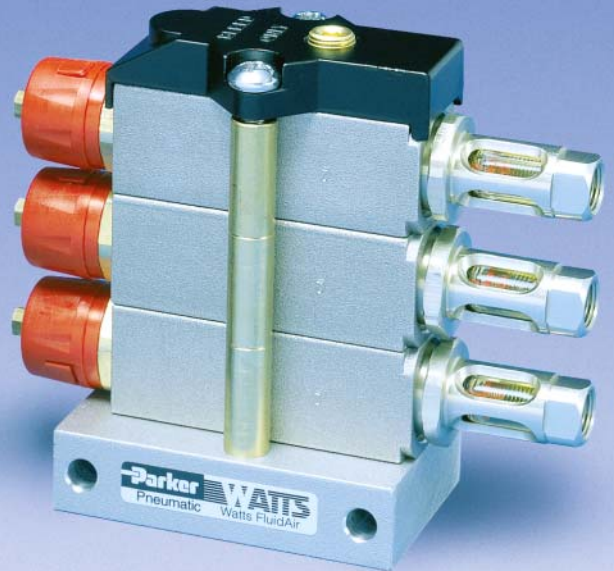




# Injection Lubricators

*Catalog 0302*



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 **WARNING**

FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from The Company, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by The Company and its subsidiaries at any time without notice.

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Injection Lubricators

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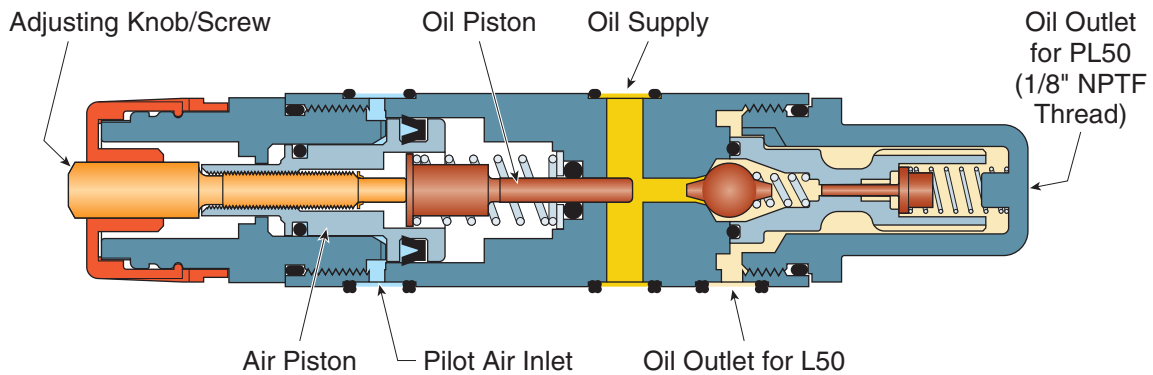
# Why Injection Lubrication?

In many cases, conventional air line lubricators cannot supply adequate lubrication to tools, cylinders, etc. This is due to many factors such as long distances between tool and lubricator, intermittent flow, and complex piping. Parker/Watts Injection Lubricators are designed to

deliver precise amounts of oil directly to the point of lubrication as required. To ensure proper lubrication, our injection lubrication products and accessories are available to cover a wide range of applications.

## How It Works...

### Oil Injection Module

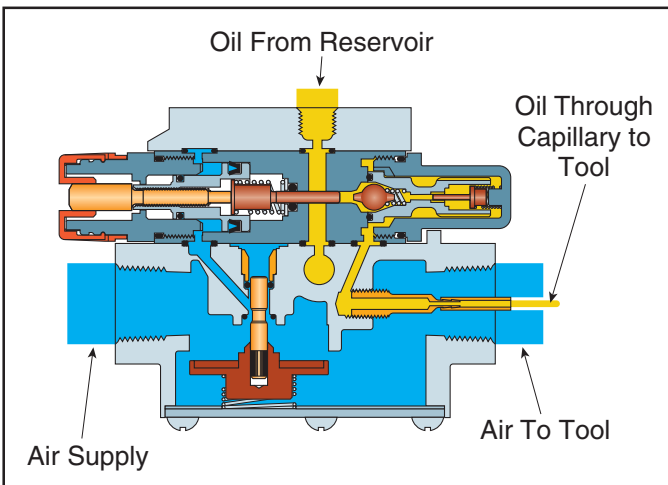


When the pneumatic circuit is energized:

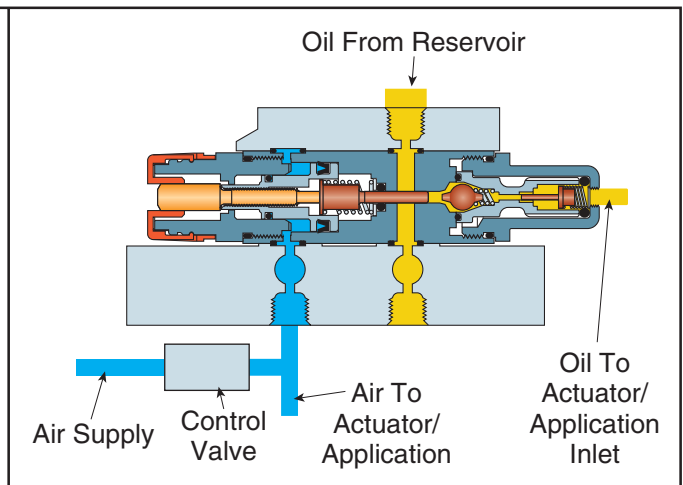
- 1.) Air pressure is routed to the air piston
- 2.) The air piston pushes on the oil piston
- 3.) The oil piston enters the oil cylinder bore and forces an exact amount of oil past the check valve to the outlet.
- 4.) The adjusting knob/screw is used to control the oil piston travel, effectively controlling the amount of oil delivered per actuation.

### Oil Delivery

#### Single Point – L50



#### Single/Multi Point – PL50



# Which Kind of Injection Lubricator Do I Need?

## Selecting a Lubricator

Common Applications	Lubricator Type	Number of Lubrication Points	Air Consumption	Cycle Operating Time	Cycle Counter	Pulse Generator
Air Tool - Hand Held	L50	One	1 - 40 SCFM	1-30 Seconds	Recommended	No
	L50	One	20 - 40 SCFM	1-30 Seconds	Not Necessary	No
	L50	One	10 - 50 SCFM	30 Seconds +	No	Recommended
Air Motor - Fixed Mount	PL50	One or Many <sup>1</sup>	1 - 40 SCFM	1-30 Seconds	Recommended	No
	PL50	One or Many <sup>1</sup>	20 - 40 SCFM	1-30 Seconds	Not Necessary	No
	PL50	One or Many <sup>1</sup>	10 - 50 SCFM	30 Seconds +	No	Recommended
Cylinder/Actuator	PL50	One or Many <sup>1</sup>	1 - 40 SCFM	1-30 Seconds	Recommended	No
	PL50	One or Many <sup>1</sup>	20 - 40 SCFM	1-30 Seconds	Not Necessary	No
	PL50	One or Many <sup>1</sup>	10 - 50 SCFM	30 Seconds +	No	Recommended

Note 1: If multiple points are to be lubricated in unison, use a Single Lubricator - Multiple Modules  
If multiple points are to be lubricated at different times, use Multiple Lubricators - Single or Multiple Modules

## Options – Oil Delivery

### Cycle Counter Option

For both L50 & PL50



Shown on L50

All pneumatic device designed for applications where the **minimum** amount of oil injected every cycle is **too much**. The cycle counter controls oil delivery by reducing oil injection from every air cycle, to every 5th or 10th air cycle. The cycle counter also has settings allowing the module to operate with every air cycle, or turn off to stop injector module operation. (Maximum of 3 modules above counter on PL50)

Common Applications:

- Minimal oil demands
- Short cycle times
- Small tools
- Small cylinders

### Pulse Generator Option

For both L50 & PL50



Shown on PL50

All pneumatic device designed for applications where the **maximum** amount of oil injected every cycle is **not enough**. The pulse generator increases oil delivery by generating oil injector cycles, effectively increasing oil delivery for long tool/application cycles. (Maximum of 10 modules above generator on PL50)

Common Applications:

- Long cycle times  
(L50: air motor/tool)
- Consistent lubrication intervals  
(PL50: chain/slide lubrication)

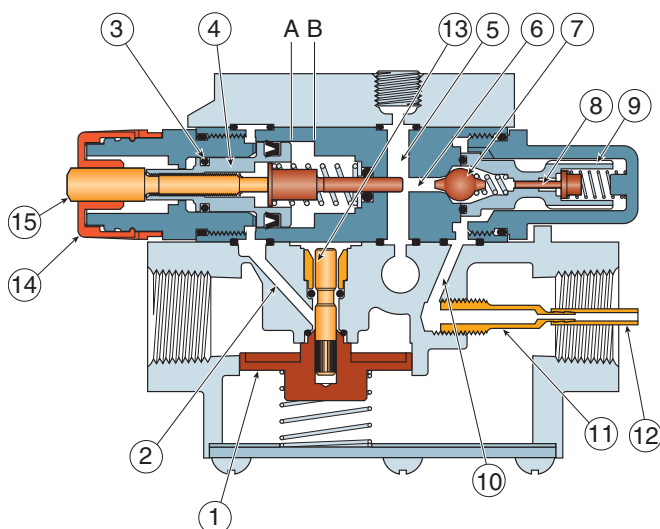
**In-Line Injection Lubricators**



**L50 Single Point Injection Lubricator**

The L50 Injection Lubricator is an in-line unit for use with tools and other pneumatic equipment which require consistent lubrication for longer life and maximum torque control. These units, available in 1/2" and 3/4" NPT, deliver an adjustable amount of oil through a capillary tube inside the main airline, directly to the tool. The amount of oil is adjustable up to .03cc. These units are designed for intermittent operation. Each time the tool is cycled, the unit injects the oil through the capillary tube to the lubrication point.

If the minimum amount of oil is injected per cycle is too much, than the cycle counter may be added. Or, conversely, if the amount of oil injected per cycle is not enough due to long cycle times, a pulse generator is available.

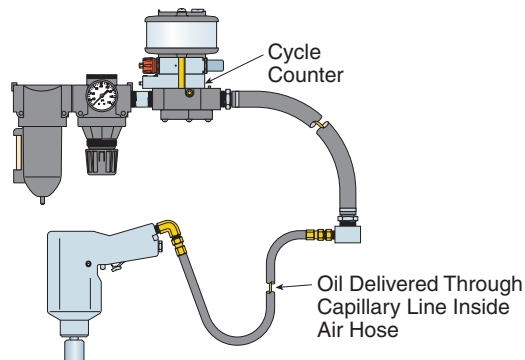


(Shown Without Cycle Counter)

**Operation:**

Every time air flow starts, the sensor piston (1) is pushed down and allows a pilot pressure to flow through port (2) which drives module piston (3) and metering plunger (4) to the right. As plunger passes by oil supply port (5), it forces oil into metering tube (6) which in turn lifts check valve (7) and forces the same quantity of oil into inner sight glass, it drives flow indicator (8) to the right (a positive indication of oil flow) and then flows up through annular area between inner and outer sight glass (9). It next flows down through out port (10) and capillary adapter (11) to capillary (12) adapted for internal feed. When air flow stops, the sensor piston is returned by its spring to the initial no-flow position and the pilot pressure behind metering piston is exhausted to atmosphere through exhaust valve (13) and exhaust port. When air is exhausted metering piston spring returns piston and plunger to initial position. As can be seen by referring to Figure A, the amount of oil injected into the system is determined by the distance the metering plunger (4) travels into the metering tube (6). The distance it travels to the right (into the tube) determines the quantity of oil that is forced out through the check valve (7) and into the system. Since the module piston always travels a set distance from point (A) to (B), oil feed rate is adjusted by varying the protruded length of the metering plunger. The longer the plunger, the greater the travel and the greater the oil feed per cycle. An adjusting knob (14) is provided to adjust the plunger length.

To operate, the knob must first be pulled into the unlocked position. Then as the knob is turned in a clockwise direction the adjusting screw (15) moves to the right and extends the metering plunger (4). Since the module/air piston (3) remains stationary, the extended length of the metering plunger is increased. Therefore, the next time the module is fired (pressurized), the metering plunger will travel a longer distance into the metering tube (6) so more oil will be forced through check valve and into system. Conversely, counter-clockwise rotation of the adjustment knob (14) will shorten the extended length of the plunger and decrease the amount of oil feed.



**Multi-Point Injection Lubricators**



**PL50 Multi-Point Injection Lubricator**

The PL50 Injection Lubricator is designed to lubricate from one to ten points when sensing a single remote pilot signal. Like the L50, precise amounts of oil are injected directly at each of the lubrication points. Unlike the L50, a single air pilot signal fires the injector modules in the stack, and the oil is delivered by an external capillary tube directly to the air inlet of the point to be lubricated. The PL50 is ideal for multi-spindle air tools, automation equipment, air cylinders, and other components with intermittent operation which are difficult to lubricate.

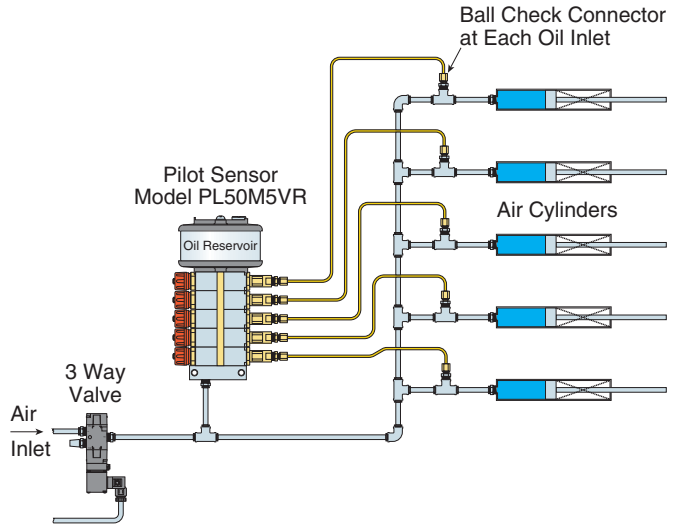
If the minimum amount of oil is injected per cycle is too much, than the cycle counter may be added. Or, conversely, if the amount of oil injected per cycle is not enough due to long cycle times, a pulse generator is available.

A note about lubricating multiple points:

- How many points do you need to lubricate?
- How many lubricators do you need?

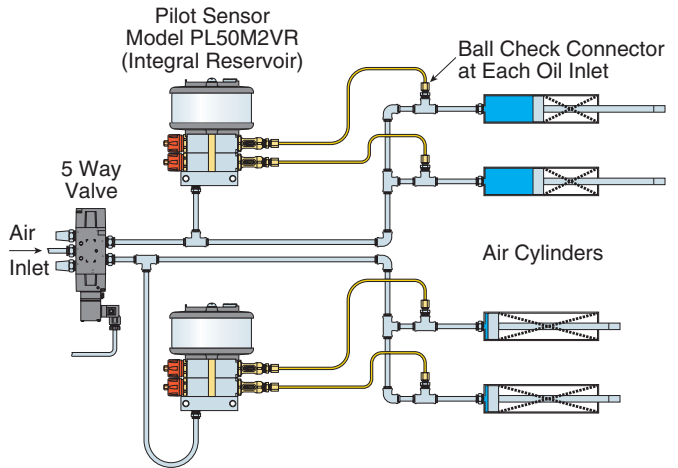
The PL50 Injection Lubricator will lubricate from 1 to 10 points all at one time. If your application has 6 cylinders to lubricate, and all 6 cylinders cycle at the same time, then the application requires one lubricator with 6 modules. If your application has 6 cylinders to lubricate, and 3 cylinders operate in one cycle, and the remaining 3 operate on a different cycle, then the application will require two 3 module lubricators.

**Single Signal**



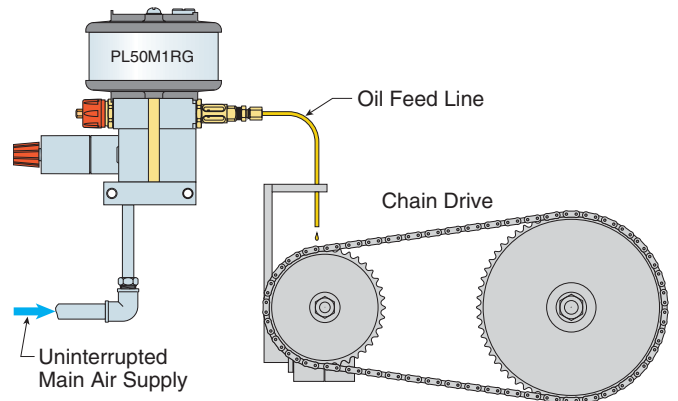
**Two Separate Signals**

Oil is Dispensed as Cylinder Extends



**Direct Application Configuration**

PL50 Application (with Pulse Generator)



# L50 In-Line Injection Lubricators



## Dependable Oil Delivery

L50 In-Line Injection Lubricators provide positive oil displacement lubrication ensuring the predetermined amount of oil is delivered to the tool each and every cycle regardless of pressure or flow.

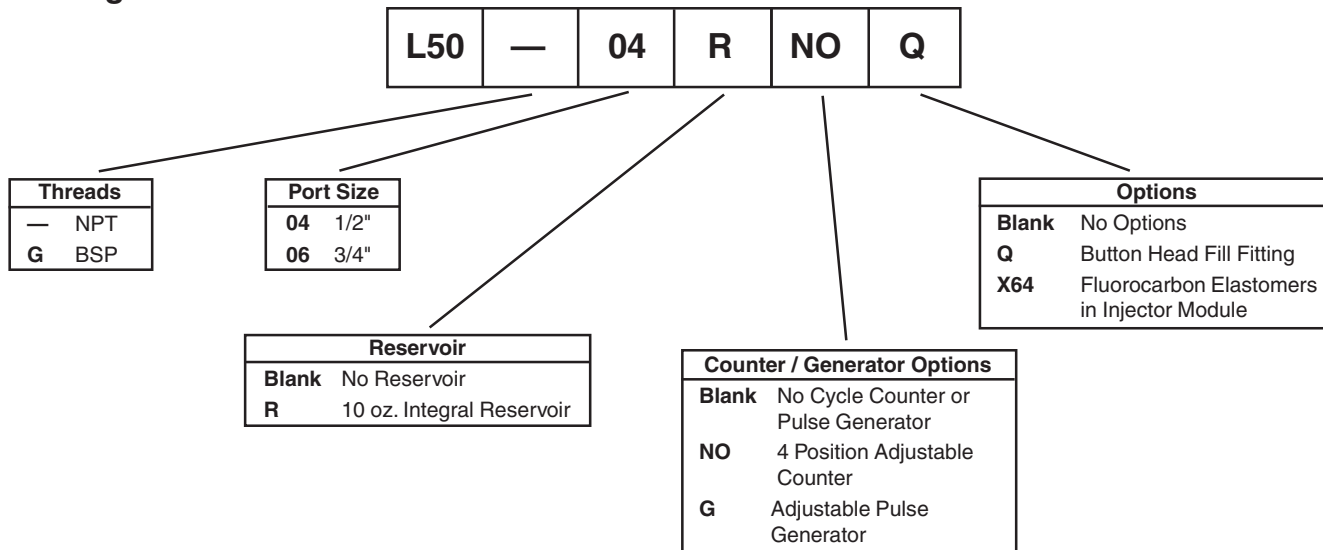
For best results unit must be used with capillary line inside air outlet or with coaxial tool hoses (see accessories).

## Features:

- Air Flow Sensor**  
Single point injection lubricators are installed between a filtered, regulated air source and an air supply hose going to a pneumatic tool. The body of the unit is designed to sense air flow when the tool is being used and signal the oil injector module to lubricate.
- Oil Injector Module**  
The oil injector module provides adjustable oil delivery in amounts up to 1 drop per cycle. Oil delivery adjustment is made by turning the adjusting knob increasing or decreasing the oil piston travel in the module. Unit comes standard with oil delivery indicator.
- Cycle Counter - 4 Position - Optional**  
With the adjustable cycle counter, the lubricator can be set to dispense oil in the following manner:

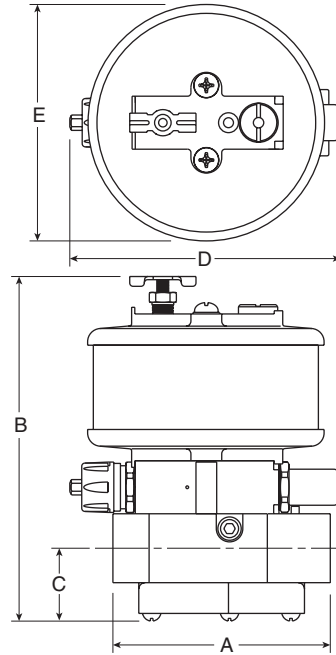
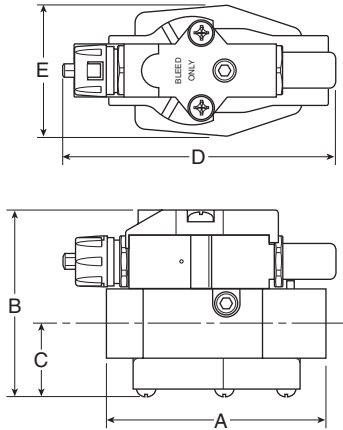
Setting:	Off	No oil dispensed
	1	Every cycle of the application
	5	Every fifth cycle of the application
	10	Every tenth cycle of the application
- Pulse Generator - Optional**  
For long cycle time applications the pulse generator makes the lubricator dispense a pre-determined amount of oil multiple times during a single tool cycle.

## Ordering Information





Dimensions



Amount Of Oil Injected Per Machine (Tool) Cycle With Cycle Counter

Injector Module Setting	Clicks Counter-clockwise	Turns Counter-clockwise	Cycle Counter Setting			
			Off	1	5	10
			(or w/o counter)			
0	0	▶	0	Prime		
8	1	▶	0	Prime		
16	2	▶	0	0.024 cc	0.005 cc	0.002 cc
24	3	▶	0	0.018 cc	0.003 cc	0.002 cc
32	4	▶	0	0.012 cc	0.002 cc	0.001 cc
40	5	▶	0	0.006 cc	0.001 cc	—
48	6	▶	0	—	—	—

L50 Dimensions

	A	B	C	D	E
Standard Unit	4.13 (104,8)	3.48 (88,4)	1.38 (35)	5.09 (129,3)	2.44 (61,9)
For Integral Reservoir Add:		3.0 (76,2)			2.01 (51)
For Cycle Counter Add:		0.88 (22,4)			
For Pulse Generator Add:		1.75 (44,5)		2.06 (52,3)	

inches (mm)

Repair Kits & Accessories

- Injector Module
  - Sight Dome End Repair Kit ..... RKL50SD
  - Adjustment End Only ..... RKL50MA
  - Module Kit ..... KL50M
- Sensor Body
  - Sensor Piston ..... SAL50-0472
- Button Head Fill Fitting ..... SA606Y107
- Integral 10 oz. Reservoir ..... BKL50R
- Cycle Counter Kit ..... RKL50NO
- Pulse Generator Kit ..... RKL50G

Specifications

- Maximum Air Supply Pressure ..... 150 PSIG
- Oil Supply Pressure Range ..... Gravity Feed to 20 PSIG Max.
- Oil Viscosity Range ..... 150-1200 S.S.U.
- Minimum Airflow for Operation ..... 5 SCFM
- Oil Delivery Range ..... 0-1 Drop per Cycle of Injector
- Pressure Drop ..... Less than 5 PSIG @ 100 SCFM
- Oil Fill Port ..... 1/8" NPT

Materials of Construction

- Injector Module
  - Body ..... Aluminum
  - Oil Piston ..... Steel
  - Air Piston ..... Ultem
  - Sight Dome ..... Polyurethane
  - Springs ..... Steel
  - End Plug ..... Brass
  - Seals ..... Buna-N (Fluorocarbon Optional)
- Flow Sensor Body
  - Body ..... Zinc
  - Bottom Plate ..... Steel
  - Sensor Piston ..... Aluminum / Brass
  - Spring ..... Steel
  - Top Plate ..... Zinc
- Reservoir
  - Top & Bottom Plate ..... Zinc
  - Reservoir Cylinder ..... Polycarbonate
  - Seals ..... Buna-N
- Cycle Counter
  - Body ..... Nylon
  - Seals ..... Buna-N
- Pulse Generator
  - Body ..... Aluminum
  - Timer ..... Acetal / Steel / Buna-N

**PL50 Multi-Point Injection Lubricators**



**Individual Points of Lubrication**

PL50 Multi-Point Injection Lubricators use an air pilot signal to provide positive displacement lubrication to either single or multiple points ensuring the predetermined amount of oil is delivered to each point per cycle regardless of pressure or flow.

The PL50 delivers oil externally to the air inlet to a pneumatic device where it is “tee’d” into the air line.

**Features:**

- **Oil Injector Module**  
The oil injector module provides adjustable oil delivery in amounts up to 1 drop per cycle. Oil delivery adjustment is made by turning the adjusting knob increasing or decreasing the oil piston travel in the module. Optional visible oil delivery indicator(s) are available - and recommended - ensure visual proof of lubrication at each point.
- **Cycle Counter - 4 Position - Optional**  
With the adjustable cycle counter, the lubricator can be set to dispense oil in the following manner:  
(Maximum of 3 modules above cycle counter)  
Setting: Off No oil dispensed  
1 Every cycle of the application  
5 Every fifth cycle of the application  
10 Every tenth cycle of the application
- **Pulse Generator - Optional**  
For long cycle time applications the pulse generator makes the lubricator dispense a pre-determined amount of oil multiple times during a single tool cycle.  
(Maximum of 10 modules above pulse generator)

**Ordering Information**

PL50M	2	V	R	NO	Q	
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Number of Modules	
1	1 Module
2	2 Modules
10	Modules Maximum

Oil Outlet Connection	
Blank	1/8" NPT w/o Visible Indicator
V	1/8" NPT w/ Visible Indicator

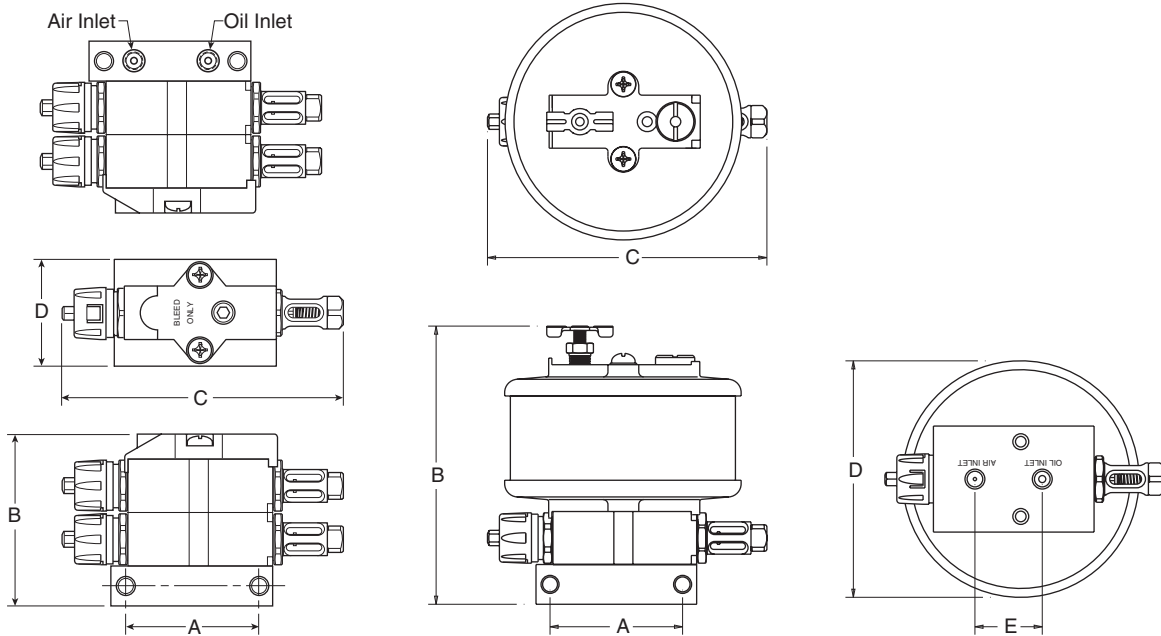
Reservoir	
Blank	No Reservoir
R	10 oz. Integral Reservoir

Counter / Generator Options	
Blank	No Cycle Counter or Pulse Generator
NO	4 Position Adjustable Counter (Maximum of 3 modules above cycle counter)
G	Adjustable Pulse Generator

Position of Cycle Counter or Pulse Generator	
(Indicates # of modules below counter or generator)	
Blank	Standard Configuration (Counter or Generator operates all modules)
1	1 module below counter
2	2 modules below counter
...etc.	...etc.

Options	
Blank	No Options
Q	Button Head Fill Fitting
X64	Fluorocarbon Elastomers in Injector Module

Dimensions



Amount Of Oil Injected Per Machine (Tool) Cycle With Cycle Counter

Injector Module Setting	Clicks Counter-clockwise	Turns Counter-clockwise	Cycle Counter Setting			
			Off	1	5	10
			(or w/o counter)			
0	0	▶	0	Prime		
8	1	▶	0	Prime		
16	2	▶	0	0.024 cc	0.005 cc	0.002 cc
24	3	▶	0	0.018 cc	0.003 cc	0.002 cc
32	4	▶	0	0.012 cc	0.002 cc	0.001 cc
40	5	▶	0	0.006 cc	0.001 cc	—
48	6	▶	0	—	—	—

PL50 Dimensions

	A	B	C	D	E
Standard 1 Module Unit w/o Visible Indicator	2.5 (63,5)	2.48 (63)	5.27 (133,9)	2 (51)	1.27 (32,3)
For Each Additional Module Add:		1 (25)			
For Visible Indicators Add:			0.85 (21,6)		
For Integral Reservoir Add:		3.0 (76,2)		2.46 (62,5)	
For Cycle Counter Add:		0.88 (22,4)			
For Pulse Generator Add:		1.75 (44,5)	2.06 (52,3)		

inches (mm)

Repair Kits & Accessories

- Injector Module
  - Visible Indicator End Repair Kit ..... RKL50MD
  - Adjustment End Only ..... RKL50MA
  - Module Kit - Visible Indicator ..... KPL50MV
  - Module Kit - Non-Visible Indicator ..... KPL50M
- Button Head Fill Fitting ..... SA606Y107
- Integral 10 oz. Reservoir ..... BKL50R
- Cycle Counter Kit ..... RKL50NO
- Pulse Generator Kit ..... RKL50G

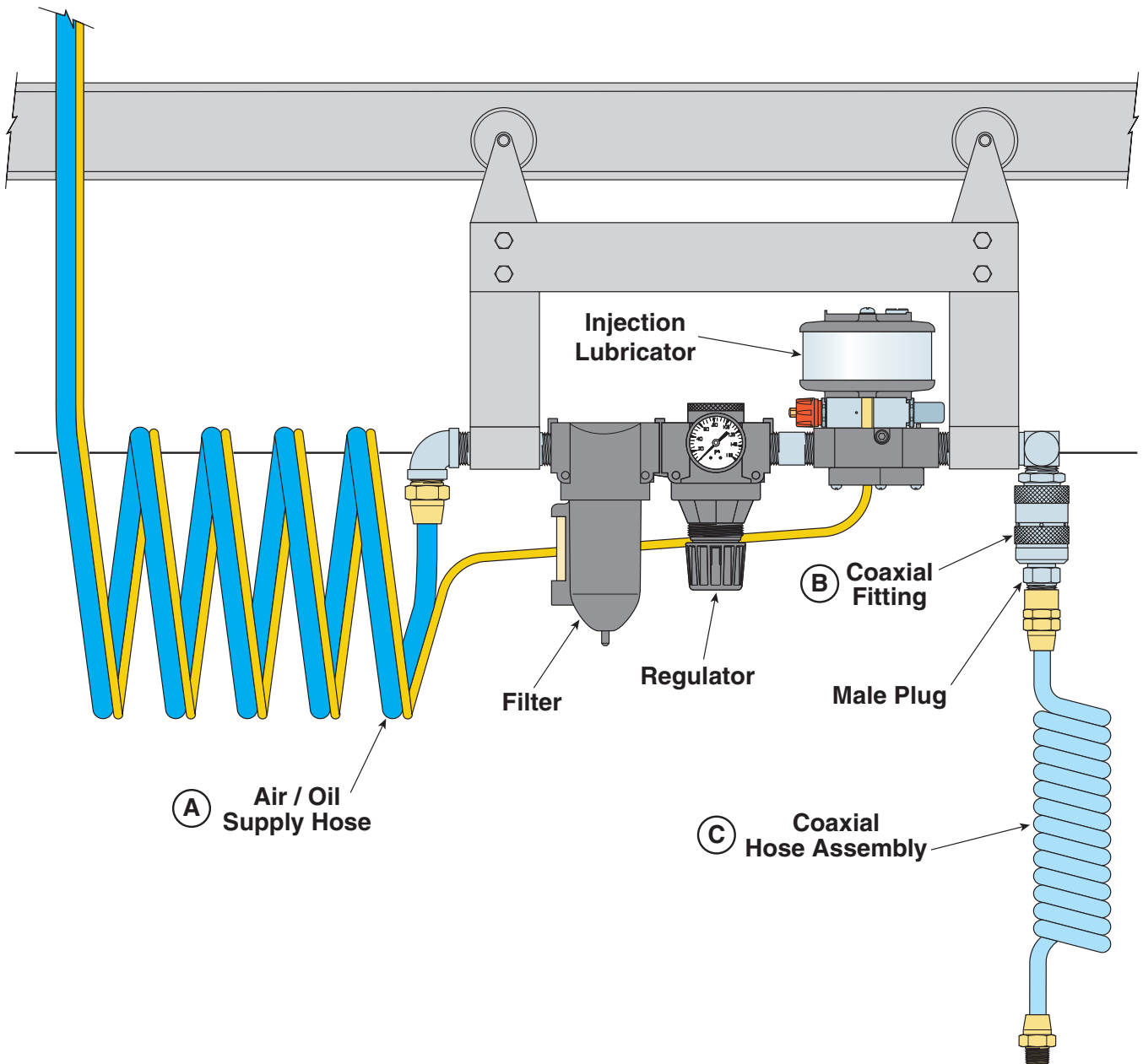
Specifications

- Maximum Air Supply Pressure ..... 150 PSIG
- Oil Supply Pressure Range ..... Gravity Feed to 20 PSIG Max.
- Oil Viscosity Range ..... 150-1200 S.S.U.
- Minimum Airflow for Operation ..... 5 SCFM
- Oil Delivery Range ..... 0-1 Drop per Cycle of Injector
- Pressure Drop ..... Less than 5 PSIG @ 100 SCFM
- Oil Fill Port ..... 1/8" NPT
- Air Signal Pilot Port ..... 1/8" NPT

Materials of Construction

- Injector Module
  - Body ..... Aluminum
  - Oil Piston ..... Steel
  - Air Piston ..... Ultem
  - Sight Dome ..... Polyurethane
  - Springs ..... Steel
  - End Plug ..... Brass
  - Seals ..... Buna-N (Fluorocarbon Optional)
- Bottom Plate ..... Aluminum
- Top Plate ..... Zinc
- Reservoir
  - Top & Bottom Plate ..... Zinc
  - Reservoir Cylinder ..... Polycarbonate
  - Seals ..... Buna-N
- Cycle Counter
  - Body ..... Nylon
  - Seals ..... Buna-N
- Pulse Generator
  - Body ..... Aluminum
  - Timer ..... Acetal / Steel / Buna-N

Typical Air Drop Application



Accessories

**Accessories**

**Oil Reservoirs**

(All units come with mounting bracket)

**BKL50A**

9 oz. polycarbonate bowl  
 Diameter ..... 2.87 (73)  
 Overall Height ..... 5.5 (140)  
 Mount to Top ..... 4.87 (124)  
 Mount to Bottom ..... .63 (16)



**BKL50B**

1 qt. polycarbonate bowl  
 Diameter ..... 4.25 (108)  
 Overall Height ..... 7.44 (189)  
 Mount to Top ..... 6.81 (167)  
 Mount to Bottom ..... .63 (16)



**BKL50C**

2 qt. polycarbonate bowl  
 Diameter ..... 5.5 (140)  
 Overall Height ..... 9.44 (247)  
 Mount to Top ..... 8.81 (224)  
 Mount to Bottom ..... .63 (16)



inches (mm)

**Button head fill fitting**

**SA606Y107**  
 1/8" NPT Male



**Oil filled capillary line**

**SA606X71-1** 25 Feet  
**SA606Y71-1** 50 Feet



**Capillary line connectors**

**SAL50Y139**  
 1/8" OD compression X  
 1/8" NPT male connector



**SA606Z26**  
 1/8" OD compression X  
 1/8" NPT male check valve



**Supply and Tool Hoses & Fittings**

**(A) Air / Oil Supply Hose**

**ASH-25**  
 Air Supply Hose - 25 Feet  
 3/4" male NPT swivel fittings



**AOSH-25**  
 Air & Oil Supply Hose - 25 Feet  
 3/4" male NPT swivel fittings



**(B) Coaxial Fittings**

**CES-06**  
 Coaxial Elbow & Socket  
 Inlet: 3/4" male NPT  
 Outlet: 3/4" female coax socket



**CDS-06**  
 Coaxial Direct Socket  
 Inlet: 3/4" male NPT  
 Outlet: 3/4" female coax socket



**(C) Coaxial Hose Assemblies**

**THC-20**  
 Coiled Tool Hose - 20 Feet  
 Tube Dia: 3/8"  
 Inlet: 3/4" male coax plug  
 Outlet: 3/8" male NPT



**THS-20**  
 Straight Tool Hose - 20 Feet  
 Tube Dia: 3/8"  
 Inlet: 3/4" male coax plug  
 Outlet: 3/8" male NPT



**DW-06-2**  
 Drop-Whip Hose - 2 Feet  
 Inlet: 3/4" male NPT  
 Outlet: 3/4" female coax socket





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**2. Payment:** Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that the Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

**3. Delivery:** Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

**4. Warranty:** Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of 18 months from date of shipment from Parker Hannifin Corporation. THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED.

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**5. Limitation of Remedy:** SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER'S SOLE OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEMS SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.

**6. Changes, Reschedules and Cancellations:** Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

**7. Special Tooling:** A tooling charge may be imposed for any special tooling, including without limitations, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and

notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

**8. Buyer's Property:** Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer, or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

**9. Taxes:** Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

**10. Indemnity For Infringement of Intellectual Property Rights:** Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter "Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgements resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

**11. Force Majeure:** Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

**12. Entire Agreement/Governing Law:** The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.



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