

## DESCRIPTION

The Tri-Lube pump is a rugged, single or multiple-piston pump, driven by an electric motor. It is designed for use with Trabon Series Progressive Divider Valves, or may be connected directly to up to three individual lube points. Application is for all types of machinery using grease up through NLGI #2. The pump allows for mounting of one to three individual pumping elements, each having a fixed or adjustable output volume. (The standard version is provided with one pump element installed.) For applications where larger output volumes are required, the individual outputs from two or three pumping elements may be combined to a single output point. Each pumping element includes a pressure relief valve to protect the system against possible overpressure. Options include AC or DC electric motor, and two sizes of grease reservoirs (as listed in Specifications).

## OPERATION

The Tri-Lube pump is operated by an AC or DC electric gearmotor (see Figure 1) connected to an eccentric (1). As the eccentric rotates, it causes the pump piston (2) to move forward discharging lubricant past an internal check valve. As eccentric (1) continues to rotate, the pull back ring (3) forces the piston back to the prime position. Also attached to the drive shaft of gearmotor is a spatula that has an angled surface that forces grease into each pump cavity as it rotates; assisting with pump priming.

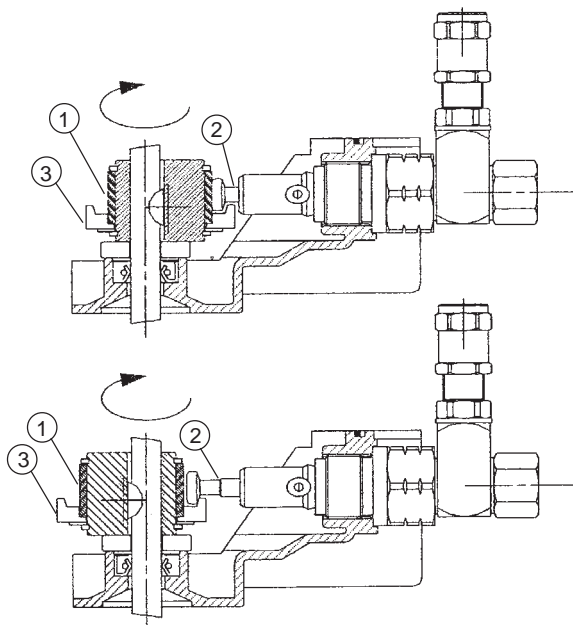


Figure 1



Tri-Lube with DC Motor



Tri-Lube with AC Motor

## FEATURES

- One to three pumping elements.
- Fixed or adjustable output.
- AC or DC operation, for use where air or hydraulic power is not available and/or desired.
- DC units suitable for outdoor applications on mobile equipment.
- Grease units fitted with a rotating spatula that facilitates priming of pumping elements with heavy grease.
- Reservoirs available with two different capacities to match refill frequency to system size and usage.
- Low level switch with every pump package

## ADDING PUMPING CARTRIDGES

**CAUTION:** To avoid personal injury or severe internal damage to the drive-train, or pump cartridge, these procedures must be followed carefully.

1. Disconnect power to the pump motor.
2. Remove sealing plug 1 (figure 2a).
3. Pull out pump piston 2 until it extends approximately 1 1/8" (29 mm) from end of cylinder to end of mushroom head.
4. Insert cartridge into housing at approximately a 15 degree angle as shown in figure 2b.

**NOTE:** If pump is full of grease, it will be necessary to clear a path through the grease using a clean screwdriver.

5. Rotate cartridge down (figure 2c) engaging mushroom head between cam 3 and retracting ring 4.
6. Tighten cartridge 18-22 ft-lbs (25-30 N-m). Do not over torque as housing threads will be stripped.
7. Fill reservoir with clean grease (See Pg. 3) and run pump for 1 minute to check for grease output. If none is seen, it could indicate that the cartridge was not properly installed.

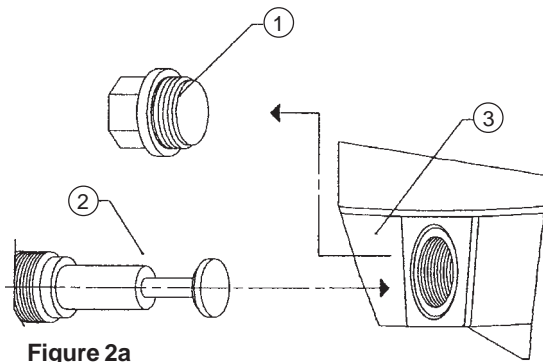


Figure 2a

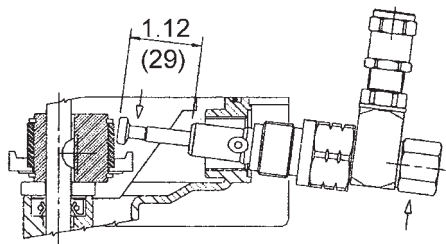


Figure 2b

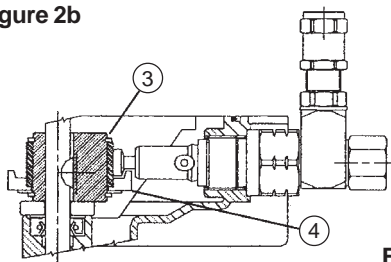


Figure 2c

## ADJUSTMENTS

### Adjusting the Relief Valve

Each pumping element incorporates an adjustable relief valve to protect the system against overpressure. The relief setting can be adjusted by loosening the locking nut (1, see Figure 3) and turning the cap clockwise to increase the relief pressure, and counterclockwise to decrease the relief pressure, as required by the system application.

**CAUTION:** Do not adjust above 3600 psi (250 bar) as pump or motor damage may result.

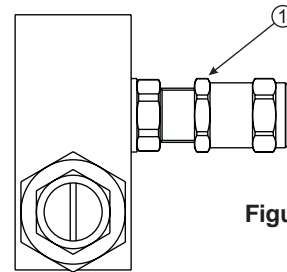


Figure 3

### Pump Output Adjustment

The nominal delivery rate of the pumping element can be adjusted by loosening the locking nut (1, see Figure 4) and rotating the adjustment screw (2) clockwise to reduce delivery, or counterclockwise to increase delivery of the lubricant. The output adjustment table describes the equivalent outputs that can be obtained by varying the distance of the adjustment screw. (A, see Table 1)

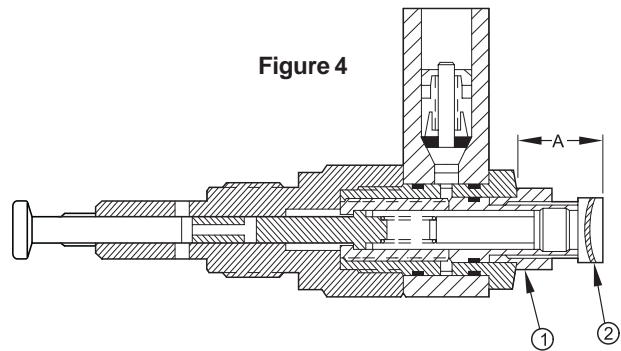


Figure 4

Table 1. Output Adjustment

A (mm) in	Flow Rate/Cycle (cc) in <sup>3</sup>	Output %
(24.0) 0.94	(0.16) 0.010	100
(22.5) 0.89	(0.12) 0.007	75
(21.0) 0.83	(0.08) 0.005	50
(19.5) 0.77	(0.04) 0.002	25
(18.5) 0.73	(0.01) 0.0006	6
(17.5) 0.69	(0) 0	0

### Fill Procedure

The reservoir should be filled with clean air free grease of the type recommended by the machine builder and having an NLGI grade number consistent with the ambient operating temperature of the equipment.

### Reservoirs without Level Switch

Filling is accomplished by connecting a suitable transfer pump to the hydraulic lube fitting in the front of the pump housing. Fill until lubricant level rises to, but not over the overflow hole in the side of the reservoir.

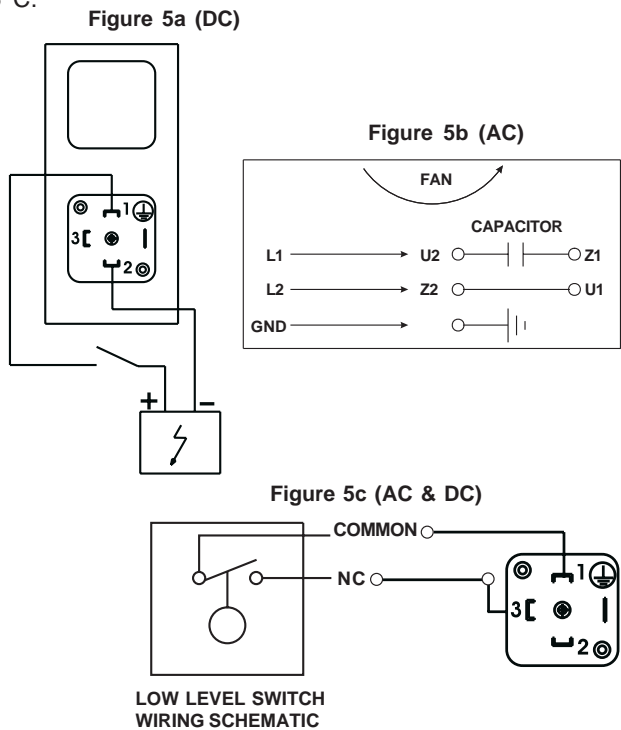
### Reservoirs with Low Level Switch

Fill in the same manner as described above except for the initial filling, or any time the reservoir is pumped empty, or if air is pumped into the reservoir from the fill pump. Fill until the follower seal is just above the overflow hole in the side of the reservoir. This will allow air trapped between the follower and the grease to exhaust out the overflow hole. When grease, free of air, exits the overflow tube, stop filling.

**CAUTION:** Failure to properly bleed air from the reservoir can cause the follower to hang up in mid travel and thus prevent the follower activated low level switch from initiating a low level signal.

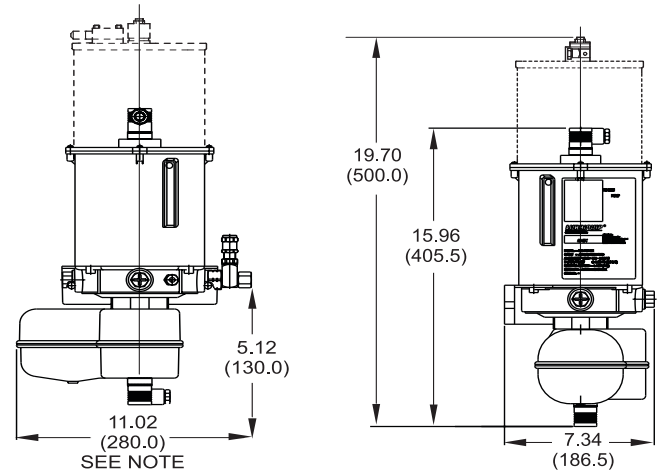
### Electrical Connections

The electrical connections are shown in figures 5a-5c. Wiring to the AC motor and switch should be 16 AWG stranded wire and insulation rated for 115/230 VAC and 105°C.



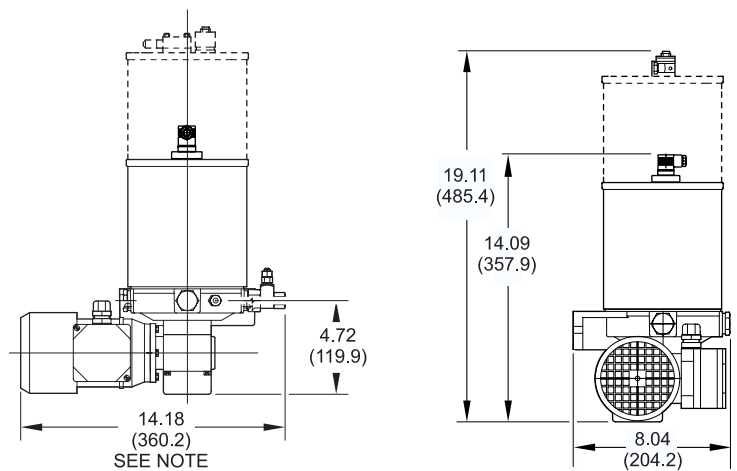
### DIMENSIONS

Dimensions shown on this page are for both reservoirs. The 4.4 lb size is shown in solid lines, the 11 lb size is represented by the dashed lines.



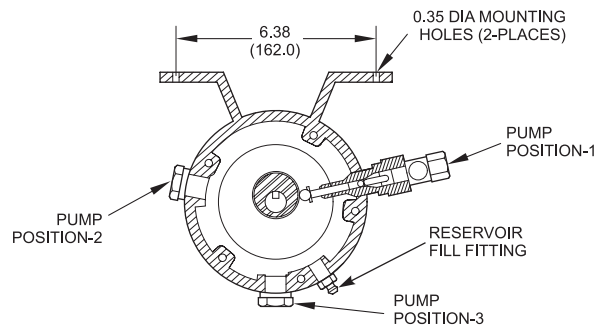
DC Motor, Front View

DC Motor, Side View



AC Motor, Front View

AC Motor, Side View



Top View, DC and AC

NOTE - Dimension is based on a fixed pumping element (shown). Add 0.67 inches for adjustable pumps.

## ORDERING INFORMATION

Part Number	Motor	Cycle	Pump	Single Pump Output cc (cu in) per min	Reservoir Size & Material	Low Level Switch
529-900-300	24 VDC	15 RPM	One Adj.	0.15-2.4 (0.09-0.15)	2 kg (4.4 Lb) Plastic	Yes
529-900-301	24 VDC	15 RPM	One Fix.	2.4 (0.15)	2 kg (4.4 Lb) Plastic	Yes
529-900-310	12 VDC	15 RPM	One Adj.	0.15-2.4 (0.09-0.15)	2 kg (4.4 Lb) Plastic	Yes
529-900-320	115 VAC, 1ph	20 RPM	One Adj.	0.20-3.2 (0.12-0.20)	2 kg (4.4 Lb) Plastic	Yes
529-900-330	230 VAC, 1ph	20 RPM	One Adj.	0.20-3.2 (0.12-0.20)	2 kg (4.4 Lb) Plastic	Yes
529-900-340	24 VDC	15 RPM	One Adj.	0.15-2.4 (0.09-0.15)	5 kg (11.0 Lb) Metal	Yes
529-900-350	230 VAC, 1ph	20 RPM	One Adj.	0.15-2.4 (0.09-0.15)	5 kg (11.0 Lb) Metal	Yes
529-900-360	230/460 VAC, 3ph	20 RPM	One Fix.	2.4 (0.15)	2 kg (4.4 Lb) Plastic	Yes
529-900-370	230/460 VAC, 3ph	20 RPM	One Fix.	2.4 (0.15)	5 kg (11.0 Lb) Metal	Yes
529-900-380	115 VAC, 1ph	20 RPM	One Adj.	0.20-3.2 (0.12-0.20)	5 kg (11.0 Lb) Metal	Yes

Replacement Power Retract Pumping Elements For Current Pumps.

**Note: Will not work in older spring return pumps.**

529-905-090 Fixed Pumping Element

529-905-100 Adj. Pumping Element

Replacement Spring Return Pumping Elements For Older Spring Return Pumps.

**Note: Will not work in current power retract pumps.**

529-905-010 Fixed Pumping Element

529-905-020 Adj. Pumping Element

## SPECIFICATIONS

### Output per Cycle:

Fixed Pump Element ..... (0.16 cc) 0.010 in<sup>3</sup>

### Output per Cycle:

Adjustable Pump Element  
..... (0.01 - 0.16 cc) 0.0006 - 0.010 in<sup>3</sup>

**Cycles per min (RPM):** ..... DC 15, AC 20

**Pressure** ..... Relief Valve Protected 34 - 250 bar  
(500 - 3600 psi )

### Ambient Temperature

**Operating Range:** ..... -20°C (-4°F) to +8°C (176°F)

**Outlet Connection** ..... 1/4-18 NPT

### Motor Data:

12 VDC motor ..... 40W, 3.0A at 3500 psi, 40% duty cycle\*  
 24 VDC motor ..... 30W, 1.5A at 3500 psi, 30% duty cycle\*  
 110 VAC motor ..... 1 ph, 50/60 hz, 90W, cont duty cycle,  
 In-rush Current: ..... 4.2A @ 50 hz, 4.3A @ 60 hz  
 Running Current: ..... 2.1A @ 50 hz, 2.15A @ 60 hz  
 Full Load Current ..... 2.3A  
 220 VAC motor ..... 1 ph, 50/60 hz, 90W, cont duty,  
 In-rush Current: ..... 1.8A @ 50 hz, 1.86A @ 60 hz  
 Running Current: ..... 0.9A @ 50 hz, 0.93A @ 60 hz  
 Full Load Current ..... 0.9A

### Motor Data Cont'd:

220/265/380/460 VAC ..... 3ph, 50/60 hz, 90W cont. duty

**220-265** **380-460**

In-Rush Current: 2.02A 1.15A

Running Current: 0.63A 0.36A

### Low level switch:

2 kg (4.4 lb) ..... 0.5A-250 VAC, 50W-150 VDC

5 kg (11 lb) ..... 5A-250 VAC, 80W-150 VDC

\* Maximum run time not to exceed 30 minutes.

## Reservoir Capacities

Grease ..... 2 kg (4.4 lbs) Plastic;  
5 kg (11.0 lbs) Metal

## Lubricants

Grease (Depending on ..... NLGI #2 (max.)  
ambient conditions)