMPT PROGRAMS. USE OF AUTOMATIC LUBRICATION SYSTEMS ON MACHINING AND ASSEMBLY EQUIPMENT INSURES LONGEVITY AND QUALITY OF EQUIPMENT. THIS DOCUMENT PROVIDES A BASIC GUIDE TO SELECTING THE CORRECT TYPE OF LUBRICATION SYSTEM FOR THE CORRECT APPLICATION. IT ALSO PROVIDES THE NECESSARY CONTACT INFORMATION TO ASSIST IN APPLICATION ENGINEERING, PROGRAM MANAGEMENT REVIEW, AND STOCKING LOCATIONS FOR EASE OF PURCHASING.**

## 2.0 SERVICE & SUPPORT

### 2.1 TECHNICAL SUPPORT

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## 2.2 PROJECT AND SALES CONTACTS

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## 3.0 PRODUCT OVERVIEW

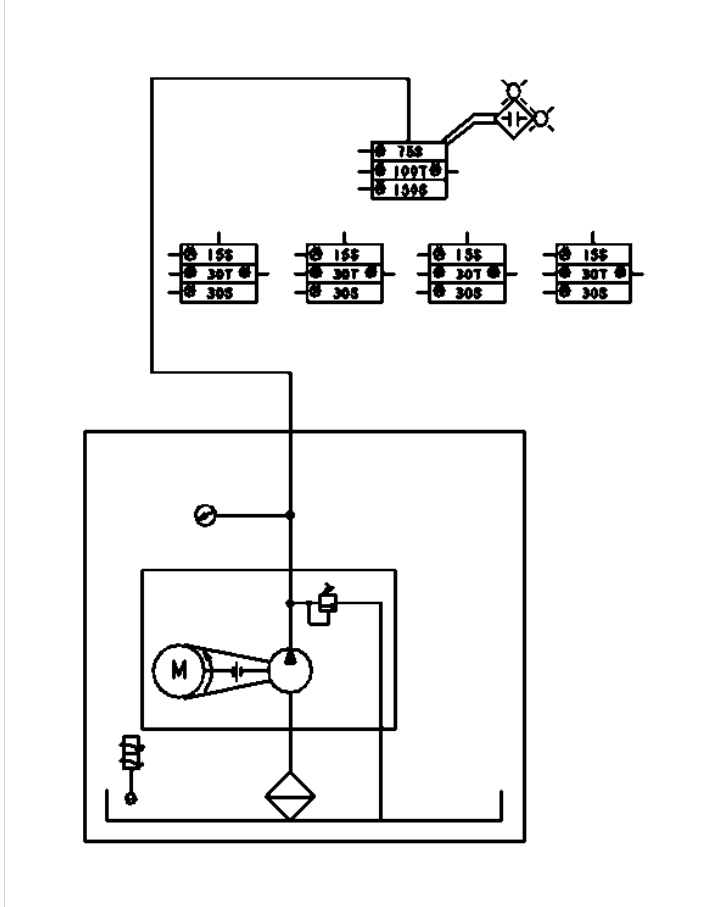
### 3.1 SINGLE LINE SERIES PROGRESSIVE SYSTEMS

#### OIL – CENTRALIZED LUBRICATION SYSTEM TERMINATING SERIES PROGRESSIVE

This is a Series Progressive Terminating (total loss) system utilizing a pump feeding a Series Progressive divider valve. This system is typically used on a single purpose machine.

A single purpose machine is defined by one or more of the following:

- Machine with 50 lube points or less
- Machine where all machine stations must operate in unison to complete a manufacturing process.
- Machine where plumbing layout and system layout are not complex.

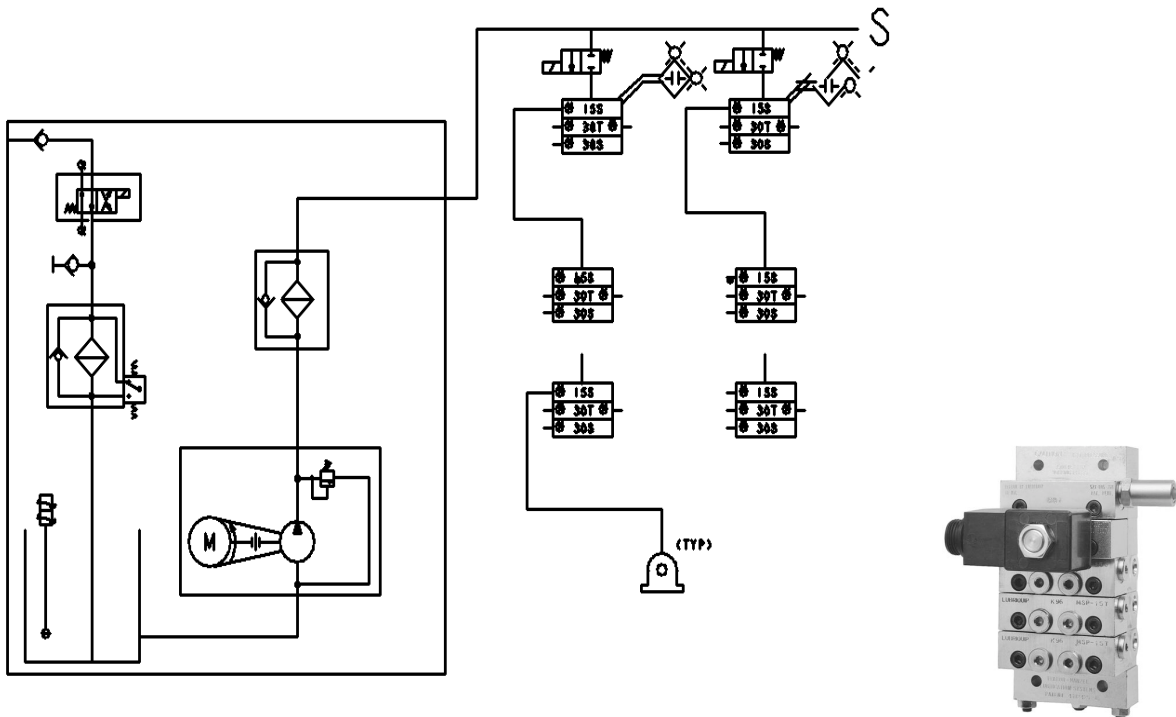


### OIL - CENTRALIZED LUBRICATION SYSTEM CIRCULATING HEADER LINE O'LEAK SERIES PROGRESSIVE

This Series Progressive system, in conjunction with the modular o'leak valve, is used for transfer lines and flexible machining centers. This style system simplifies the more complex circuits while providing individual zone control. In addition, continuous circulating oil through filtration provides cleaner oil.

Transfer machine or Flexible Machining Center is define by one or more of the following:

- Machine with 51 lube points or more
- Machine where one or more machine stations can be removed while the remainder of the stations continue to receive lube.
- Machine where plumbing layout and system layout are complex.



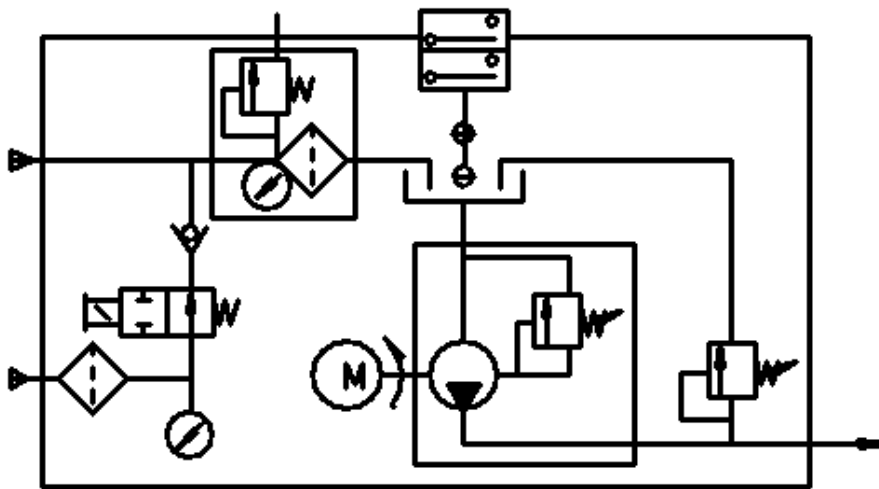


### OIL - CENTRALIZED LUBRICATION SYSTEM CIRCULATING SERIES PROGRESSIVE

This is a Series Progressive Circulating (oil collected and returned to reservoir) system utilizing a pump feeding a network of divider valves on a continuous basis.

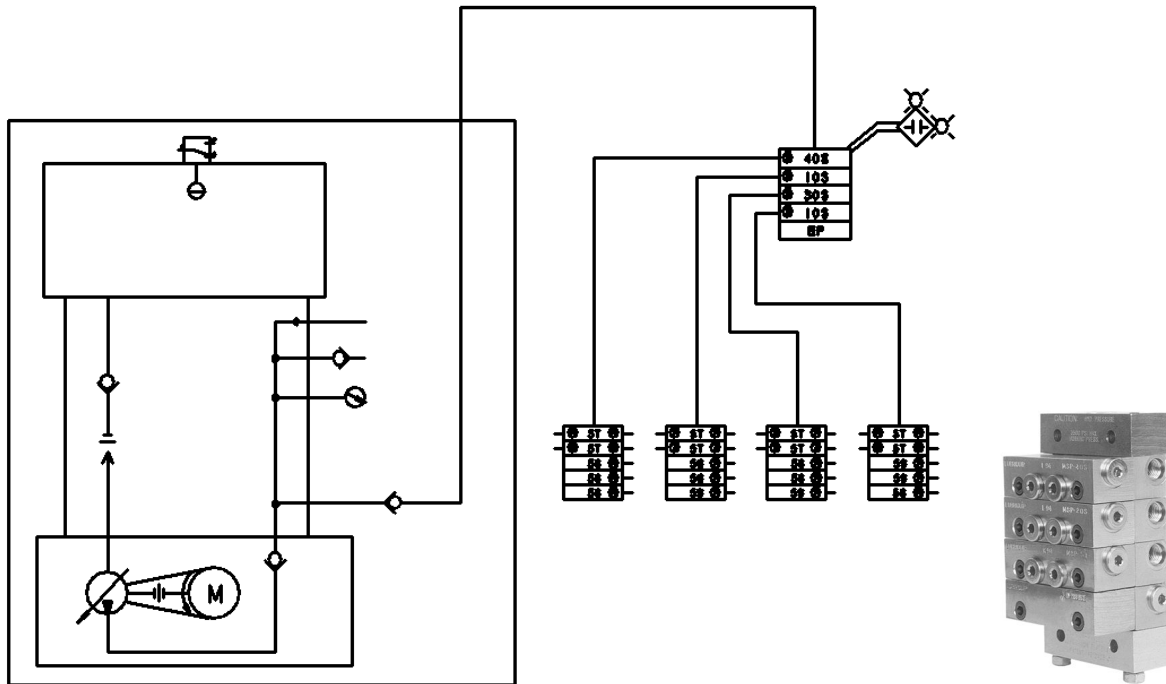
Typical Applications:

- Multiple head spindle
- Presses



## GREASE – SERIES PROGRESSIVE TOTAL LOSS SYSTEM

This is a Series Progressive Terminating (total loss) system utilizing a pump feeding a Series Progressive divider valve. NLGI 0, 00, 000 Grease only. Heavier greases with GM approval only.



### 3.1.1 Series Progressive Divider Valve



XXX - XXX - XX - X - X - XX X XX

**Series of Divider**

MSP= standard industrial (Viton seals), pressures to 3,500 psi

**Divider Valve Port Threads**

BSP= British parallel pipe thread (BSPP)

**Inlet Section Options**

MS= standard inlet

**Divider Valve Assembly Options (\*)**

- P= assembly of performance indicators in all working outlets (\*\*)
- C= assembly of external check valves in all working outlets (\*\*)
- B= assembly of performance indicators and check valves in all working outlets (\*\*)
- E= end tapped for manual lube fitting – single point prime (SPP)

**Number of Sections**

- |          |          |         |
|----------|----------|---------|
| 3= Three | 6= six   | 9= nine |
| 4= Four  | 7= seven | 10= ten |
| 5= Five  | 8= eight |         |

**Valve Capacity**

- |                  |                  |                  |
|------------------|------------------|------------------|
| BP= by-pass      | 15= 0.015 cu.in. | 30= 0.030 cu.in. |
| 05= 0.005 cu.in. | 20= 0.020 cu.in. | 35= 0.035 cu.in. |
| 10= 0.010 cu.in. | 25= 0.025 cu.in. | 40= 0.040 cu.in. |

**Type of Valve Section**

- T= twin valve
- S= single valve - RH outlet
- L= single valve - LH outlet

**If a proximity switch is required, purchase the required proximity switch as a separate item for you to attach to your individual section or feeder assembly.**

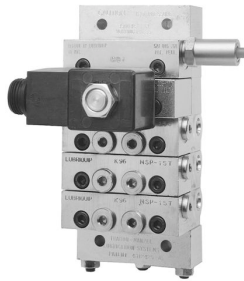
**Cross-Porting Option (\*)**

- CR= cross-port RH side
- CL= cross-port LH side
- CB= cross-port both sides

(\*)Omit if not required

(\*\*)Performance indicator and check valve part numbers must be specified on your order.

**MSP SERIES PROGRESSIVE DIVIDER VALVE W/ ZERO LEAK**



XXXX - XX - XX - XXX - X - XX - X - XX - XX

**Series of Divider**

ZMSP= modular zero leak

**Manual Override**

WO= without manual override

**Solenoid Coil Type**

DC= 24 VDC, P/N 492-120-205

**Divider Valve Outlet Threads**

BSP= British parallel pipe thread BSPP (ISO 1179)

**Divider Valve Accessory Options (\*)**

- P= Assembly of performance indicators in all working outlets (\*\*)
- C= Assembly of external check valves in all working outlets (\*\*)
- B= Assembly of performance indicators and check valves in all working outlets (\*\*)

**Number of Sections (\*\*\*)**

- 3= three (uses 5-sect. tie rods)
- 4= four (uses 6-sect. tie rods)
- 5= five (uses 7-sect. tie rods)
- 6= six (uses 8-sect. tie rods)
- 7= seven (uses 9-sect. tie rods)
- 8= eight (uses 10-sect. tie rods)

**Valve Capacity**

- BP= by-pass
- 05= 0.005 cu.in.
- 10= 0.010 cu.in.
- 15= 0.015 cu.in.
- 20= 0.020 cu.in.
- 25= 0.025 cu.in.
- 30= 0.030 cu.in.
- 35= 0.035 cu.in.
- 40= 0.040 cu.in.

**Type of Valve Section**

- T= twin valve
- S= single valve - RH outlet
- L= single valve - LH outlet

**Cross-Porting Option (\*)**

- CR= cross-port RH side
- CL= cross-port LH side
- CB= cross-port both sides

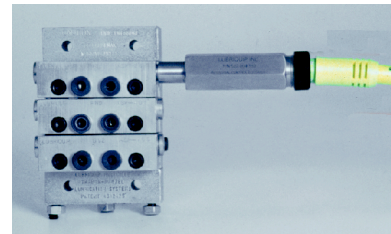
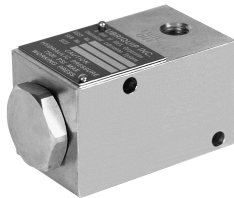
(\*)Omit if not required

(\*\*)Performance indicator and check valve part numbers must be specified on order.

(\*\*\*)The modular zero-leak assembly requires extra tie rod length to accommodate the zero-leak inlet section.

### 3.1.2 Accessories and Feedback Devices

PART NUMBER	DESCRIPTION
<b>ACCESSORIES</b> – Reference Bulletin #'s <a href="#">15200</a> , <a href="#">15401</a> , <a href="#">15600</a>	
563251	"No Weep" magnetic visual cycle indicator with O-ring seal. (old #509-932-522)
563516	High-pressure in-line oil filter assembly with 10 micron filter element - BSPP ports 1/4-19.
564004	Fill/Return line filter with 10 micron filter element – BSPP ports (G3/4 x 14) Replacement filter element Parker part # 925023
563253	Oil systems 500 psi Performance (high pressure) Indicator – reset type – with O-ring seal
563254	Oil systems 750 psi Performance (high pressure) Indicator – reset type – with O-ring seal. (old part #509-932-610)
563256	Grease systems 1500 psi Performance (high pressure) Indicator – reset type – with O-ring seal. (old part #509-932-630)
563501	MSP 24 VDC-only Proximity Switch – with LED indicator lights, 4-pin micro Brad Harrison cable connector and O-ring seal. (old part #527-007-273)
563057	Check Valve BSPP (1/4x19) – header line take off point
564406	High Pressure In-line Grease Strainer, 100 Mesh



### 3.1.3 Pump Packages for Series Progressive Oil Systems

PART NUMBER	DESCRIPTION
562848GM	Gear pump for total loss oil system, 6L reservoir, 230/480vac 3-phase, Breather, low-level 4-pin micro 24vdc. GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.
564138GM	Lube package for total loss oil piston distributor system gear pump/motor, 480vac/60hz/3ph, 6 liter reservoir, air breather, dual low-level with pre-alarm 4-pin micro GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.
557819GM	Gear pump for Re-circulating Oil systems 9cuin/min CW rotation. NO RESERVOIR Custom made by OEM or distributor. GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.
Modu-FloGM	Pneumatic piston pump for oil systems low-level with pre-alarm, 4-pin micro, 24vdc, Pressure fill. GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.
G3GM Series	2,4,8,12,16 Liter reservoir options. 24vdc motor, low level, pressure-fill (add 571028 pressure relief). GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.

### 3.1.4 Pump Packages for Series Progressive Grease Systems

PART NUMBER	DESCRIPTION
Modu-FloGM	Pneumatic piston pump for oil systems low-level, 4-pin micro, 24vdc, Pressure fill. GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.
563301GM	Gear pump for total loss grease system - 6 liter translucent reservoir 0.2L/m gear pump/motor 480vac 3-phase, (2) low-level switches with 4 pin micro connections. GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.
96G005GM	Pump unit for up to NLGI 2 – 2L with agitator (add 571028 pressure relief) 24vdc motor, low level, pressure-fill. GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.
G3GM Series	2,4,8,12,16 Liter reservoir options. 24vdc motor, low level, pressure-fill (add 571028 pressure relief). GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.



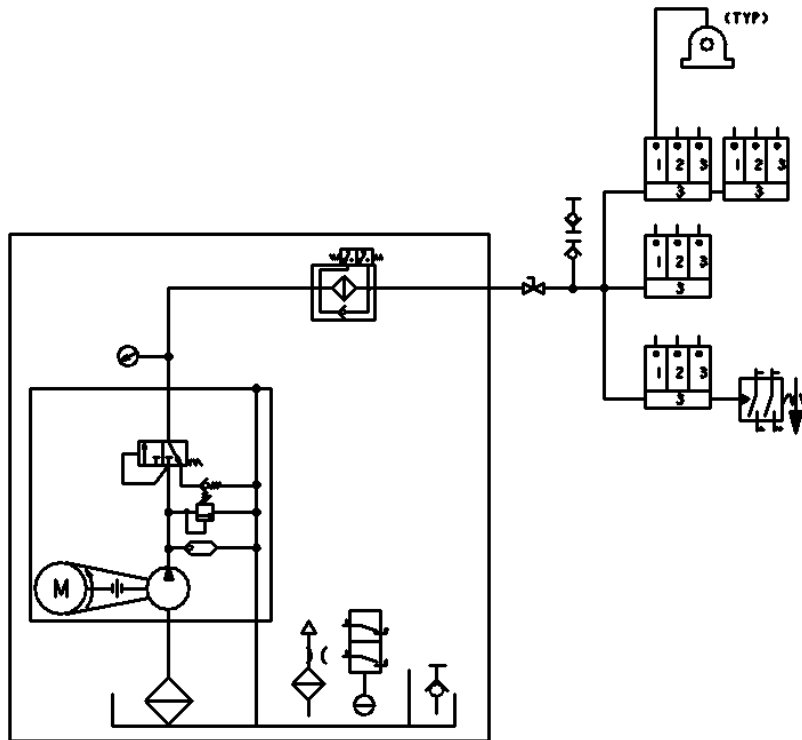
### **3.2 SINGLE LINE PARALLEL (PISTON DISTRIBUTOR) SYSTEMS**

#### **OIL – CENTRALIZED LUBRICATION SYSTEM TERMINATING SINGLE LINE PARALLEL (PISTON DISTRIBUTOR)**

This is a Single Line Parallel Terminating (total loss) system utilizing a pump feeding a series of Piston Distributor delivery valves. This system is typically used on a single purpose machine.

Single purpose machine is defined by one or more of the following:

- Machine with 50 lube points or less
- Machine where all machine stations must operate in unison to complete a manufacturing process.
- Machine where plumbing layout and system layout are not complex.



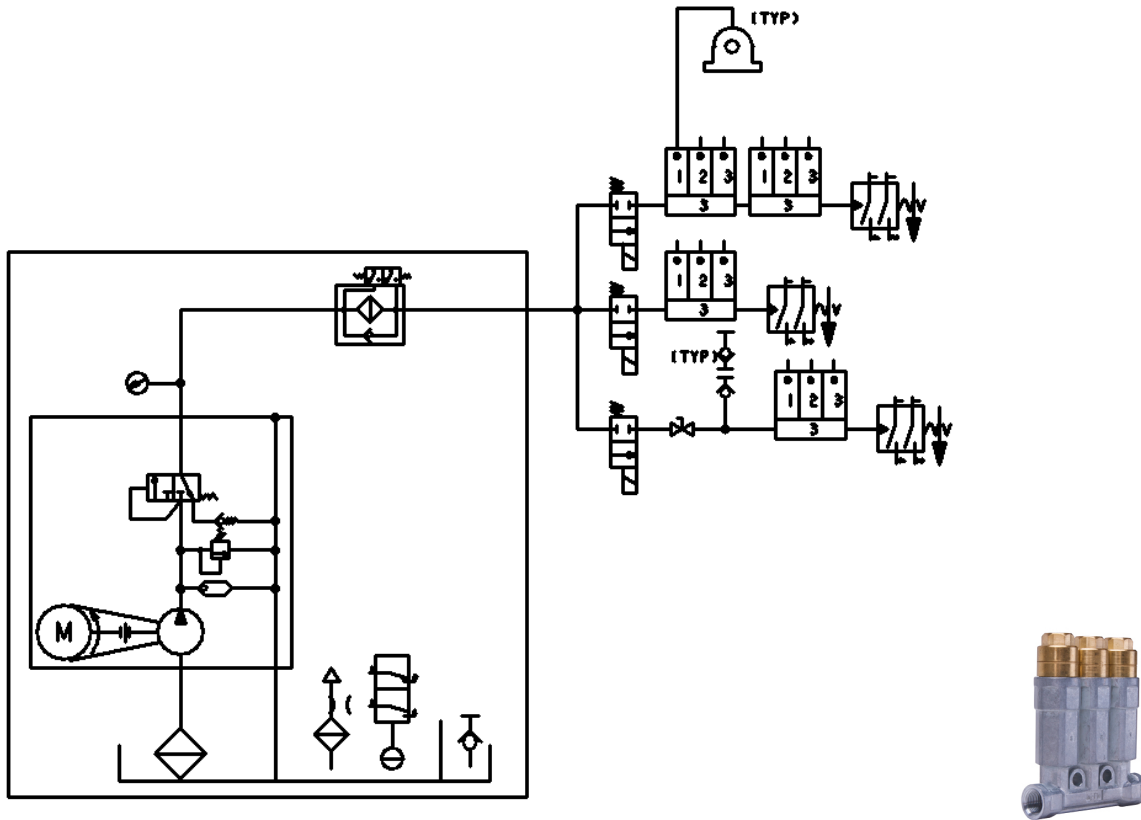
### OIL – CENTRALIZED LUBRICATION SYSTEM CIRCULATING HEADER LINE ZERO LEAK SINGLE LINE PARALLEL (PISTON DISTRIBUTOR)

This Single Line Parallel system, in conjunction with the modular zero leak valve, is used for transfer lines and flexible machining centers. This style system simplifies the more complex circuits while providing individual zone control. In addition, continuous circulating oil through filtration provides cleaner oil.

Transfer machine or Flexible Machining Center is define by one or more of the following:

- Machine with 51 lube points or more
- Machine where one or more machine stations can be removed while the remainder of the stations continue to receive lube.
- Machine where plumbing layout and system layout are complex.



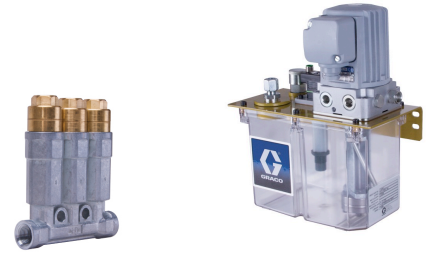
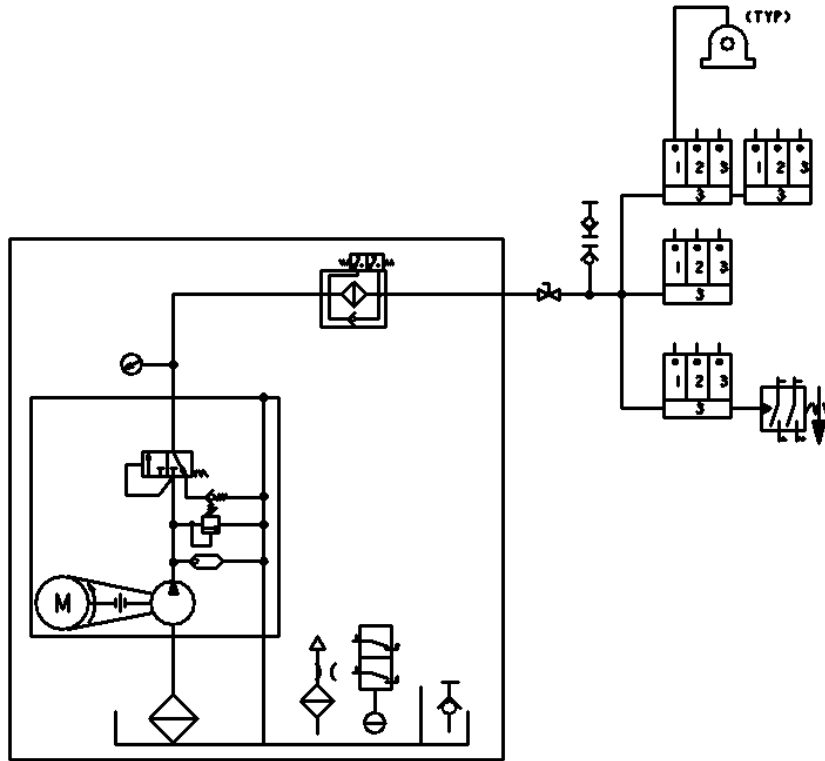


### GREASE – CENTRALIZED LUBRICATION SYSTEM TERMINATING SINGLE LINE PARALLEL (PISTON DISTRIBUTOR)

This is a Single Line Parallel Terminating (total loss) system utilizing a pump feeding a series of Piston Distributor delivery valves. NLGI 0, 00, 000 Grease only.

Typical Applications:

- Gantry
- Assembly Machines
- CNC Machining Center



### 3.2.1 Piston Distributor Valves

PART NUMBER	DESCRIPTION
Piston Distributors	Piston distributors require ISO 1179-1 ports with ISO 228 G threads

PART NUMBER	DESCRIPTION
PD320GM series	Self contained distributor for manifold mount - .03, .06, .10, .16ccm (M8x1 outlet)
PD350GM series	Self contained distributor for manifold mount - .1, .2, .4, .6ccm volumes (M8x1 outlet)
3400/3410GM	Cast 1,2,3 or 5 station manifold – output range 0.01 - 0.10 ccm (oil/fluid grease)
3500/3510GM	Cast 1,2,3,or 5 station manifold– output range 0.10 - 0.30 ccm (oil/fluid grease)
3900/3910GM	Cast 1,2,3 or 5 station manifold – output range 0.10 – 0.30 ccm (oil/fluid grease)
557912	2 port PD Aluminum manifold, M10x1 mainline port connections (old #550-151-000)
557913	3 port PD Aluminum manifold, M10x1 mainline port connections (old #550-151-001)
557914	5 port PD Aluminum manifold, M10x1 mainline port connections (old #550-151-002)

### 3.2.2 Accessories and Feedback Devices

PART NUMBER	DESCRIPTION
<b>ACCESSORIES</b>	
542-300-000	Digital pressure switch, 24vdc, dual output, 4-pin micro
557227	Inline mount zero-leak valve assembly, 24vdc
563099	Fill/Return line filter with 25 micron filter element – BSPP ports (G3/4 x 14) Replacement filter element Parker part # 925023 Mounting bracket Lubriquip part # 521-010-440
563516	High-pressure in-line oil filter assembly with 10 micron filter element - BSPP ports 1/4-19 Replacement filter element assembly = p/n 527-100-540
564406	Pressure line grease strainer 100 mesh, 1/4" BSPP
563057	Header take-off point check valve BSPP



### 3.2.3 Pump Packages for Single Line Parallel Oil Systems

PART NUMBER	DESCRIPTION
562848GM	Gear pump for total loss oil system, 230/480vac,6 liter reservoir, Low-level with pre-alarm 4-pin micro 24vdc, breather, 6mm tube outlet port. GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.
15U858GM	Gear pump for total loss oil system, 230/460vac, 3 liter reservoir, 0.5L/min, dual level switch. GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.
15U860GM	Gear pump for total loss oil system, 230/460vac, 6 liter reservoir, 0.5L/min, dual level switch. GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.
A-01GM Series	2 or 5L reservoir, pneumatic piston pump. GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.

### 3.2.4 Pump Packages for Single Line Parallel Grease Systems

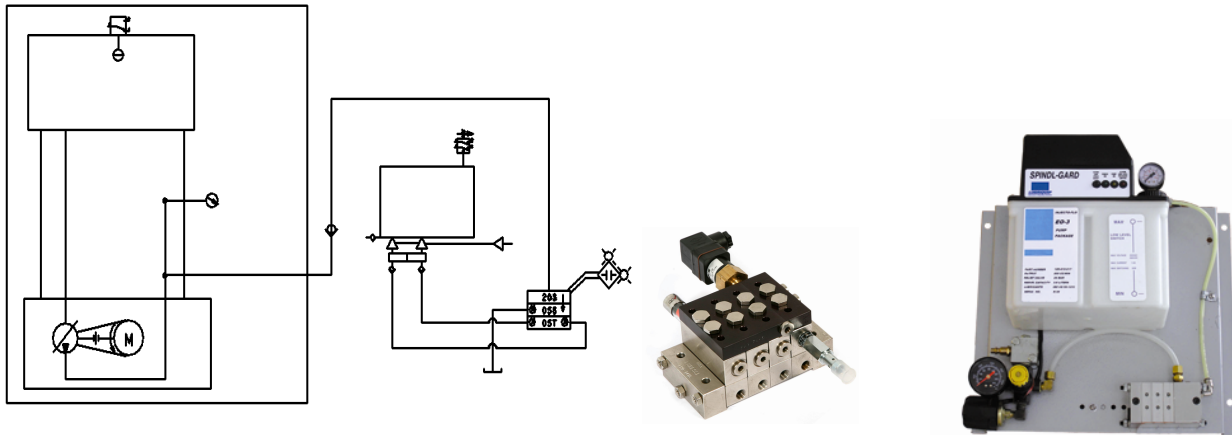
PART NUMBER	DESCRIPTION
122598GM	Gear pump for total loss grease system, 480vac/60hz/3ph 6 Liter translucent reservoir, 0.2L/min., (2) grease level switches. GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.
557547GM	Gear pump for total loss oil system, 230/480vac,6 liter reservoir, Dual Low-level with pre-alarm 4-pin micro. GM callout requires proper QD fill, filter/strainer, low level configuration, gauge installed by supplier or OEM.

### 3.3 SPINDLE LUBRICATION SYSTEM (MULTIPLE AND BOX SPINDLE) – SPINDL-GARD

Dry sump style system is used in place of the circulating wet sump system for multiple head spindles. Air/Oil system is used for direct lubricating and cooling rolling element bearings on precision box spindles. These systems require lubrication engineering design consideration. Mechanical layout prints for spindle are required for review with expert. **MUST CONTACT LUBRICATION SPECIALIST.**

Typical Applications:

- Multiple head spindle
- Precision box spindles
- Ball screws



### 3.3.1 Air/Oil Systems for Spindle Applications

PART NUMBER	DESCRIPTION
<b>Air/Oil Systems – High Speed</b>	
SPG-E-0-024*	Air/oil package including 24vdc pump/motor panel mounted filter/regulator, oil psi switch, mixing valves with integrated piston distributors
Custom	Request Engineering assistance to create application specific unit
<b>Air/Oil Systems – Under 500,000 DN</b>	
Custom	Integration of Piston Distributors and mixing valve technology. Application specific.
Custom	Integration of Series Progressive valves and mixing valve technology. Application specific.
AO Series	Air/Oil mixing block for mounting to standard MSP series progressive divider valves