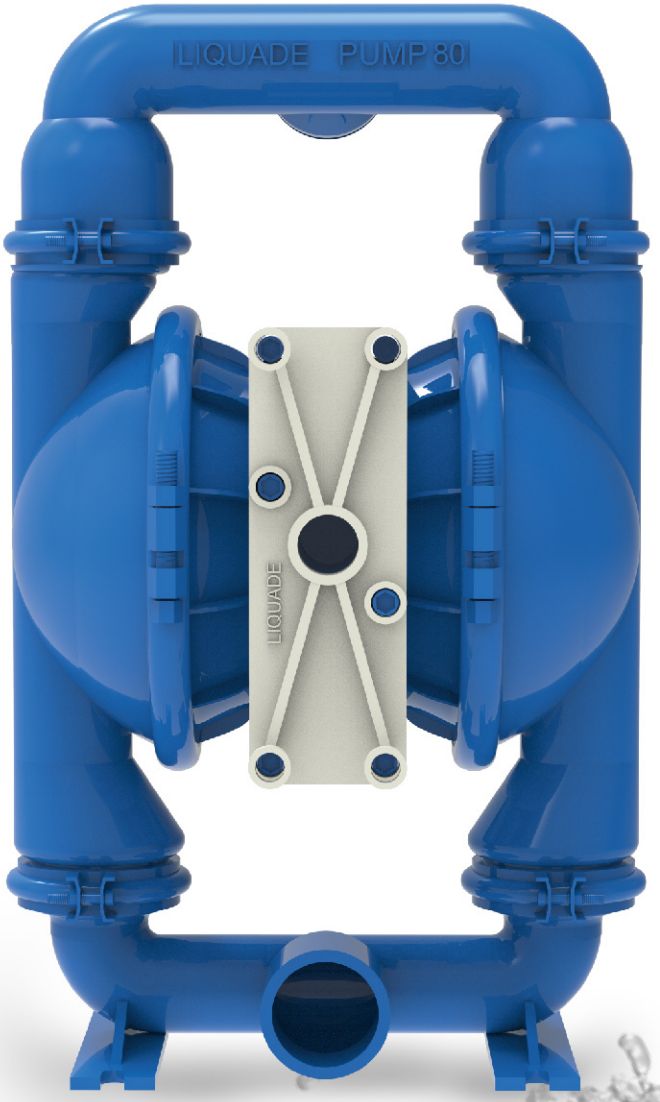
LIQUADE®

EOM

Engineer Operation
& Maintenance



GT 80

Metal Pumps

CE

CONTENTS

SECTION 1

CAUTIONS—READ FIRST!

TEMPERATURE LIMITS:

Material	Temperature Limit (Celsius)	Temperature Limit (Fahrenheit)
Polypropylene	0°C to 79°C	+32°F to 175°F
PVDF	–12°C to 107°C	+10°F to 225°F
Santoprene	–40°C to 107.2°C	–40°F to +225°F
Neoprene	–17°C to 93.3°C	0°F to 200°F
BUNA	–12°C to 82°C	10°F to 180°F
VITON	–40°C to 176.7°C	-40°F to 350°F
EPDM	–51°C to 137.8°C	-60°F to 280°F
SANIFLEX	–28.9°C to 104.4°C	–20°F to 220°F
PTFE	–12°C to 107°C	+32°F to 175°F

CAUTIONS:

All wetted components have temperature limit, this must be taken in to consideration when selecting pump materials. For example: PTFE has a maximum limit of 104.4°C (220°F) but Polypropylene has a maximum limit of only 79°C (175°F).

- Maximum temperature limits are based upon mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperatures. Refer to engineering guide for chemical compatibility and temperature limits.

  Diaphragm rupture might happen during pumping operation, this will result in the liquid being pumped to be force out of the air exhaust muffler. Therefore, it is important to wear safety glasses throughout the operation.

- Do not exceed 8.62 bar (125 psig) air supply pressure.

- Detach the compressed air line from the pump before carry out maintenance and repair as this helps to release all air pressure from the pump and follow by disconnect all suction, discharge and air line. Drain the pump by turning it upside down and allowing any fluids to flow into a suitable container.

- Blow out the air line for 10 to 20 seconds before connecting to pump to ensure all pipe lines are free from particles. Use an in-line air filter. A 5µ (micron) air filter is recommended.

- Check the chemical compatibility of the process and cleaning fluid to the material of the pump's component in the Chemical Resistance Guide.

- The GT80 pump is not submersible.

SECTION 1

CAUTIONS—READ FIRST!

WARNING:

- Prevention of static sparking – Fire or explosion might take place if static sparking occurs. Thus, it is important to ground all pump, valves and containers when dealing with ignitable liquids and whenever discharge of static electricity is a hazard.

NOTES:

- Before starting disassembly, mark a line from each liquid chamber to its corresponding air chamber. This line will assist in proper alignment during reassembly.
- Fitting may loosen during transportation, it is always important to tighten the clamp bands and retainers before installation.
- When installing PTFE diaphragms,it is important to tighten piston outer simultaneously (turning in opposite directions) to ensure tight fit.

SECTION 2

GT80 METAL PUMP DESIGNATION SYSTEM

LIQUADE Pump Model Description Chart:

GT80	A	A	P	T	T	A	XXX
Model	Housing	Center Body	Air Valve	Diaphragms	Valve Ball	Valve Seat	Specialty

GT: Air-operated diaphragm pump, GT-Series

Model: Port size, 76 mm (3")

Housing material:
A=ALUMINUM
S=STAINLESS STEEL
W=IRON

Center Body material:
P=POLYPROPYLENE
CP=CONDUCTIVE POLYPROPYLENE
A=ALUMINUM

Air Valve material:
P=POLYPROPYLENE
CP=CONDUCTIVE POLYPROPYLENE
A=ALUMINUM

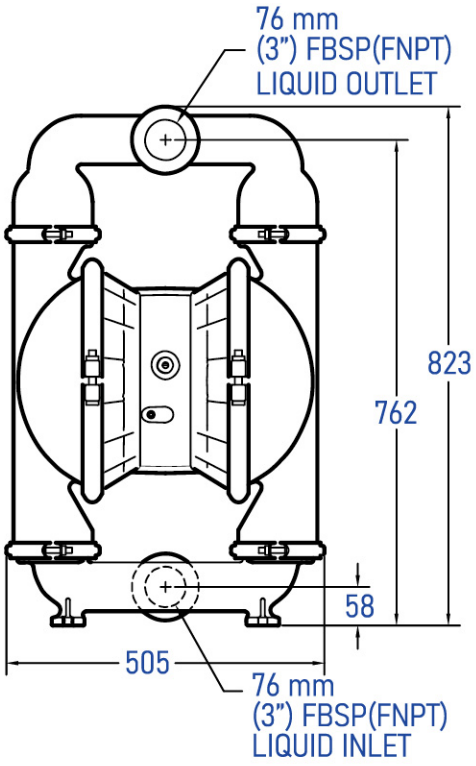
Diaphragm material:
T=PTFE
N=NEOPRENE
W=SANTOPRENE
B=BUNA
V=VITON
E=EPDM
H=HYTREL

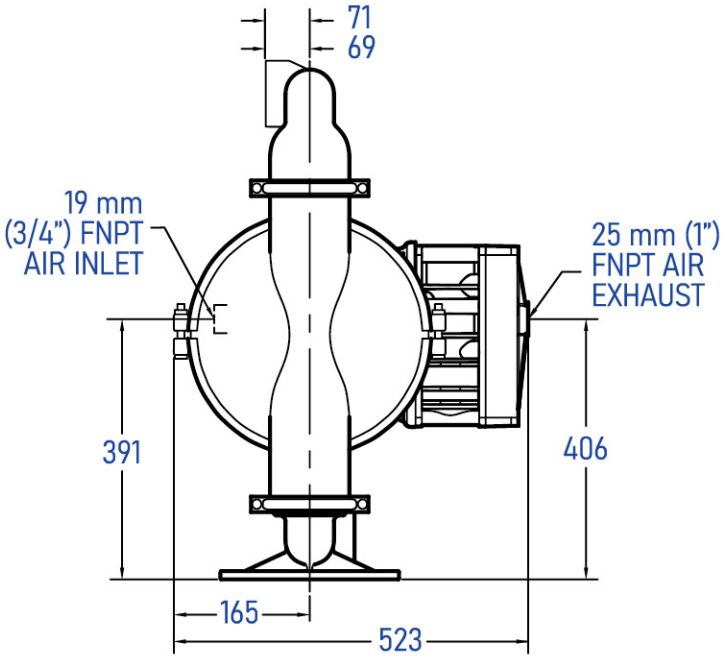
Valve Ball material:
T=PTFE
N=NEOPRENE
W=SANTOPRENE
B=BUNA
V=VITON
E=EPDM
H=HYTREL

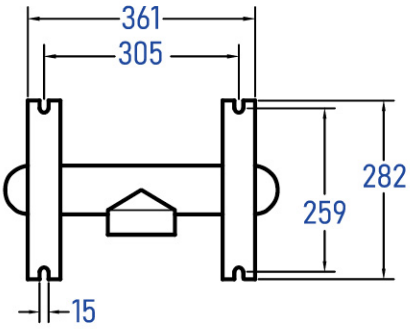
Valve Seat material:
A=ALUMINUM
N=NEOPRENE
W=SANTOPRENE
B=BUNA
V=VITON
E=EPDM
S=STAINLESS STEEL
H=HYTREL

SPECIALTY :
CH=PTFE coated hardware
AT=ATEX certificate
FDA=FDA certificate
BT=BSPT thread
NT=NPT thread

DIMENSIONAL DRAWINGS





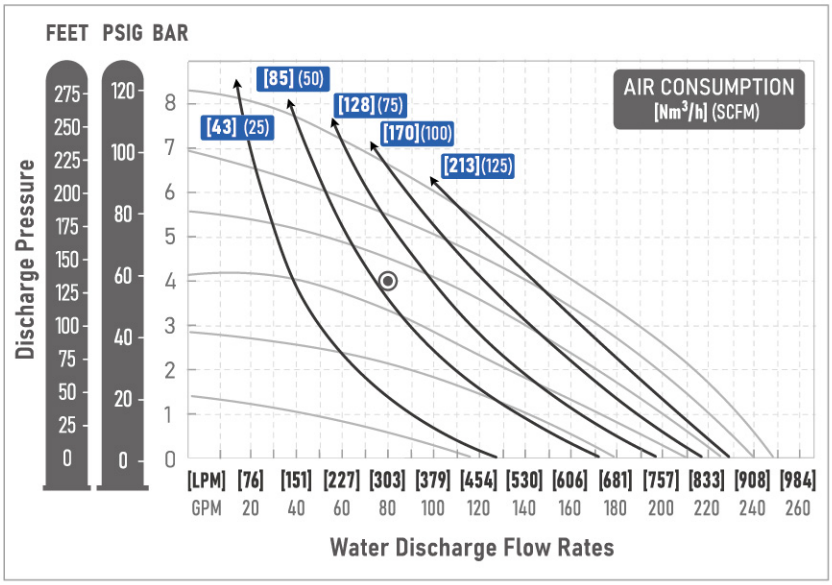


GT80 METAL RUBBER -FITTED

Height ---------- 823 mm (32")
Width ---------- 505 mm (20")
Depth ---------- 523 mm (21")
Est. Ship Weight ------- Aluminum 62 kg (137 lbs)
316 Stainless Steel 90kg (200 lbs)
Cast Iron 98 kg (216 lbs)
Air Inlet ---------- 19 mm (3/4")
Inlet ---------- 76 mm (3")
Outlet ---------- 76 mm (3")
Suction Lift ---------- 6.5 m Dry (22')
9 m Wet (30')
Displacement Per Stroke
---------- 5.6 l gal. (1.5)[1]
Max. Flow Rate ------- 920 lpm (243 gpm)
Max. Size Solids ---------- 9.5 mm (3/8")

[1]Displacement per stroke was calculated at 4.8 bar (70 psig) air inlet pressure against a 2 bar (30 psig) head pressure.

Example: To pump 303lpm (80 gpm) against a discharge pressure head of 4 bar(60 psig) requires 5 bar(70 psig) and 110 Nm³/h (65 scfm) air consumption. (See dot on chart.)
Caution: Do not exceed 8.6 bar (125 psig) air supply pressure.



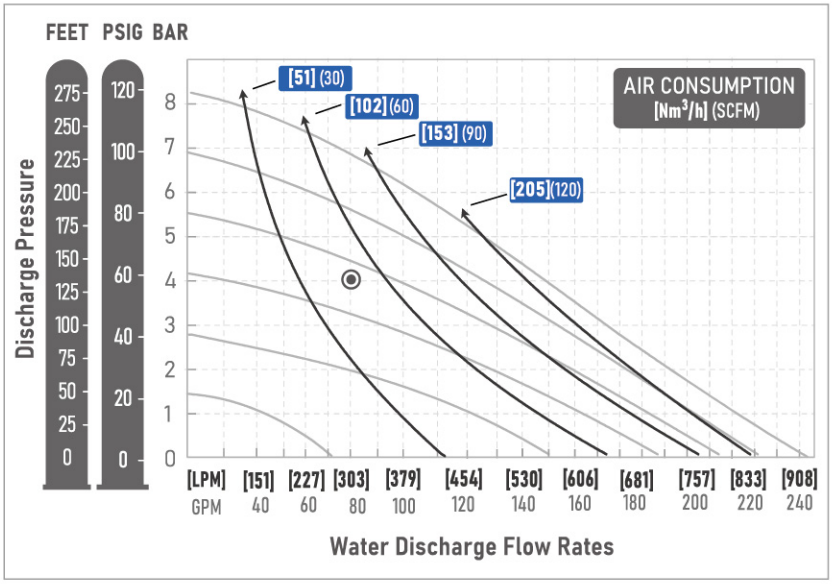
Flow rates indicated on chart were based on pumping water.
For optimum life and performance, pumps should be specified so that daily operation parameters will fall in the center of the pump performance curve.

GT80 METAL TPE -FITTED

Height ---------- 823 mm (32")
Width ---------- 505 mm (20")
Depth ---------- 523 mm (21")
Est. Ship Weight ------- Aluminum 62 kg (137 lbs)
316 Stainless Steel 90kg (200 lbs)
Cast Iron 98 kg (216 lbs)
Air Inlet ---------- 19 mm (3/4")
Inlet ---------- 76 mm (3")
Outlet ---------- 76 mm (3")
Suction Lift ---------- 6.5 m Dry (22')
9 m Wet (30')
Displacement Per Stroke
---------- 5.6 l gal. (1.5)[1]
Max. Flow Rate ------- 890 lpm (238 gpm)
Max. Size Solids ---------- 9.5 mm (3/8")

[1]Displacement per stroke was calculated at 4.8 bar (70 psig) air inlet pressure against a 2 bar (30 psig) head pressure.

Example: To pump 303lpm (80 gpm) against a discharge pressure head of 4 bar(60 psig) requires 5 bar(70 psig) and 75 Nm³/h (45 scfm) air consumption. (See dot on chart.)
Caution: Do not exceed 8.6 bar (125 psig) air supply pressure..



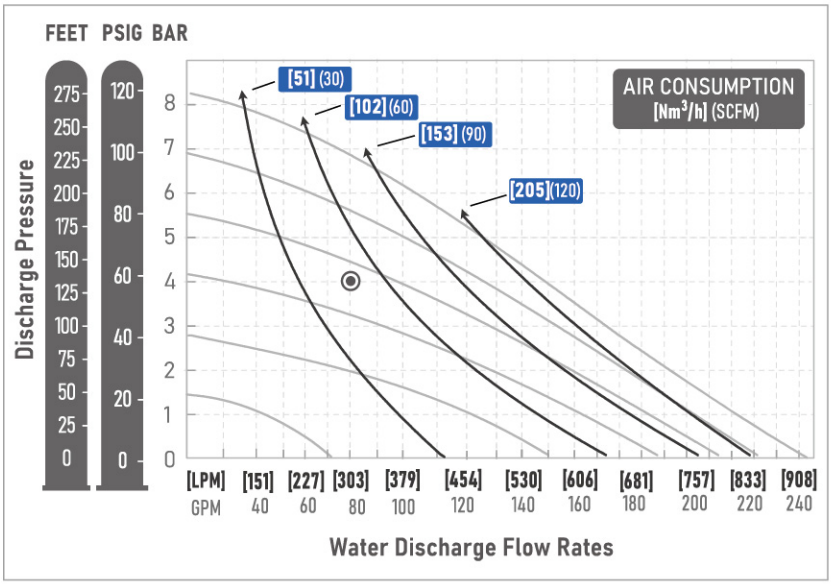
Flow rates indicated on chart were based on pumping water.
For optimum life and performance, pumps should be specified so that daily operation parameters will fall in the center of the pump performance curve.

GT80 METAL PTFE -FITTED

Height ---------- 823 mm (32")
Width ---------- 505 mm (20")
Depth ---------- 523 mm (21")
Est. Ship Weight ------- Aluminum 62 kg (137 lbs)
316 Stainless Steel 90kg (200 lbs)
Cast Iron 98 kg (216 lbs)
Air Inlet ---------- 19 mm (3/4")
Inlet ---------- 76 mm (3")
Outlet ---------- 76 mm (3")
Suction Lift ---------- 4.5 m Dry (15')
9 m Wet (30')
Displacement Per Stroke
---------- 3.6 l gal. (0.95)[1]
Max. Flow Rate ------- 890 lpm (238 gpm)
Max. Size Solids ---------- 9.5 mm (3/8")

[1]Displacement per stroke was calculated at 4.8 bar (70 psig) air inlet pressure against a 2 bar (30 psig) head pressure.

Example: To pump 303lpm (80 gpm) against a discharge pressure head of 4 bar(60 psig) requires 5 bar(70 psig) and 75 Nm^3/h (45 scfm) air consumption. (See dot on chart.)
Caution: Do not exceed 8.6 bar (125 psig) air supply pressure.

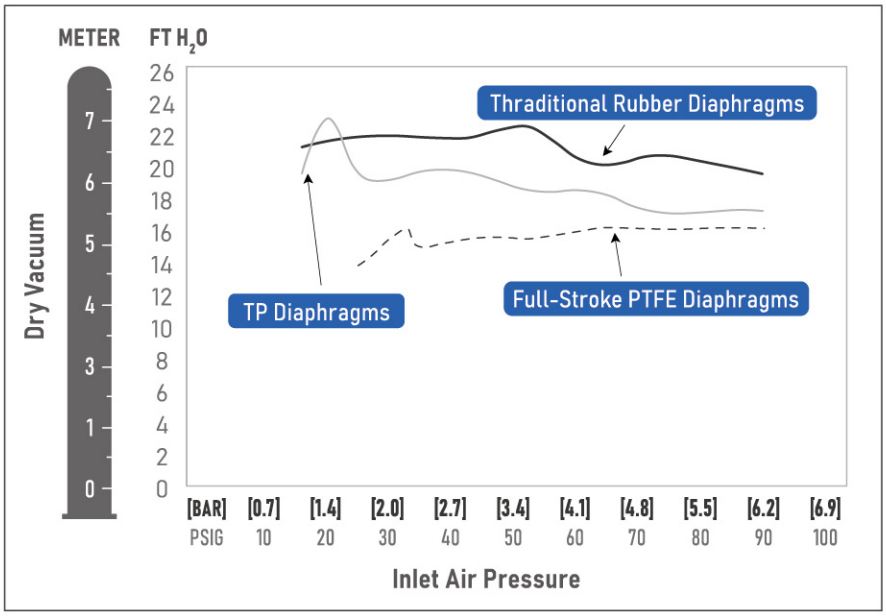


Flow rates indicated on chart were based on pumping water.
For optimum life and performance, pumps should be specified so that daily operation parameters will fall in the center of the pump performance curve.

SUCTION LIFT CURVES

GT80 METAL SUCTION-LIFT CAPABILITY

Suction lift curves are calibrated for pumps operating at 305 m (1,000') above sea level. This chart is meant to be a guide only. There are many variables which can affect your pump's operating characteristics. The number of intake and discharge elbows, viscosity of pumping fluid, elevation (atmospheric pressure) and pipe friction loss all affect the amount of suction lift your pump will attain.



SECTION 5

SUGGESTED INSTALLATION

The model GT80 Metal has a 76 mm (3") inlet and 76 mm (3") outlet and is designed for flows to 920 lpm (243 gpm). The GT80 Metal pump has vary wetted parts with Aluminum,316 stainless and casting iron.The common center section of the GT80 Metal is constructed of virgin polypropylene, We also can provide metal and conductive polypropylene materials to better service different requirements. A variety of diaphragms and o-rings are available to satisfy temperature, chemical compatibility, abrasion resistant and flex life.

The suction pipe size should be at least 76 mm (3") diameter or larger if viscous liquid is being pumped. The suction hose must be non-collapsible, reinforced type as the GT80 Metal is capable of pulling a high vacuum. Discharge piping should be at least 76 mm (3"); larger diameter in order to reduce friction losses. It is critical that all fittings and connections are air tight to avoid loss of pump suction capability.

INSTALLATION:

Premature failure and long term dissatisfaction can be avoided if reasonable care is carry out throughout the installation process.

LOCATION:

Factors such as noise, safety, and other logistical reasons normally dictate that "utility" equipment be situated away from the production floor. Multiple installations with conflicting requirements can result in congestion of utility areas, leaving few choices for siting of additional pumps. It is advisable every pump should be located in such a way that four key
factors are balanced against each other to maximum advantage.

1.ACCESS:

Ensure that the pump locations are easy accessible in order to reduce the time use for the maintenance personnel carrying out routine inspections and adjustments. It help to speed up the repair process and reduce total downtime especially should major repairs are required.

2.AIR SUPPLY:

To achieve a desired pumping rate, it is important to have air line large enough to supply require air volume to every pump locations. (Refer to pump performance chart). Use air pressure up to a maximum of 8.6 bar (125 psig) depending on pumping requirements.

3.ELEVATION:

In order to eliminate loss-of-prime problems and not to affect pump efficiency, it is advisable to select a site location that is well within the dynamic lift capability of the pump.

4.PIPING:

It is necessary to evaluate the piping problems of every possible piping location before the final selection of pump site location.

A site with a shortest and straightest hook-up of suction and discharging piping would be the best option when choosing a pump site. Ensure to avoid unnecessary elbows, bends and fittings. It is also important to select pipe sizes to keep the friction losses within limits. All piping
to be supported independently of the pumps and piping must be aligned to reduce pump fitting placing problems.

Flexible hose can be installed to aid in absorbing the forces created by the natural pulsation of the pump. If the pump is to be bolted down to a solid location, a mounting pad placed between the pump and the foundation will assist to minimize pump vibration. Flexible connections between the pump and rigid piping will also assist in minimizing pump vibration. If quick-closing valves are installed at any point in the discharge system, or if pulsation within a system becomes a problem, a Liquade LD1' Dampener should be installed to protect the pump, piping and gauges from surges and water hammer.

When pumps are installed in applications involving flooded suction or suction head pressures, a gate valve should be installed in the suction line to allow closing of the line for pump service.

The GT80 Metal cannot be used in submersible applications.

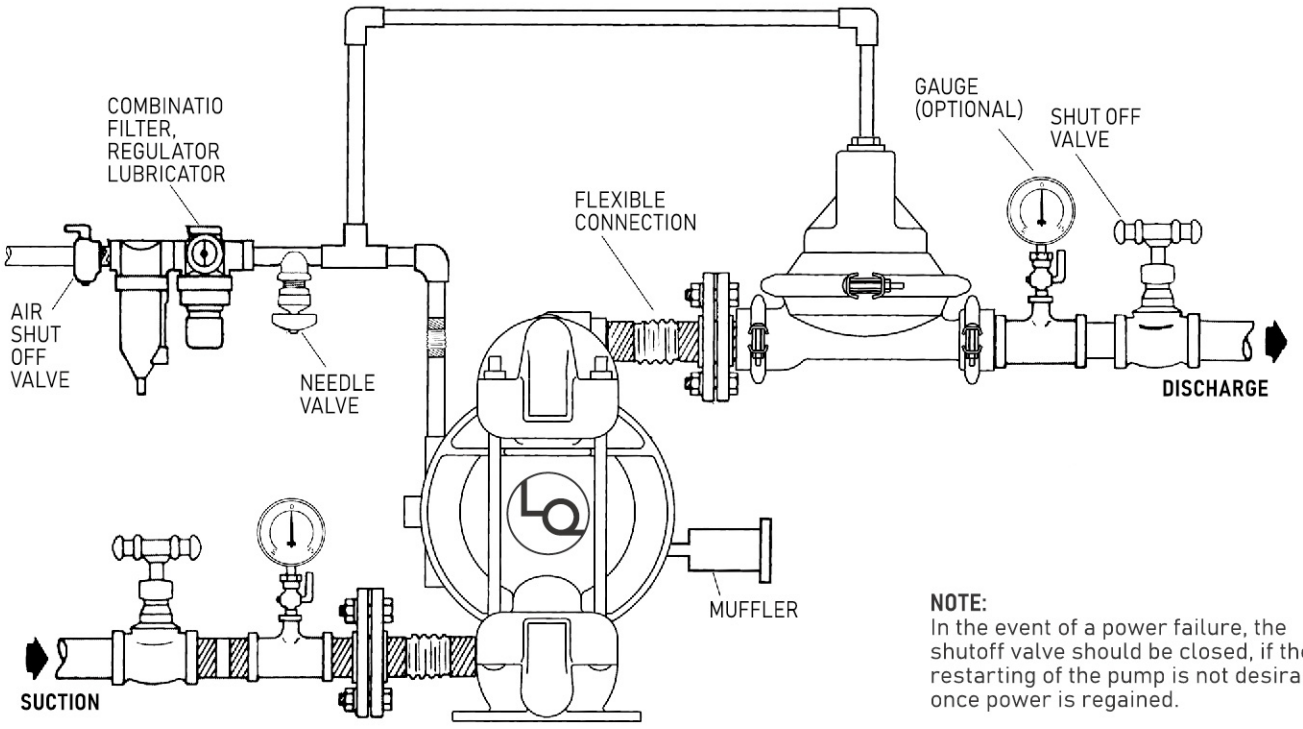
For self-priming application, make sure that all connections are air tight and the suction lift is within the model's ability. Note: Materials of construction as well as elastomer material have an effect on suction lift parameters. Please consult Liquade distributors for specifics.

Pumps in service with a positive suction head are most efficient when inlet pressure is limited to 0.4–0.7 bar (7–10 psig). If the positive suction is 0.7 bar (10 psig) or higher, it may cause premature diaphragm failure.

THE MODEL GT80 WILL PASS 9.5 MM (3/8") SOLID. A STRAINER SHOULD BE USED ON THE SUCTION LINE TO AVOID LARGER SOLID OBJECTS SUCKED INTO THE PUMP.
CAUTION: DO NOT EXCEED 8.6 BAR (125 PSIG) AIR SUPPLY PRESSURE.
BLOW OUT AIR LINE FOR 10 TO 20 SECONDS BEFORE ATTACHING TO PUMP TO MAKE SURE ALL PIPE LINE DEBRIS IS CLEAR.

▲ The GT pump is not submersible

TROUBLESHOOTING



NOTE:
In the event of a power failure, the shutoff valve should be closed, if the restarting of the pump is not desirable once power is regained.

AIR-OPERATED PUMPS:
To stop the pump from operating in an emergency situation, simply close the "shut-off" valve (user supplied) installed in the air supply line. A properly functioning valve will stop the air supply to the pump, therefore stopping output. This shut-off valve should be located far enough away from the pumping equipment such that it can be reached safely in an emergency situation.

Pump does not run or runs slowly.

1. Ensure that the air inlet pressure is at least 5 psig above startup pressure and that the differential pressure (the difference between inlet and discharge pressure) to be more than 10 psig.
2. Check air inlet filter for particles (see recommended installation).
3. Check if there is extreme air leakage which would indicate worn out seals/bores.
4. Dismantle pump to inspect for obstructions in the air passageways or objects which would hinder the movement of internal parts.
5. Check for sticking valve ball. Swelling may occur if pumping liquid is not compatible with pump elastomers. Replace valve ball and seals with proper elastomers. Also, as valve balls wear out, they become smaller and can become stuck in the seats. In this case, replace both balls and seats.

Pump air valve freezes.

1. Check for excessive moisture in compressed air. Either install a dryer or hot air generator for compressed air. Alternatively, a coalescing filter may be used to remove the water from the compressed air in some applications.

Pump rattles.

1. Create false discharge head or suction lift.

Pump runs but little or no liquid flows

1. Check for pump cavitation; slow down the pump speed match the viscosity of the pumping liquid.
2. Verify the vacuum required to lift liquid is not greater than the vapor pressure of the material being pumped (cavitation).
3. Check for sticking valve ball. Swelling may occurs if pumping liquid is not compatible with pump elastomers. Replace valve ball and seals with proper elastomers. Also, as the valve balls wear out, they become smaller and can become stuck in the seats. In this case, replace both balls and seats.
4. Ensure all inlet connections are tight, especially on the lower valve ball retainers.

Air bubbles found in pump discharge.

1. Check for ruptured failures.
2. Check tightness of outer pistons.
3. Check tightness of clamp bands and integrity of o-rings and seals, especially at inlet manifold.
4. Ensure pipe connections are air tight

Liquid leakage from air exhaust. (Muffler)

1. Check for diaphragm rupture.
2. Check tightness of pistons to shaft.

SECTION 7

DISASSEMBLY / REASSEMBLY

CAUTION: Before perform any maintenance or repair, disconnect the compressed air line to the pump to allow all air pressure to bleed from pump. Disconnect all inlet, discharge, and air lines. Drain the pump by turning it upside down and allowing any fluid to flow into a suitable container. Wet flushing of parts may be required prior to handling.
PLEASE read all instructions before starting disassembly.


Figure 1

TOOLS REQUIRED:

- 11/16" Wrench
- 3/4" Wrench
- Adjustable Wrench
- Vise equipped with soft jaws

PUMP DISASSEMBLY:

Step 1.

Before carry out disassembly, drain all remaining fluid in the pump into a suitable container by turning it up-side down. Take extra caution if the liquid is corrosive or toxic.


Figure 2

Step 2.

Using a 11/16" wrench, remove the small clamp bands, and loosen manifold from the liquid chambers.


Figure 3

Step 3.

Remove the discharge manifold, expose the valve balls,valve seats and O rings.

Figure 4

Step 4.

Remove the discharge valve seats from liquid chamber, inspect for nicks, chemical attack or abrasive wear, replace with genuine Liquade parts for reliable performance.

Figure 5

Step 5.

Remove the two small clamp bands which fasten the intake manifold to the liquid chambers.

Figure 6

Step 6.

Lift liquid chambers and center section from intake manifold to expose intake valve balls and seats. Inspect ball cage area of liquid chamber for excessive wear or damage.

Figure 7

Step 7.

Using two 3/4" wrenches to remove one of large clamp band from the center section assembly.

DISASSEMBLY / REASSEMBLY

Figure 8

Step 8.

Lift liquid chamber away from center section,check the diaphragm and outer piston.

Figure 9

Step 9.

Using an adjustable wrench, Rotating the diaphragm, and remove the diaphragm from the assembly.

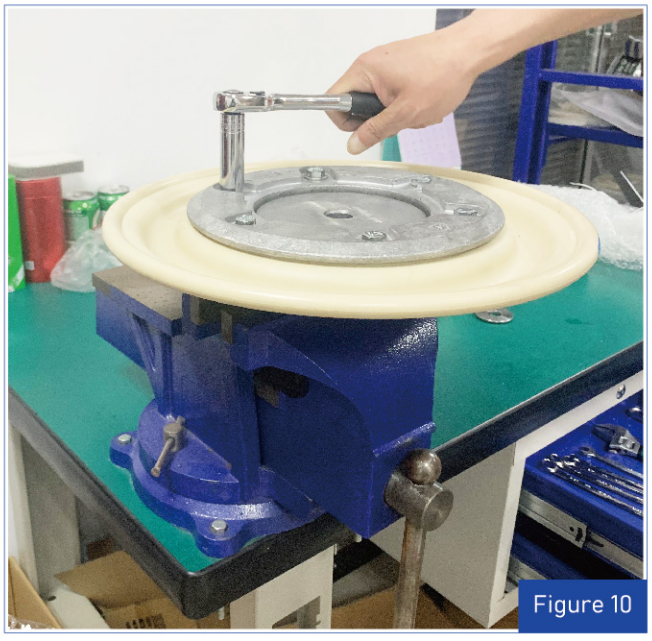


Figure 10

Step 10.

Remove the outer piston,diaphragm,inner piston from the assembly, replace with genuine Liquade parts for reliable performance.

SECTION 7

AIR VALVE / CLEANING & INSPECTION

AIR VALVE DISASSEMBLY:

CAUTION: Before perform any maintenance or repair, disconnect the compressed air line to the pump to allow all air pressure to bleed from pump. Disconnect all inlet, discharge, and air lines. Drain the pump by turning it upside down and allowing any fluid to flow into a suitable container. Be careful of dangerous effects of contact with the process fluid.

The Liquade Plastic GT80 utilizes an advance air distribution system. A 6 mm (1/4") air inlet connect the air supply to the center section. Composite seals reduce the coefficient of friction and allow the GT80 to run lube-free. Constructed of polypropylene, the air distribution system is designed to perform in on/off function, non-freezing, non-stalling and tough duty application.

TOOLS REQUIRED:

- 3/8" Hex Head Wrench
- 1/4" Hex-Head Wrench
- Snap-Ring Pliers
- O-ring Pick

CAUTION:

Before any maintenance or repair is attempted, the compressed air line to the pump should be disconnected,Drain the pump by turning it upside down and allowing any fluid to flow into a suitable container. Be aware of hazardous effects of contact with your process fluid.

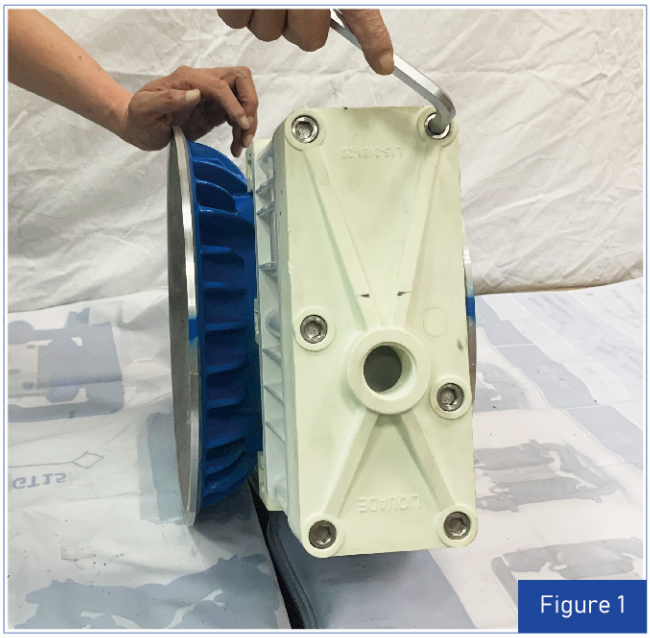


Figure 1

Step 1.

Using a 3/8" hex head wrench, loosen air valve bolts.

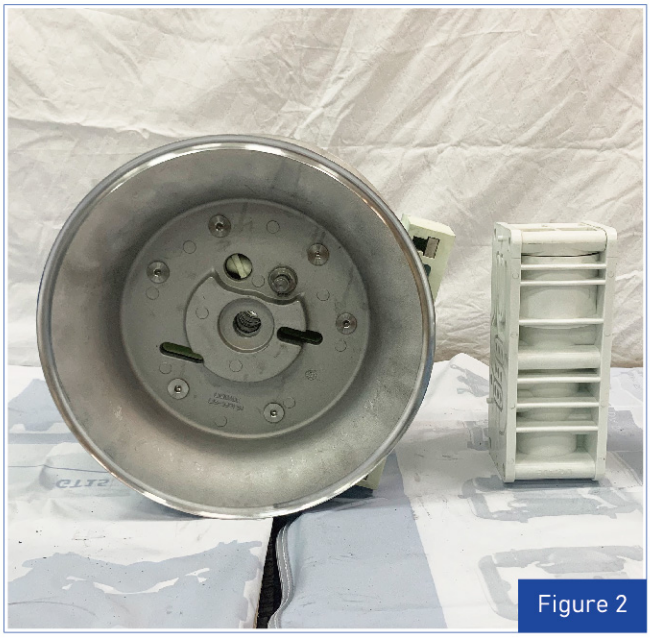


Figure 2

Step 2.

Remove muffler plate and air valve bolts from air valve assembly,exposing muffler gasket for inspection.
Replace with Liquade gasket for reliable performance.

AIR VALVE / CLEANING & INSPECTION

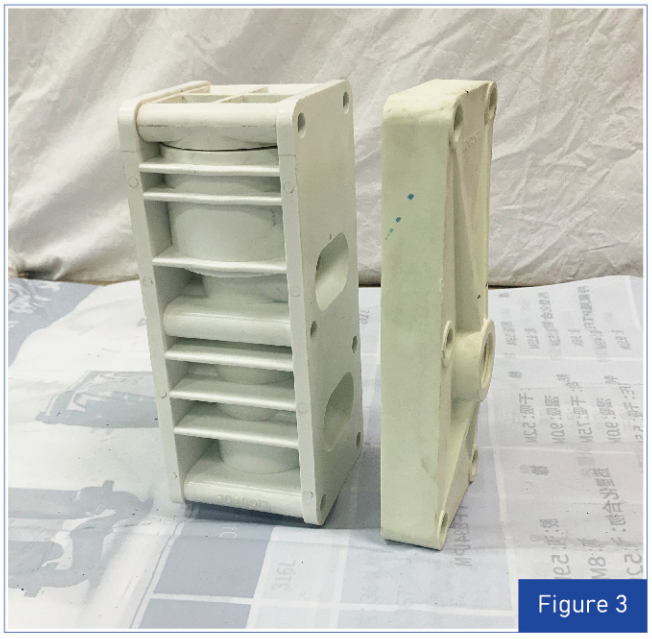


Figure 3

Step 3.

Lift away air valve assembly and remove air valve gasket for inspection. Replace with Liquade gasket for reliable performance.

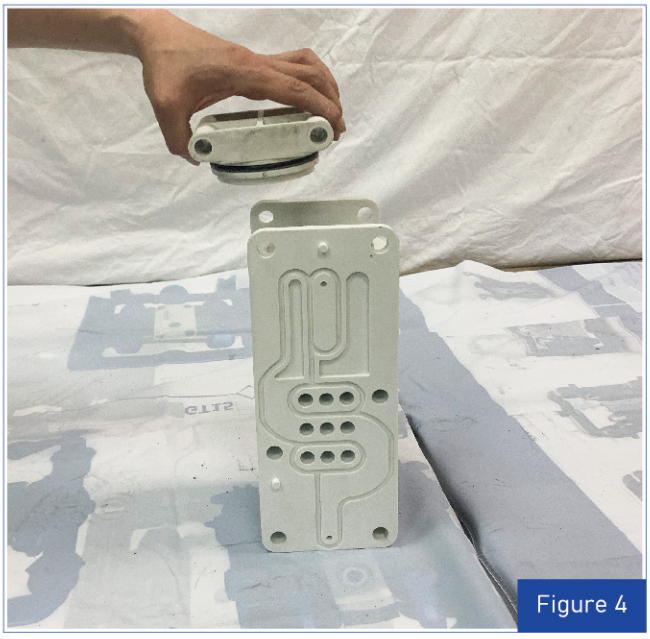


Figure 4

Step 4.

Remove the end cap to expose air valve spool by simply lifting up on end cap once air valve bolts are removed.

Figure 5

Step 5.

Remove air valve spool from air valve body by threading one air valve bolt into the end of the spool and gently sliding the spool out of the air valve body. Check the signs of the wear, replace the spool if necessary. The wear seals are not sold by separately.

Figure 6

Step 6.

Remove pilot spool sleeve retaining snap ring on both sides of center section with snap ring pliers, and lift up pilot spool sleeve from center section.

AIR VALVE / CLEANING & INSPECTION

Figure 7

Step 7.

Gently remove the o- ring with o-ring pick from the opposite side of the "center hole" cut on the spool. Check the signs of wear, Replace pilot sleeve assembly for reliable performance.

Figure 8

Step 8.

Check center section Glyd rings for signs of wear. Replace the Liquade Glyd rings for reliable performance.

Reassembly Hints & Tips

The following tips will assist in the assembly process.

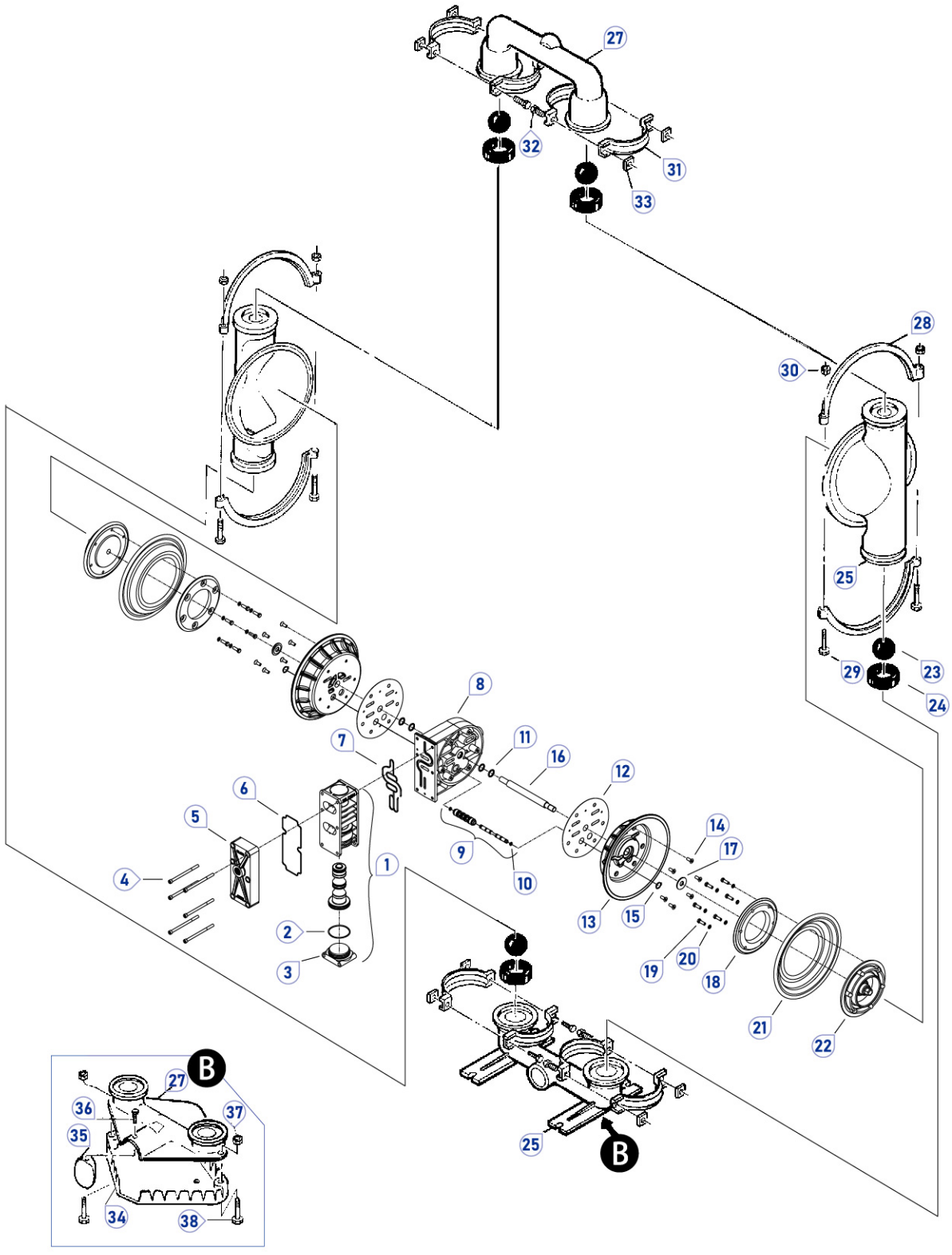
1. For reassembly, please refer to disassemble process in reserve order.
2. Clean the center section shaft before assembly, make sure no damage for the Glyd rings.
3. Lube all the stainless bolts before tightening.
4. Using proper torque values to tighten the outer piston, check these values below chart.
5. Apply two drops of Loctite® 246 to the shaft internal threads before the diaphragm assembly.

TORQUE SPECIFICATIONS FOR MODEL GT80 METAL PUMPS

Description of Part	Torque
Air Valve	8.5 N•m (75 in-lbs)
Air Chamber/Center Block	47.5 N•m (35 ft-lbs)
Inner Piston Ring	19.0 N•m (14 ft-lbs)
Outer Pistons, Rubber & PTFE	135.6 N•m (100 ft-lbs)
Outer Pistons, Ultra-Flex™	135.6 N•m (100 ft-lbs)
Small Clamp Bands	15.5 N•m (137 in-lbs)
Large Clamp Bands (Rubber-Fitted)	61.0 N•m (45 ft-lbs)
Large Clamp Bands (PTFE-Fitted)	61.0 N•m (45 ft-lbs)

GT80 METAL

EXPLODED VIEW



GT80 METAL

PARTS LISTING

Item #	Description	Qty Per Pump	GT80 APP	GT80 WPP	GT80 SPP	GT80 SPP//FDA	GTX80 APP	GTX80 WPP	GTX80 SPP	GT80X SPP//FDA
	Air Distribution Components									
1	GT ® Air Valve Assembly[1]	1	L15-2010-20	L15-2010-20	L15-2010-20	L15-2010-20	L15-2010-20C	L15-2010-20C	L15-2010-20C	L15-2010-20C
2	O-Ring (-235), End Cap	1	L71-1280-52	L71-1280-52	L71-1280-52	L71-1280-52	L71-1280-52	L71-1280-52	L71-1280-52	L71-1280-52
3	End Cap,	1	L15-2332-20	L15-2332-20	L15-2332-20	L15-2332-20	L15-2332-20C	L15-2332-20C	L15-2332-20C	L15-2332-20C
4	Screw, HHC, Air Valve (7/16-14 x 5 7/8")	6	L15-6001-03	L15-6001-03	L15-6001-03	L15-6001-03	L15-6001-03	L15-6001-03	L15-6001-03	L15-6001-03
5	Muffler Plate	1	L15-3181-20	L15-3181-20	L15-3181-20	L15-3181-20	L15-3181-20C	L15-3181-20C	L15-3181-20C	L15-3181-20C
6	Gasket, Muffler Plate	1	L15-3505-52	L15-3505-52	L15-3505-52	L15-3505-52	L15-3505-52	L15-3505-52	L15-3505-52	L15-3505-52
7	Gasket, Air Valve	1	L15-2615-52	L15-2615-52	L15-2615-52	L15-2615-52	L15-2615-52	L15-2615-52	L15-2615-52	L15-2615-52
8	Center Block Assembly	1	L15-3110-20	L15-3110-20	L15-3110-20	L15-3110-20	L15-3110-20C	L15-3110-20C	L15-3110-20C	L15-3110-20C
9	Pilot Sleeve Assembly	1	L15-3880-99	L15-3880-99	L15-3880-99	L15-3880-99	L15-3880-99	L15-3880-99	L15-3880-99	L15-3880-99
10	Pilot Spool Retaining O-ring	2	L15-2650-49	L15-2650-49	L15-2650-49	L15-2650-49	L15-2650-49	L15-2650-49	L15-2650-49	L15-2650-49
11	Center Block Shaft Seal	4	L15-3210-55-225	L15-3210-55-225	L15-3210-55-225	L15-3210-55-225	L15-3210-55-225	L15-3210-55-225	L15-3210-55-225	L15-3210-55-225
12	Gasket, Center Block	2	L15-3525-52	L15-3525-52	L15-3525-52	L15-3525-52	L15-3525-52	L15-3525-52	L15-3525-52	L15-3525-52
13	Air Chamber,	2	L15-3651-01	L15-3651-01	L15-3651-01	L15-3651-01	L15-3651-01	L15-3651-01	L15-3651-01	L15-3651-01
14	Air Chamber Screw (3/8" - 16 x 1")	12	L15-6130-08	L15-6130-08	L15-6130-08	L15-6130-08	L15-6130-08	L15-6130-08	L15-6130-08	L15-6130-08
15	Retaining Ring	2	L15-2651-03	L15-2651-03	L15-2651-03	L15-2651-03	L15-2651-03	L15-2651-03	L15-2651-03	L15-2651-03
16	Muffler	1	L15-3510-99	L15-3510-99	L15-3510-99	L15-3510-99	L15-3510-99	L15-3510-99	L15-3510-99	L15-3510-99
	Wetted Path Components									
25	Liquid Chamber	2	L15-5000-01	L15-5000-02	L15-5000-03	L15-5000-03	L15-5000-01	L15-5000-02	L15-5000-03	L15-5000-03
	Inlet Manifold(BSPT)	1	L15-5080-01-14	L15-5080-02-14	L15-5080-03-14	-	L15-5080-01-14	L15-5080-02-14	L15-5080-03-14	-
	Inlet Manifold (NPT)		L15-5080-01	L15-5080-02	L15-5080-03	-	L15-5080-01	L15-5080-02	L15-5080-03	-
	Inlet Manifold FDA					L15-5080-03-70				L15-5080-03-70
27	Discharge Manifold(BSPT)	1	L15-5020-01-14	L15-5020-02-14	L15-5020-03-14	-	L15-5020-01-14	L15-5020-02-14	L15-5020-03-14	-
	Discharge Manifold(NPT)		L15-5020-01	L15-5020-02	L15-5020-03	-	L15-5020-01	L15-5020-02	L15-5020-03	-
	Discharge Manifold(FDA)					L15-5020-03-70				L15-5020-03-70
28	Large Clamp Band Assy.	2	L15-7300-08	L15-7300-08	L15-7300-03	L15-7300-03-70	L15-7300-08	L15-7300-08	L15-7300-03	L15-7300-03-70
29	Large Hex Bolt (1/2" - 13 x 3-1/2")	4	L15-6120-08	L15-6120-08	L15-6120-03	L15-6120-03	L15-6120-08	L15-6120-08	L15-6120-03	L15-6120-03
30	Large Hex Nut3 (1/2" - 13)	4	L15-6420-08	L15-6420-08	L15-6420-03	L15-6671-10	L15-6420-08	L15-6420-08	L15-6420-03	L15-6671-10
31	Small Clamp Band Assy.	4	L15-7100-08	L15-7100-08	L15-7100-03	L15-7100-03-70	L15-7100-08	L15-7100-08	L15-7100-03	L15-7100-03-70
32	Small Hex Bolt (3/8" - 16 x 2-1/4"3)	8	L15-6050-08	L15-6050-08	L15-6050-03	L15-6050-03	L15-6050-08	L15-6050-08	L15-6050-03	L15-6050-03
33	Small Hex Nut (3/8" - 16)	8	L08-6450-08	L08-6450-08	L08-6450-03	L08-6671-10	L08-6450-08	L08-6450-08	L08-6450-03	L08-6671-10
	Washer, Flat 1/4" (not shown)	8	-	-	-	L08-6720-07-70	-	-	-	L08-6720-07-70
	Washer, Flat 5/16" (not shown)	4	-	-	-	L15-6720-07-70	-	-	-	L15-6720-07-70
	Valve Balls/Valve Seats/Valve O-rings/Manifold O-Ring									
23	Valve Ball	4	*	*	*	*	*	*	*	*
24	Valve Seat	4	*	*	*	*	*	*	*	*
24	Valve Seat O-Ring	4	*	*	*	*	*	*	*	*
	PTFE/Rubber/TPE Components									
16	Shaft	1	L15-3805-09	L15-3805-09	L15-3805-09	L15-3805-09	L15-3805-09	L15-3805-09	L15-3805-09	L15-3805-09
17	Washer, Inner Piston Back-up	2	L15-6850-08	L15-6850-08	L15-6850-08	L15-6850-08	L15-6850-08	L15-6850-08	L15-6850-08	L15-6850-08
18	Piston, Inner	2	L15-3700-01	L15-3700-01	L15-3700-01	L15-3700-01	L15-3700-01	L15-3700-01	L15-3700-01	L15-3700-01
19	Outer Piston Bolt (3/8" - 16 x 1-1/8")	12	L15-6130-08	L15-6130-08	L15-6130-08	L15-6130-08	L15-6130-08	L15-6130-08	L15-6130-08	L15-6130-08
20	Washer, Flat	12	L15-6740-08-50	15-6740-08-50	L15-6740-08-50	L15-6740-08-50	L15-6740-08-50	L15-6740-08-50	L15-6740-08-50	L15-6740-08-50
21	Diaphragm	2	*	*	*	*	*	*	*	*
21	Diaphragm, Backup	2	*	*	*	*	*	*	*	*
22	Piston, Outer	2	L15-4550-01	L15-4550-02	L15-4550-03	L15-4550-03	L15-4550-01	L15-4550-02	L15-4550-03	L15-4550-03

*Refer to Elastomer Options in Section 9.

[1] Air Valve Assembly includes items 2, 3.

GT80 METAL

Material	Diaphragms	Back-Up Diaphragm	Valve Ball	Valve Seats	Valve Seat O-Ring
NEPRENE	L15-1010-51	-	L15-1080-51	L15-1120-51	-
BUNA	L15-1010-52	-	L15-1080-52	L15-1120-52	-
FKM	L15-1010-53	-	L15-1080-53	L15-1120-53	-
EPDM	L15-1010-54	-	L15-1080-54	L15-1120-54	-
PTFE	L15-1040-55	L15-1065-57	L15-1080-55	L15-1121-01	L15-1200-55
Santoprene	L15-1022-58	-	L15-1080-58	L15-1120-58	-
HYTREL	L15-1010-56	-	L15-1080-56	L15-1120-56	-
Aluminum				L15-1121-01	
316 Stainless Steel				L15-1121-03	
Cast iron				L15-1121-08	

* — Encapsulated.

WARRANTY

All products by LIQUADE are built to meet the highest standards of quality and are guaranteed to be free from defects in material and workmanship for a period of five (5) years from date of installation or six (6) years from date of manufacture, whichever comes first. Failure due to wear and tear or misapplication, shall be excluded from this warranty. Warranty shall be deemed void if unauthorized modifications are made to the pump or serviced by unauthorized LIQUADE personnel or partners.

LIQUADE cannot guarantee the suitability of the pump or parts for any particular application. In addition, LIQUADE shall not be liable for consequential damage or expense arising from the use or misuse of its products on any application. Warranty is limited to replacement or repair of the pump or part at the factory or at a point designated by LIQUADE.

Prior approval must be obtained from LIQUADE for return of any product for warranty consideration and must be accompanied by the legitimate MSDS for the product(s) involved. Also, this warranty does not obligate LIQUADE to bear the cost of labour or transportation charges in connection with replacement or repair of defective pumps/parts.

All investigation as to the cause of failure of the pump shall be solely determined by Liquade and its decision deemed final.

This warranty is in lieu of all other warranties and conditions expressed or implied, written or oral, statutory to the extent allowable by law or otherwise, which are hereby negated and excluded.

PLEASE FILL OUT THE FORM BELOW AND RETURN BY FAX OR EMAIL

PUMP INFORMATION

Item # _____ Serial# _____

Company Where Purchased _____

YOUR INFORMATION

Company Name _____

Industry _____

Name _____ Title _____

Street address _____

City _____ State _____ Postal Code _____ Country _____

Telephone _____ Fax _____ E-mail _____ Website _____

Number of pumps in facility? _____ Number of Liquade pumps? _____

Types of pumps in facility (check all that apply) ☐ Diaphragm ☐ Centrifugal ☐ Gear ☐ Submersible ☐ Submersible

☐ Others (please indicate) _____

Media being pumped _____

How did you hear of Liquade Pump? ☐ Trade Journal ☐ Trade Show ☐ Internet/Email ☐ Distributor

☐ Others (please indicate) _____

LIQUADE®

www.liquade.com