



LPE MACHINE MOUNTABLE ELECTRIC PUMP MANUAL AND TROUBLESHOOTING GUIDE



READY FOR IMMEDIATE SHIPMENT

MADE IN



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REDUCE COSTS BY INCREASING RELIABILITY

100% of ALL Construction and Mining equipment requires regular lubrication.

50 to 60% of all bearing failures are related to improper lubrication.

Lubrication related failures account for between 40% and 50% of a typical machine's total maintenance expense.

Benefits of Automatic Lubrication

Critical components are **best lubricated** with the **frequent injection of small amounts** of the proper lubricant.

IMPROVED SAFETY - As maintenance personnel are no longer required to climb on machines or enter hazardous, inaccessible areas to perform vital lubrication functions, they are not exposed to the risks of manual lubrication.

Reduced lubricant expense - As the **proper quantity** of lubricant for **each specific point** is **precisely injected** during each lube event, automatic lubrication systems will on average **use 33% less** lubricant.

Reduced Energy Consumption - As both under-lubricated and over-lubricated bearings need more energy to operate, automatic lubrication systems can help **reduce operating fuel costs**.

Reduced Environmental Expense - As a result of the reduction of lubricant used by an automatic lubrication system, there is a direct **cost reduction** in both **site cleanup and environmental disposal expense**.

Reduced Lubrication Labor Costs - Utilizing properly engineered automatic lubrication systems can **reduce manual lubrication labor costs by up to 90%**.

Reduced loss of production from downtime.

Reduced labor and repair part expense - Reduced lubrication related failure provides a straight line reduction in construction and mining equipment repair expense.

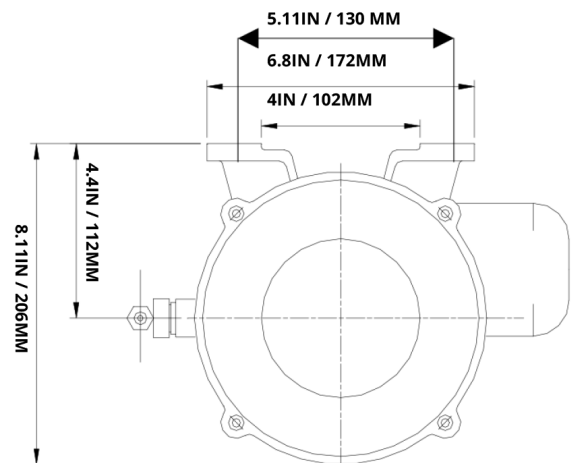
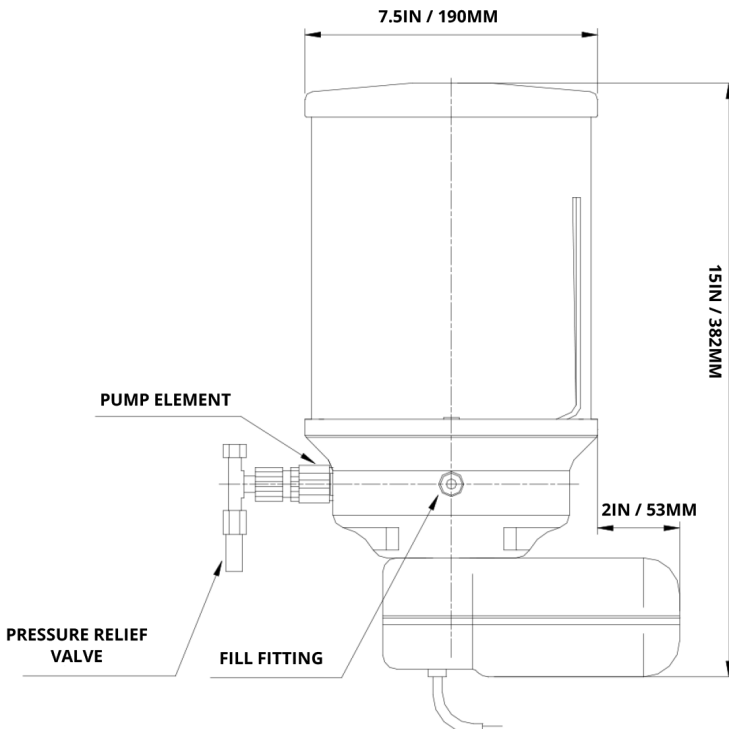
Reduced overtime expense - When automatic lubrication systems increase uptime, there is a reduction in the overtime labor needed to maintain the sites production plan.

TECHNICAL DATA (WITHOUT TIMER)

| | |
|-------------------------|---|
| Motor type | Electric |
| Power supply | 12 VDC or 24 VDC |
| Rotation speed | 20 RPM |
| Current | 1.1 A (at 4,351 PSI / 300 Bar and 60°F / 20° C) |
| Case protection | IP 65 |
| Reservoir | Polycarbonate |
| Reservoir Capacity | 3.5 KG, 6 KG, 8 KG |
| Max. working pressure | 4,351 PSI / 300 Bar |
| No. of pump elements | 1 to 4 |
| Pump delivery | .059 IN / 0.15 CM/hour (Each element) |
| Grease Delivery/hour | 43 IN / 110 CM/hour (Each element) |
| Working temp. | -22° to 176° F / -30° to + 80° C |
| Refilling nipple | Zerk Fitting (DIN 71412) |
| Supply grease connector | Tube .23 In / 6 MM |
| Electric cable | Length - 32 FT / 10 M |
| Lubricant | Grease NLGI 2 max |



Electric motor connection



LPE WITH 4KG RESERVOIR

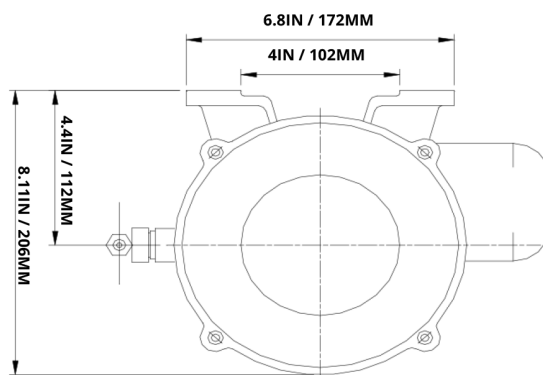
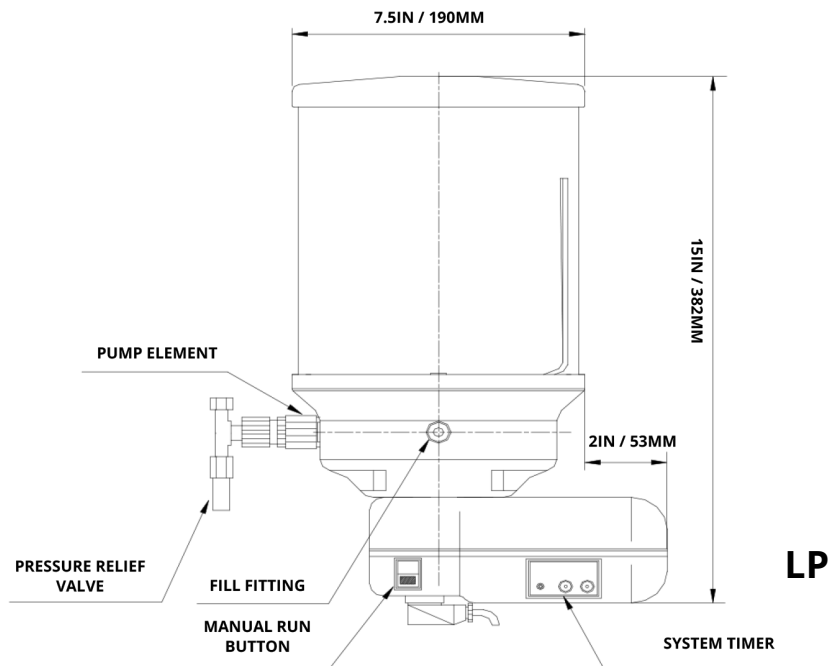
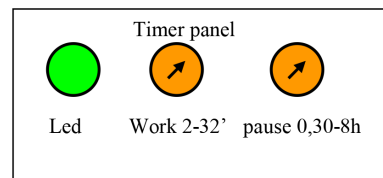
TECHNICAL DATA (WITH TIMER)

| | |
|-------------------------|---|
| Motor type | Electric |
| Power supply | 12 VDC or 24 VDC |
| Rotation speed | 20 RPM |
| Current | 0.8 A (at 4,351 PSI / 300 Bar and 60°F / 20° C) |
| Case protection | IP 65 |
| Reservoir | Polycarbonate |
| Reservoir Capacity | 3.5 KG, 6 KG, 8 KG |
| Max. working pressure | 4,351 PSI / 300 Bar |
| No. of pump elements | 1 to 4 |
| Pump delivery | .059 IN / 0.15 CM/hour (Each element) |
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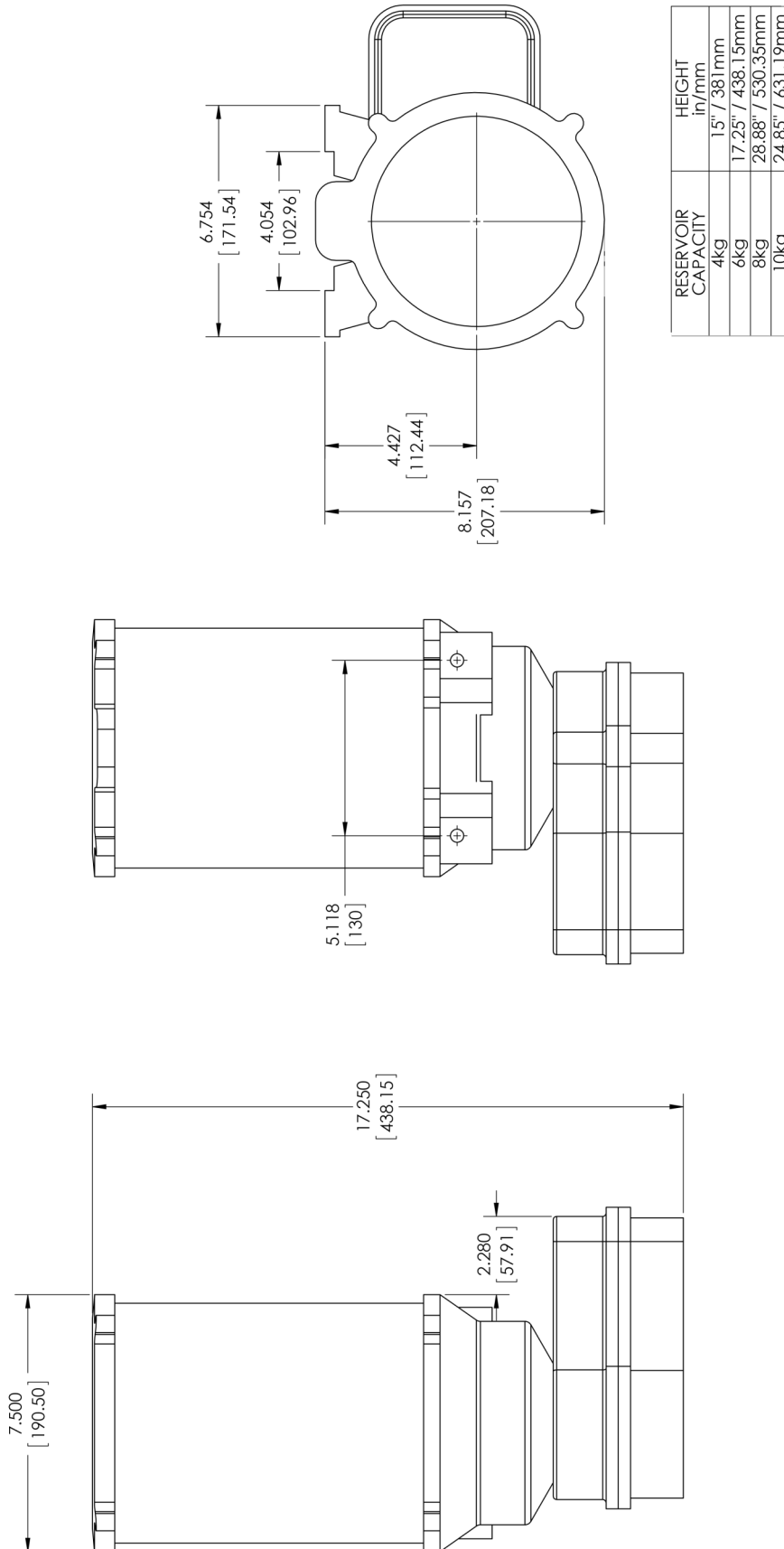
ELECTRIC TIMER

| | |
|-------------------|----------------------------------|
| Voltage supply | 10 - 30 VDC |
| Max. load current | 6 A (max) |
| Working temp. | -22° to 176° F / -30° to + 80° C |
| Timer function | Pause - Working |
| Working time | Adjustable from 2 to 32 min. |
| Pause time | Adjustable from 30 min to 8 h |



LPE TIMER WITH 4KG RESERVOIR

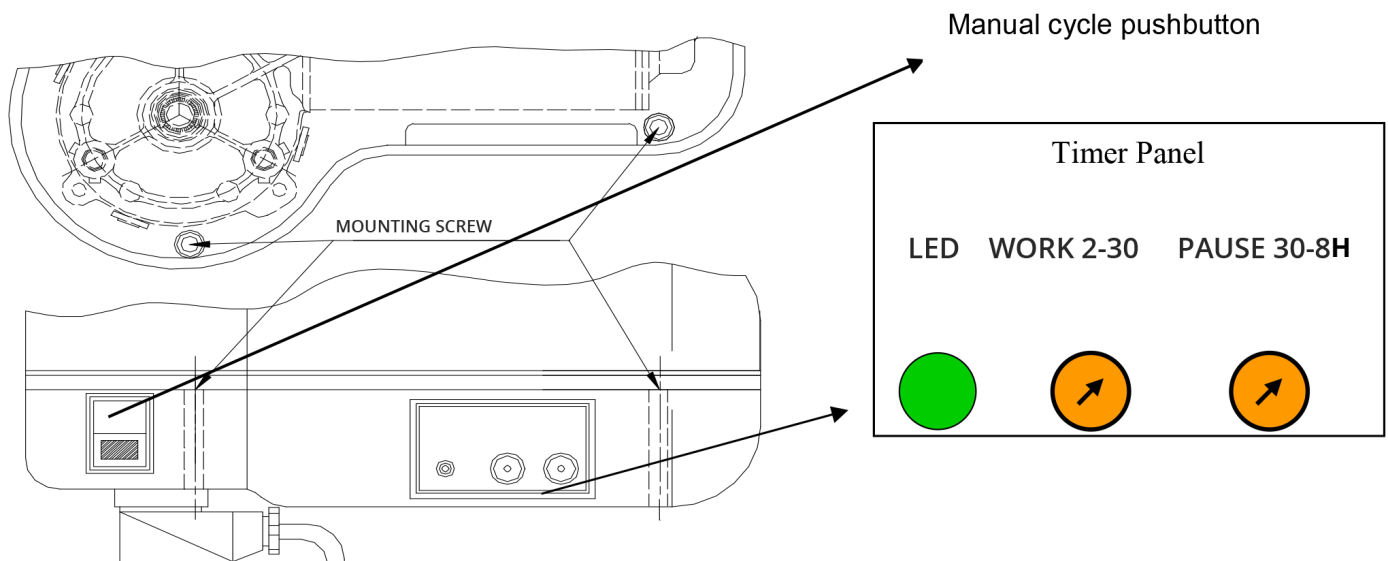
DIMENSIONS



TECHNICAL DATA LPE (WITH TIMER)

The electronic timer is used in systems where run time and dwell time need to be controlled. The timer is easy to use thanks to an adjustable timer positioned inside the lower cover. When the pump is switched on the LED will blink red for around 3 seconds: while it checks controls, once complete, the LED becomes green and the pump begins working.

The operation is controlled by the work and pause dials when the vehicle is turned off, the partial time of break is stored. The vehicle is switched on, the pump will begin operation after partial time has elapsed. When vehicle is turned on, the pump starts for two turns in order to test operation. Holding the manual button for 10 seconds begins continuous cycle of the pump, this stops when machine is turned off.



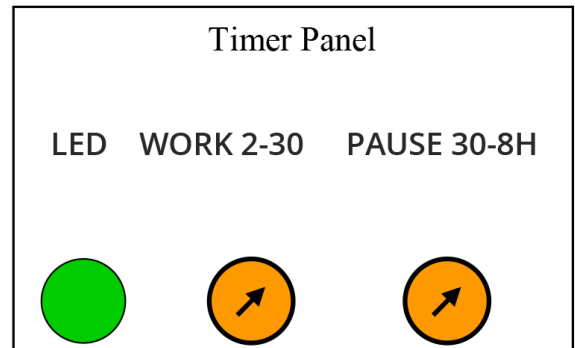
LOWER MOTOR HOUSING REMOVAL INSTRUCTIONS

Remove the 3 M5 mounting screws and slowly lower the lower housing, being careful not to damage the wiring. Before closing, ensure housing is free of debris and moisture.

PROGRAMMING LPE (WITH TIMER)

TWO COLORS LED RED/GREEN

FUNCTION: GREEN LED BLINKING – WORKING TIME (MOTOR IS RUNNING).
 GREEN LED FIXED - PAUSE TIME (MOTOR IS STOPPED)
 RED LED BLINKING - SWITCH ON PUMP TEST



SET-UP ELECTRONIC TIMER

WORKING TIME

- 2 = 2 min.
- 4 = 4 min.
- 6 = 6 min.
- 8 = 8 min.
- 10 = 10 min.
- ETC.

➔ INCREASE FROM 2 min. UP TO 30 min.

PAUSE TIME

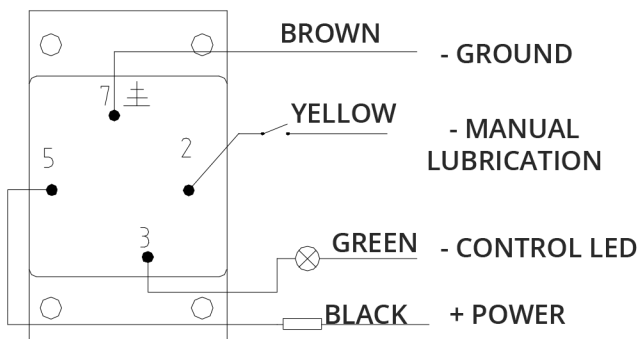
- 0.5 = 30 min.
- 1 = 1 hour
- 1.5 = 1 hour 30min
- 2 = 2 hours
- 2.5 = 2 hours 30 min.
- ETC.

➔ INCREASE FROM 30 min. UP TO 8 HOURS

Power Supply . 10 – 30 Vdc

Working time increase to 2 min. each step

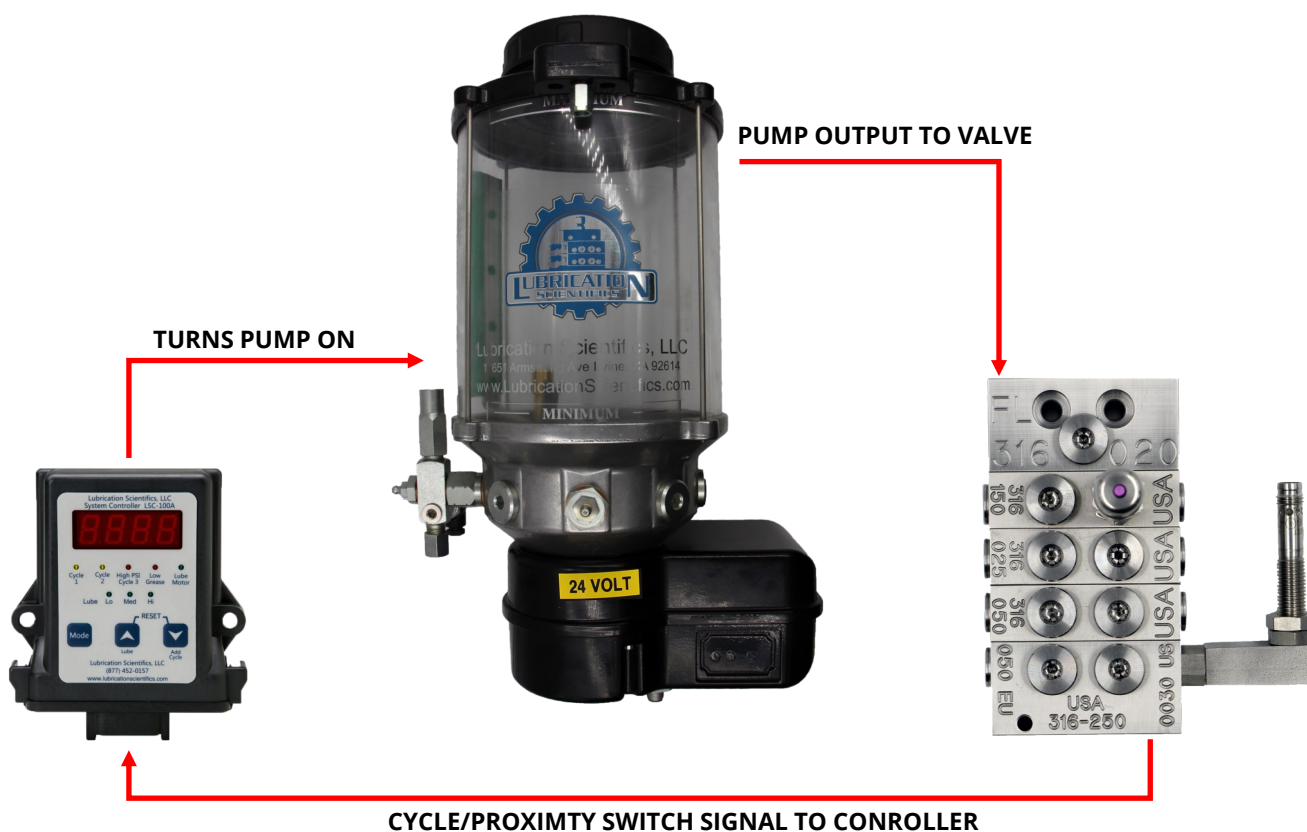
Pause time increase to 30 min. each step



REV. CONNECTION DRAWING 01-01-07

| | |
|--------------|--------------------|
| BROWN | -GROUND |
| YELLOW-GREEN | -GROUND PUSHBUTTON |
| BLUE | -GROUND LED |
| BLACK | +BATTERY |

CYCLE COUNTER MODE

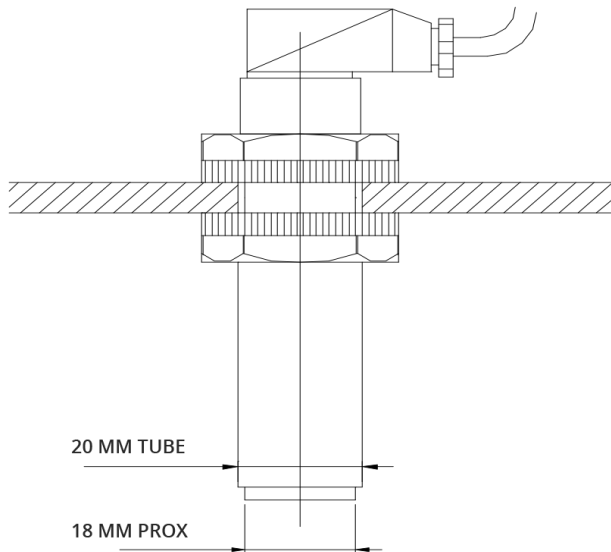


The LPE pump is also available in a version where a cycle counter is used in the master valve that is linked to a PLC. The pump will regularly begin working and the cycle counter will count the number of cycles that the piston performs inside the valve.

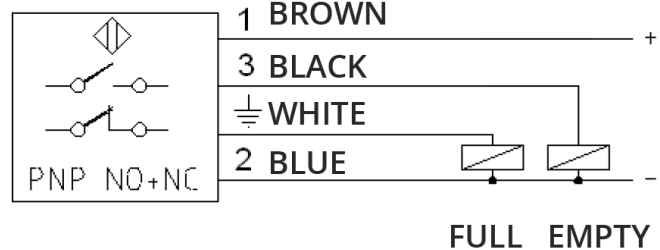
The number of cycles the piston performs is programmed in accordance to the job requirement. As soon as the piston has completed the last cycle, the cycle switch will switch the pump for the dwell time programmed on the PLC. In cases where the cycle switch doesn't reach desired count during the pump duration, an alarm signal is energized and the pump will be locked out of operation until the error is cleared.

OPTIONAL LOW LEVEL SENSOR

With the low level sensor, grease level can be monitored and communicated with built in timer or PLC. In the event of low grease, the system will shut off, avoiding damage to the system by running dry and filling lines with air.



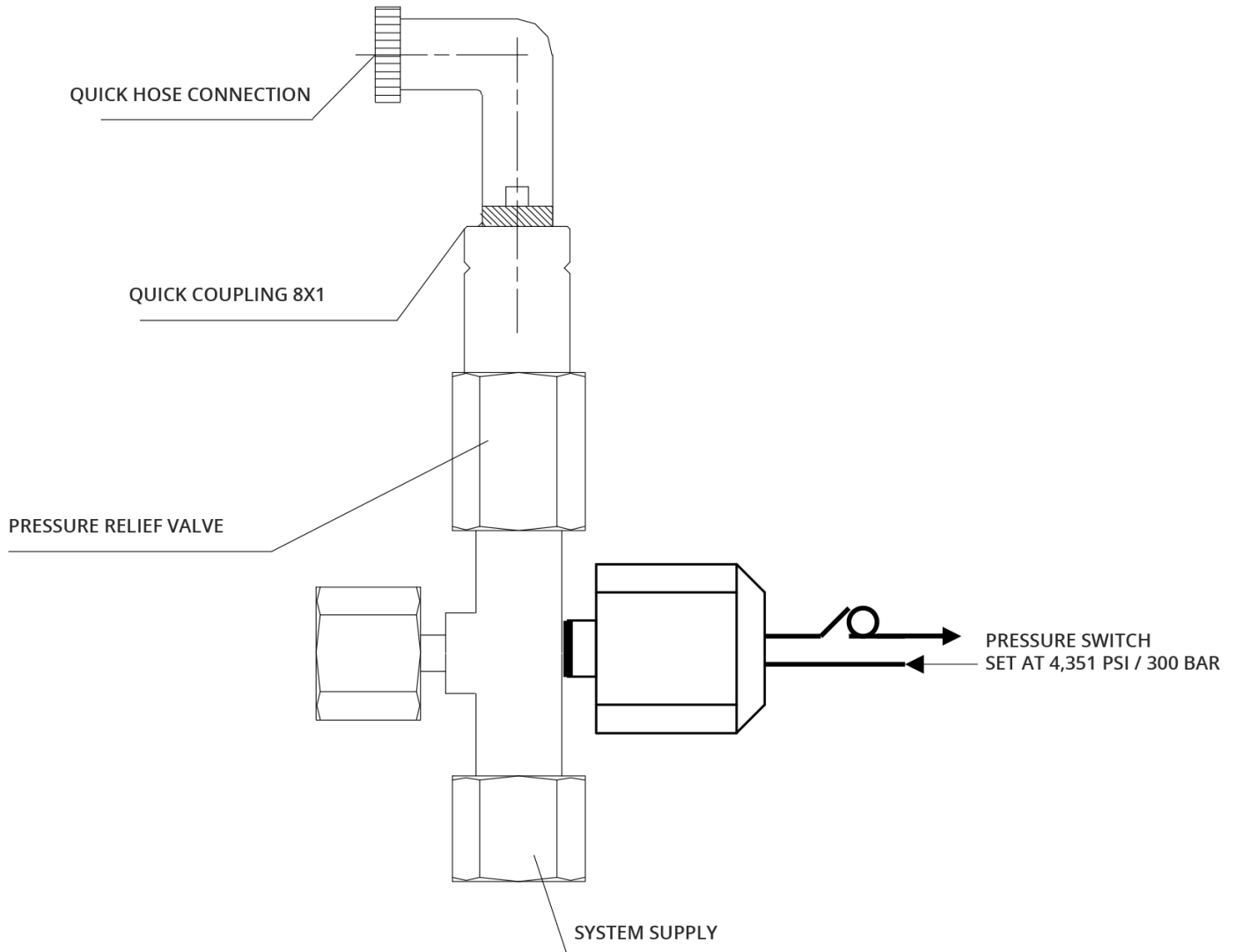
4 wires cable – Logic NPN NO+NC
(Available PNP NO+NC)



Technical data

| | |
|--------------------------|-------------------------------|
| Available logic | NPN NO+NC-PNP NO+NC |
| Code | TP1..... |
| Power Supply | 10 - 30 VDC |
| Switching distance | 0 - 10 MM (adjustable) |
| Logic | NPN or PNP |
| Output signal | NO+NC |
| Working frequency | 10 HZ |
| Max. current output | 200 MA |
| Min. output current | 10 MA |
| Voltage loss | < 1.8 V |
| Short circuit protection | Available |
| LED status | Available |
| Working temperature | -4° to 158° F / -20° to 70° C |
| IP protection grade | IP - 65 |
| Case material | Polycarbonate |
| Output connection | PVC cable |
| Weight | 3.5oz / 100g. |

HIGH PRESSURE SWITCH ON PRESSURE RELIEF VALVE (OPTIONAL)



If any valve in the system stops functioning, the system will go into high pressure and safety relief valve will open. Having a high pressure switch installed enables users to monitor the system status by tying into a PLC or alarm.

TROUBLESHOOTING

| ISSUE | POSSIBLE CAUSE | SOLUTION |
|--|--|--|
| Excess of grease on one or more point | * Valve with excessive output | Change valve size. |
| Excess grease on all points | * Excessive working time * Pause time too short | Decrease working time or increase pause time by means of electronic timer or controller. |
| Pump is not working (Wiper does not turn on) but LED is blinking | * Failure of electronic motor * Element incorrectly mounted | Replace pump. Verify correct positioning of element (see instruction manual). |
| Pump is not working (Wiper does not turn on) but LED is off | * Power supply is switched off * Failure of electronic timer | Verify that power and polarity are correctly connected. Replace electronic timer. |
| Pump working but grease is not feeding | * Empty reservoir * Air bubble near inlet zone * Element failure | Refill grease reservoir. Loosen pressure relief valve until grease exit and circuit is purged of air. Replace failed element. |
| Pressure relief valve activated by circuit point failure | * One or more points of circuit are obstructed * Valve seized * Hose/Pipe crushed or blocked | Verify the integrity of the lines and the valves. If damaged, replace. Clear blockages with high pressure grease gun. |
| Absence of collar of grease on a point | * Relative lubrication line damaged * Loosen fitting connection | Replace line, tighten fitting or replace if necessary. |
| Absence of collar of grease in all points of lubrication | * Working time too short * Pause time too long * Circuit jammed * Crushed line | Increase working time and decrease pause time by means of electronic timer/ controller. Verify integrity of lines. Check pressure relief valve for grease discharge. |
| Grease discharge at pressure relief valve | * Excessive pressure in circuit * Pressure relief valve spring jammed * Valve seized | Check all valve assemblies for functionality. Replace failed assemblies. If valves are operational, replace pressure relief valve. |

BLINKING LED CODE

- ⇒ When the pump is switched on the timer performs a test, if it's all OL the LED of the pump will be solid green: this means that the pump is ready to operate according to the times of work and pause planned. To start the pump press the red start button.
- ⇒ During the phases of work the LED of the pump flashed green.
- ⇒ When the pump detects a generic failure the LED flashed red.
- ⇒ If the failure is not reset in a short time, the LED becomes solid red, and the pump stops.

PUMPING ELEMENT REPLACEMENT

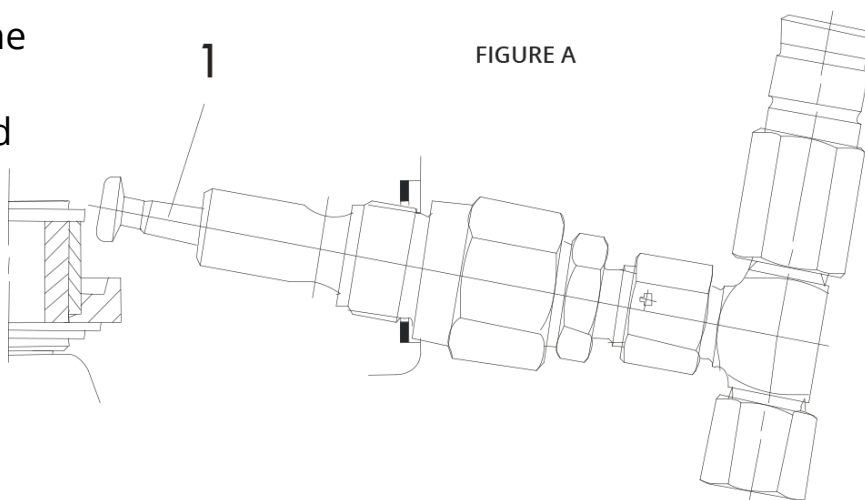
(FIGURE A)

To replace the element:

Slightly pull the piston out of the element.

Insert the element slightly tilted with the point of the piston turned up.

Try to hook the piston in the electronic bowl pushing the element down after having touched the eccentric with the head of the piston.

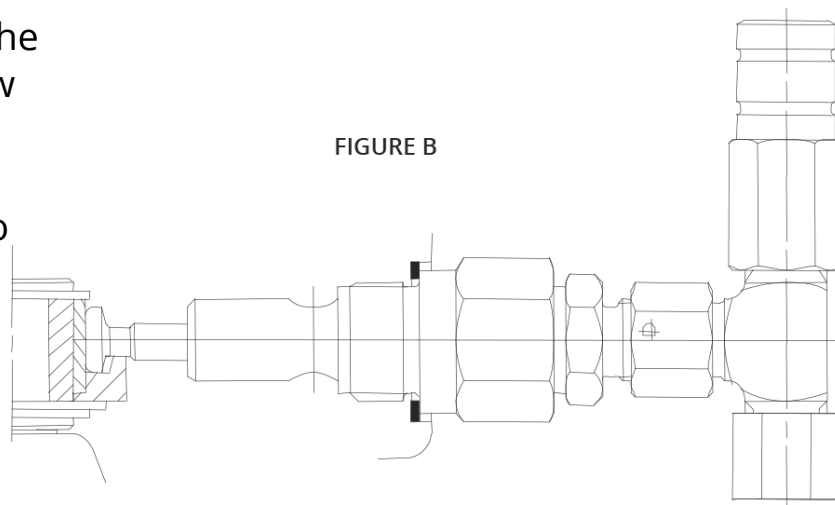


PUMPING ELEMENT INSERTION

(FIGURE B)

After having fit the piston into the eccentric, use a wrench to screw the element into reservoir.

Ensure the element is installed correctly by testing the pump to check if the wiper rotates properly. If the wiper does not rotate, re-install the element.



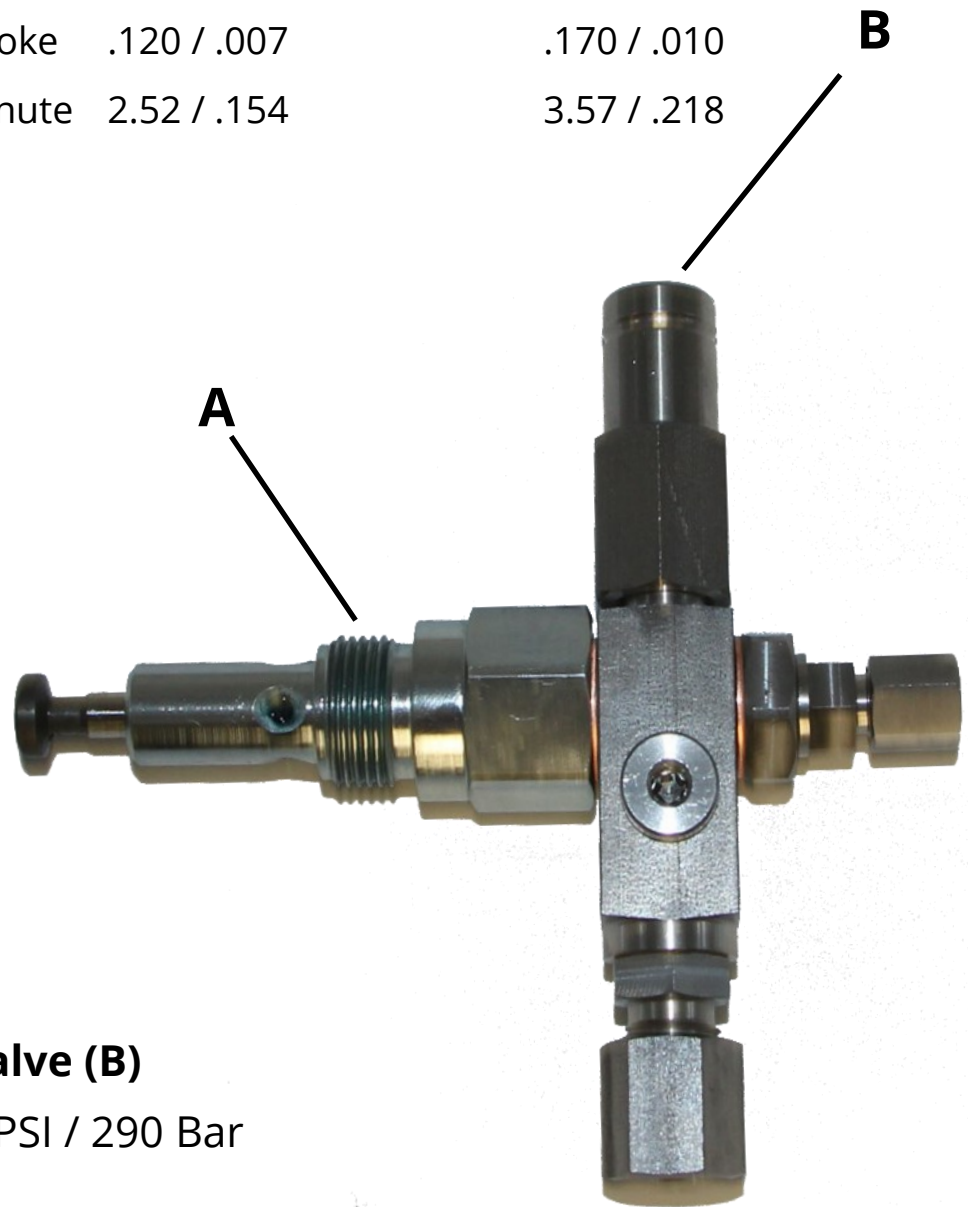
LPE Pump Element (A)

Fixed capacity pump element

Element body: hardened steel

Element Piston: Hardened steel

| | LDPE-120 | LDPE-170 |
|--|-----------------|-----------------|
| Piston Diameter | 6mm | 7mm |
| Output cm ³ /cu in per stroke | .120 / .007 | .170 / .010 |
| Output cm ³ /cu in per minute | 2.52 / .154 | 3.57 / .218 |



LPE Pressure relief valve (B)

Relief pressure: 4,200 PSI / 290 Bar

MAINTENANCE OF THE GREASING SYSTEM

- ⇒ Check if the green LED remains turned on when the pump is waiting for the periodic cycle.
- ⇒ Periodically check rotation of the pump.
- ⇒ Periodically check level of the grease in reservoir, refill if close to minimum level.
- ⇒ Periodically check integrity of lines.
- ⇒ Check lubrication points to verify correct lubrication.
- ⇒ Event of pump failure, use manual grease gun to cycle primary valve assembly of system.

REFILLING OF PUMP RESERVOIR

To refill reservoir of the pump, use fill ports located in front position, or install quick fill adapter.

DO NOT OVERFILL YOU WILL DAMAGE THE PUMP



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