

Tri-Lube Pump Packages

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.

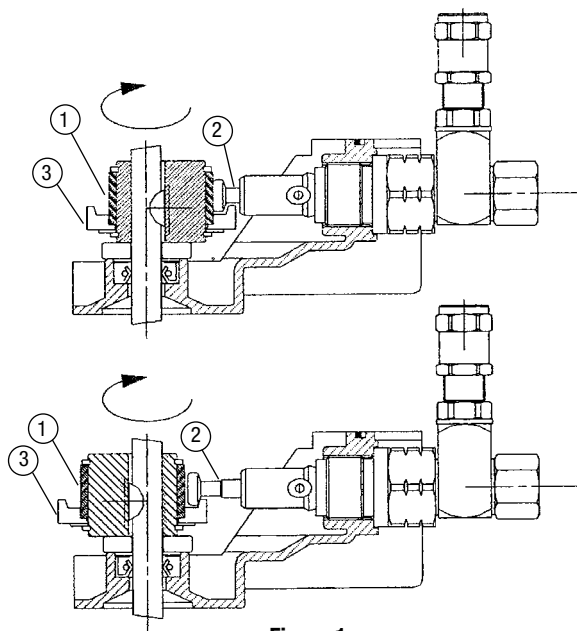


Figure 1



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 29 mm (1 1/8") 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 25-30 N-m (18-22 ft-lbs). 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.

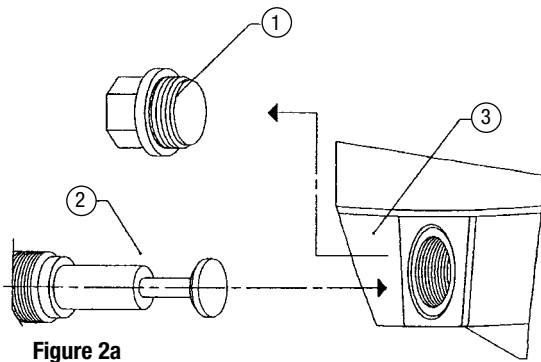


Figure 2a

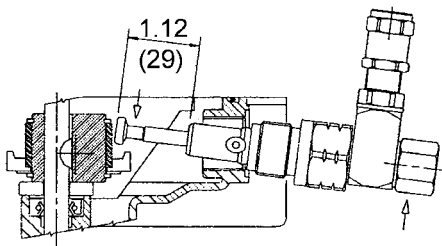


Figure 2b

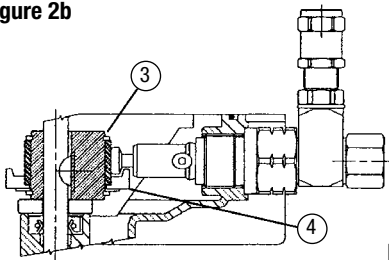


Figure 2c

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 200 bar (2900 psi) for DC pumps or 350 bar (5075 psi) for AC pumps as pump or motor damage may result.

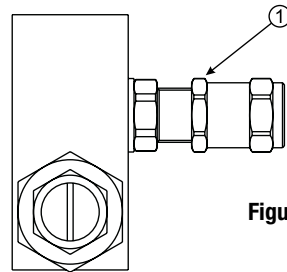


Figure 3

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)

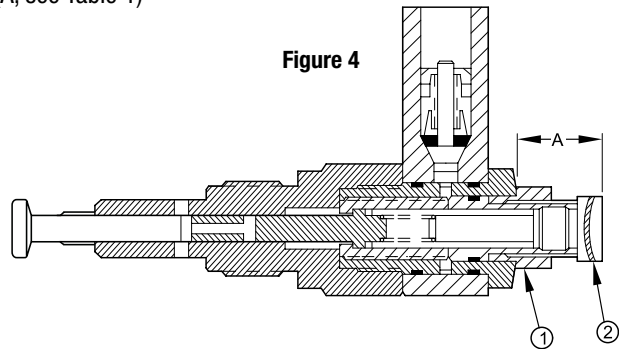


Figure 4

Table 1. Output Adjustment

A		Flow Rate/Cycle		Output
(mm)	in	(cc)	in ³	%
(24.0)	0.94	(0.16)	0	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)	0.001	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 Low 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 out 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-5d. Wiring to the AC motor and switch should be 16 AWG stranded wire and insulation rated for 115/230 VAC and 105°C.

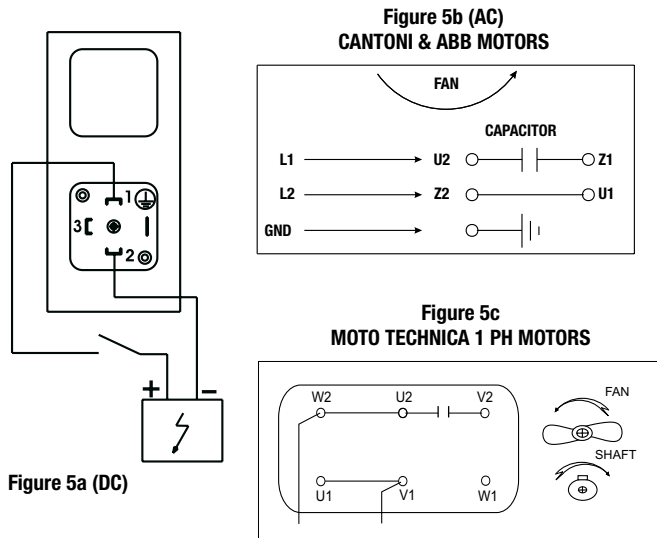
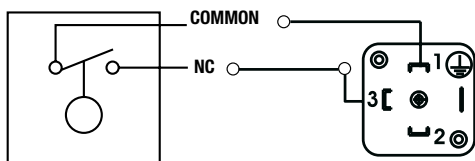


Figure 5a (DC)

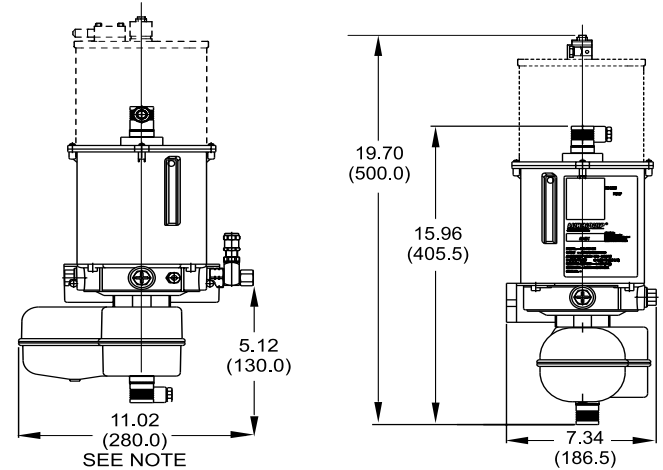
Figure 5d (AC & DC)



LOW LEVEL SWITCH WIRING SCHEMATIC

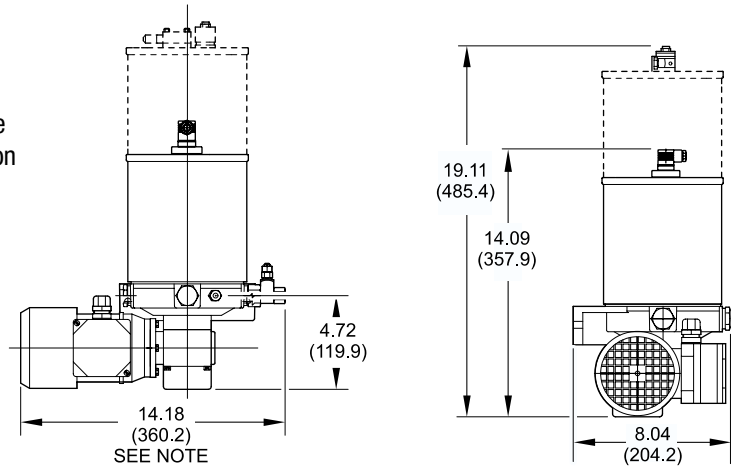
DIMENSIONS

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.



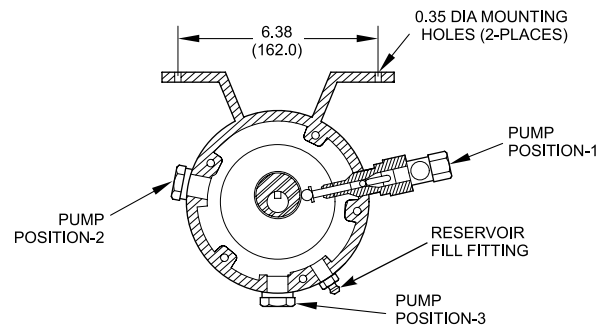
DC Motor, Front View

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 No.	Old Part No.	Motor	Cycle	Pump	Single Pump Output cc (cu in) per min	Reservoir Size & Material	Low Level Switch
563550	529-900-300	24 VDC	15 RPM	One Adj.	0.15-2.4 (0.09-0.15)	2 kg (4.4 Lb) Plastic	Yes
563551	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
564408	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
564409	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
564410	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.							
558944	529-905-090	Fixed Pumping Element					
558945	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					

SPECIFICATION	
Output per Cycle	
Fixed Pump Element	0.16 cc (0.010 in ³)
Adjustable Pump Element	0.01-0.16 cc (0.0006-0.010 in ³)
Cycles per Min (RPM)	DC 15, AC 20
Pressure Adjustable	870-5800 psi (60-400 bar) Relief Valve Factory set at 2900 psi (200 bar)
Max Operating Pressure	
DC	2900 psi (200 bar)
AC	5075 psi (350 bar)
Ambient Temperature	
Operating Range	-4°F to 176°F (-20°C to 80°C)
Outlet Connection	1/4-18 NPT
Motor Data	
12 VDC	40W, 3.0A at 3500 psi, 40% duty cycle*
24 VDC	30W, 1.5A at 3500 psi, 30% duty cycle*
110 VAC	1 pH, 50/60 Hz, 90W, cont duty cycle
In-rush Current	4.2A @ 50 Hz, 2.15A @ 60 Hz
Running Current	2.1A @ 50 Hz, 2.15A @ 60 Hz
Full Load Current	2.3A

SPECIFICATION	
Motor Data Continued	
220 VAC	1 pH, 50/60 Hz, 90W, cont duty cycle
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
220/265/380/460 VAC	3 pH, 50/60 Hz, 90W cont duty cycle
In-rush Current: 220-265	2.02A
Running Current: 220-265	0.63A
In-rush Current: 380-460	1.15A
Running Current: 380-460	0.36A
Low Level Switch	Max run time not to exceed 30 min
2 kg (4.4 lb)	0.5A-250 VAC, 5W-150 VDC
5 kg (11 lb)	5A-250 VAC, 80W-150 VDC
Reservoir Capacities	
Grease	2 kg (4.4 lb) Plastic 5 kg (11 lb) Metal
Lubricants	
Grease	Depending on NLGI #2 (max) ambient conditions

All written and visual data contained in this document are based on the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

Contact us today!

To receive product information or talk with a Graco representative, call 800-533-9655 or visit us online at www.graco.com.

