

**Instruction
Manual**



GoatThroat™
The hand-pressurized precision pump that handles *anything.*



Warning: Not all liquids and containers are safe for use with this pump. To reduce risk of injury, read and follow these instructions:

Liquids

- Use pump only with approved liquids as specified in GoatThroat Pump Compatibility Guide (copies available on our web site). When replacing seals, always use the same type approved for use with your pump (see page 3). Improper use of pumps or seals will void all warranties, stated or implied.
- Do not dispense liquids at temperatures above 110°F (43°C).
- Before use, clearly mark pump with name of liquid to be dispensed. Clean pump thoroughly before using with another liquid.
- Rinse pump periodically when not in frequent use.

Containers

- Use pump only with undamaged containers in good condition capable of maintaining an internal pressure of 15 pounds per square inch (psi). Do not use with thin-walled or damaged containers (see page 3).
- Release pressure before removing pump from container (see page 8).
- Do not leave the container pressurized while the pump is not in use.
- Remove pump and seal container before moving or transporting containers.
- Check internal pressure relief valve frequently (see page 5). Do not use pump if pressure relief valve is defective.

General cautions

- Exercise caution when mixing liquids, especially hazardous chemicals.
- Always wear appropriate protective equipment when working with potentially hazardous substances.
- Do not burn discarded seals or other pump components. Check local health, safety and environmental codes and follow proper disposal procedures.
- Do not disassemble pump except to replace parts as shown on pages 2-13 of this manual. Any further disassembly may damage the pump and will void your warranty.

Visit our web site at
www.GoatThroat.com

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Instruction Manual



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About GoatThroat pumps

Constructed of 100% non-reactive polypropylene, GoatThroat pumps are engineered for maximum safety and durability. Three models are available to handle almost any liquid — petroleum products, acids, caustics, solvents and even the most aggressive industrial chemicals and pesticides.

The pump can be installed in seconds and can be quickly moved from container to container. Siphon tubes are adjustable from 12 to 36 inches to fit most common container sizes. The pump can be used on containers with either externally or internally threaded neck openings.

How it works

GoatThroat pumps work by pressurizing a container to dispense liquids simply by opening the tap. A few strokes of the plunger can pressurize any container from 2-gallon jugs to 55-gallon drums.

One-touch flow control dispenses liquids at a controlled rate to prevent waste, conserve inventory, and produce precisely measured amounts every time. Flow can be continuous, or adjusted to dispense liquids at any rate up to 4.5 gallons per minute.

Safety features

GoatThroat pumps have two safeguards to prevent overpressurization:

- An external pressure release valve can be opened to vent pressure manually before removing the pump from a container.
- As an additional safeguard, an internal pressure relief valve automatically opens if container pressure exceeds 10 psi.

Operating parameters

Pressure	2-10 psi nominal 10 psi maximum
Operating Temperature	32° to 110°F (0° to 43°C)
Storage Temperature	-4° to 122°F (-20° to 50°C)
Siphon tube length	9" to 36" (230 mm to 920 mm)
Container neck size	Small seal1.7-2.0" (44.4-52 mm) Medium seal2.0-2.2" (52.5-56 mm) Large seal2.2-2.4" (56.5-60 mm)
Maximum flow rates at 68°F	Water4.5 gallons per minute Oil (SAE 30)2.0 gallons per minute

Liquid compatibility guidelines

GoatThroat pumps are available in three models. Each is color-coded to indicate its type and compatibility with various substances.

Before use, you must check the GoatThroat Pump Compatibility Guide to choose the proper model for use with substances you intend to dispense. The guide lists all substances compatible with each pump model.

GT 100 (red)	Nitrile drum seals, for use with most oils and petroleum-based liquids
GT 200 (blue)	Ethylene propylene drum seals (EPDM), for use with general purpose chemicals
GT 200S (black)	Santoprene drum seals For special applications only (see GoatThroat Pump Compatibility Guide)
GT 300 (green)	Viton® drum seals, for aggressive chemicals, toxins and solvents



WARNING: Use of a GoatThroat pump with any non-approved substances may damage the pump and could cause risk of personal injury resulting from exposure to potentially hazardous substances.

Container compatibility guidelines

The following guidelines must be observed for safe operation. **Failure to follow these guidelines may result in container rupture and potentially hazardous spills.**

- GoatThroat pumps must be properly fitted to containers in good condition, and capable of withstanding an internal pressure of **15 psi**. Contact the container manufacturer if you are not certain that it can withstand this pressure.
- **Do not use GoatThroat pumps with rusty, corroded or damaged containers.** Exercise caution when using GoatThroat pumps with plastic containers, which may have thin walls or may have become brittle as a result of age or exposure to sunlight.
- Thin-walled containers may bulge or deform when pressurized. To reduce the risk of potentially hazardous spillage, always **use external supports** for thin-walled containers. We recommend placing thin-walled containers inside an external container before pressurizing.
- Container neck openings must be smooth, with no sharp edges, and capable of withstanding the force of the expanding drum seal.
- Containers with retractable pouring spouts are not suitable for use with GoatThroat pumps unless the spout is completely removed.

Check package contents

After unpacking, check to make sure your package includes all parts listed below in undamaged condition. Do not use the pump if any parts are missing or damaged.

- GoatThroat pump1
- Drum seals3
- Siphon tube segments4
- Siphon tube connectors3
- Siphon tube foot piece1
- Pump Compatibility Guide....1

Pump assembly

1 Select and fit drum seal

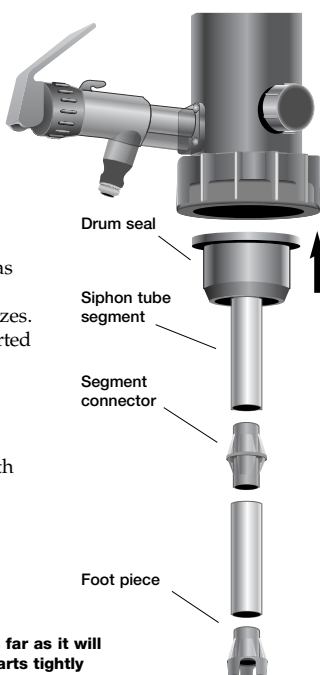
Measure container neck opening and fit appropriate size seal to pump (see page 13).

2 Assemble siphon tube

Measure container depth and assemble siphon tube segments as needed. Segments can be cut if needed to fit custom container sizes. First pump segment must be inserted at least 1 inch into pump body.

3 Fit foot piece to siphon tube

Attach foot piece to bottom length of siphon tube (portion nearest bottom of container). This piece helps prevent clogging and maintain proper fluid flow.

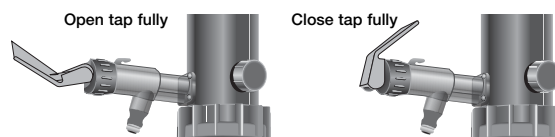


CAUTION: Insert siphon tube as far as it will go into the pump, and join all parts tightly and securely so the siphon assembly cannot come apart inside the container.

Pump inspection

To help ensure safe and reliable operation, the following inspections should be performed each time the pump is fitted to a container:

- **New pump contamination check:** A new pump may need special treatment before use to preserve chemical purity. Silicone lubricants are applied to some pump parts during manufacture. If you intend to dispense solvents which could dissolve this lubricant, the pump should be cleaned and flushed with the solvent before initial use.
- **Used pump contamination check:** If the pump has previously been used, it should be flushed and cleaned thoroughly to prevent potential contamination or a dangerous reaction.
- **Drum seal inspection:** Inspect the drum seal to make sure it is in good condition. The seal should be replaced if it shows any signs of damage or deterioration.
- **Tap operation check:** Test the tap for proper operation as shown below. The tap should remain in free-flow position until manually closed. When closed, the tap piston should travel freely to the fully closed position.



- **Pressure relief valve check:** Remove siphon tube. Using a protective glove as a barrier, place the underside of the pump into the palm of your protected hand to seal the air intake. Operate the pump handle for one stroke. You should hear air pressure being released automatically before the pump piston completes one stroke.



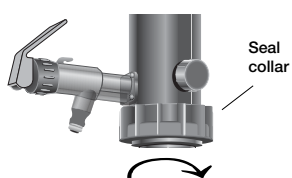
WARNING: Do not use pump if pressure relief valve does not operate properly.

Fit pump to container

Before fitting the pump to any container, make sure both the drum seal and the container neck opening are clean and free of contaminants that could prevent an air-tight seal.

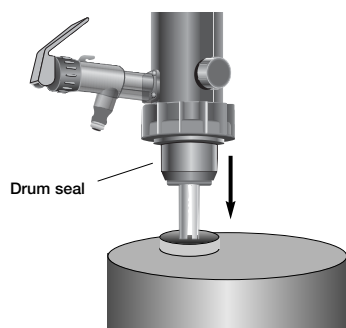
1 Loosen drum seal collar

Loosen seal collar completely (turn fully counterclockwise).



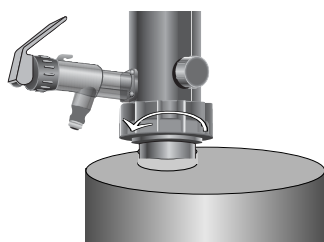
2 Insert pump

Insert drum seal fully into container neck opening. Make sure siphon is long enough to extend nearly to the bottom of the container.



3 Tighten collar

Keeping pump firmly pressed down, tighten seal collar until firmly fitted to container neck opening.

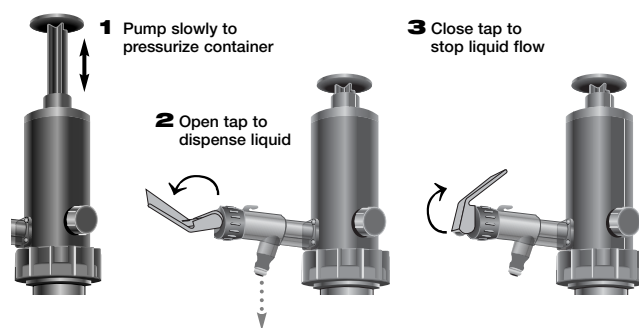


4 Check fit

Check fit by attempting to pull the pump up and away from the container. If properly fitted, the pump should remain firmly attached.

Pump operation

Maintain a slow, smooth pumping action to build up a small amount of pressure in the container. Liquid can be dispensed in small amounts by manually controlling the tap, or dispensed in a continuous flow by leaving the tap in the fully open position. If tap leaks or sticks in open position, inspect tap washer and O-ring for wear and replace if worn (see page 10).



For most liquids in smaller containers, only a few strokes will produce sufficient pressure to maintain a steady flow. More viscous fluids, or liquids in larger containers, may require 10-20 strokes or more.

The pump can be pressurized to a **maximum of 10 psi**. As a safety precaution, all GoatThroat pumps are fitted with an internal pressure relief valve that will open automatically if pressure exceeds 10 psi.

A slight loss in container pressure over time is normal. However, in normal circumstances, about half of the initial pressure should be maintained for up to 60 minutes after the container is pressurized.

To help maintain cleanliness of the pump and container, the pump should be left fitted to the container until it is empty.



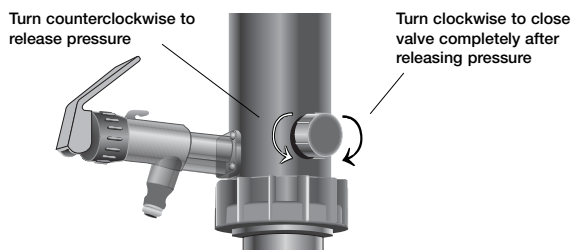
WARNINGS:

- **Do not lean over a pressurized container. If improperly fitted, the drum seal could become loose during use, ejecting the pump with potentially hazardous force.**
- **Keep containers away from heat sources. Exposure to heat or sunlight may increase container pressure and cause unexpected release of liquid when the tap is opened. Never use with liquids at temperatures above 110°F (43°C).**

Manual pressure release

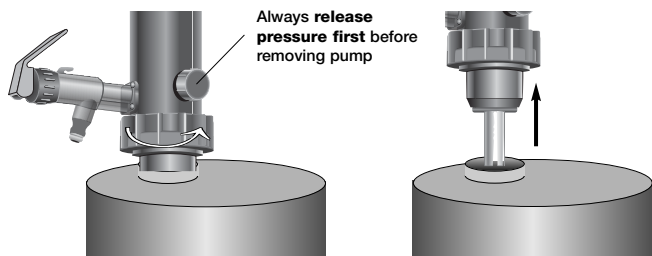
A manual pressure release valve on the side of the pump can be opened to vent pressure. Pressure must be released before removing the pump from a container.

When the pump is not in use, pressure should be released and the valve should be left fully closed to help prevent accidental spillage.



To remove pump from container

To remove the pump, release pressure as shown above, then loosen the drum seal collar and pull the pump and siphon tube out of the container.



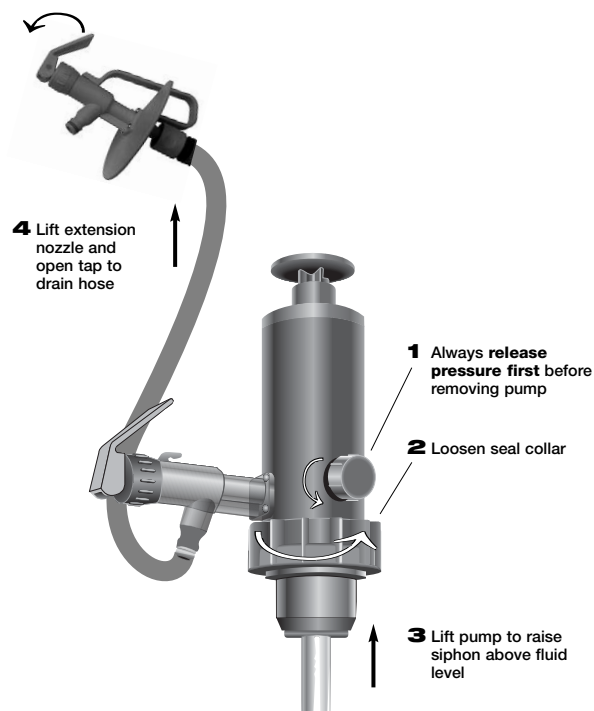
⚠ WARNINGS:

- Do not attempt to remove the pump from a pressurized container.
- Do not move or transport any container with the pump attached. Remove pump and seal container before moving.
- Always exercise caution when working with toxic substances. During pressure release, high concentrations of potentially hazardous vapors may be released.

Optional extension tap

If the pump is fitted with an optional extension tap, always close the tap immediately after use. When the tap is open, liquid could be siphoned from the container if the nozzle is held lower than the level of liquid in the container.

To avoid accidental spills, always drain the extension hose after use.



Flushing and cleaning

After use, the pump should be flushed and cleaned. Always make sure the flushing agent used is compatible with any fluids previously dispensed and with fluids you intend to dispense.

Never use abrasives to clean any portion of the pump. To clean the exterior of the pump, use a cloth dampened with a mild solution of detergent and water. After cleaning, allow the pump to dry in air away from direct sunlight, heat, grease and other potential contaminants.

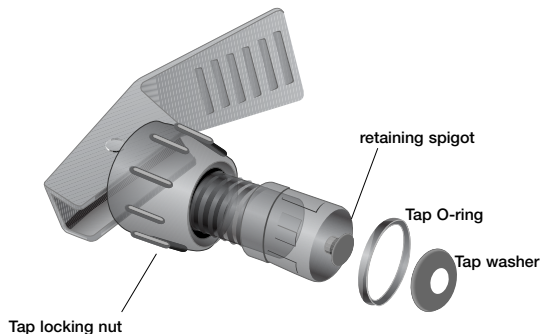
CAUTION: Do not burn discarded seals or other pump components. Check local health, safety and environmental codes and follow proper disposal procedures. Always dispose of hazardous waste or contaminated liquids in a proper fashion.

Maintenance inspections

The pump should be inspected at least every 2-3 months to ensure safe and efficient operation (see page 5). If unused for more than 3 months, the pump must be visually inspected and the O-rings lubricated with Molykote® 111 compound.

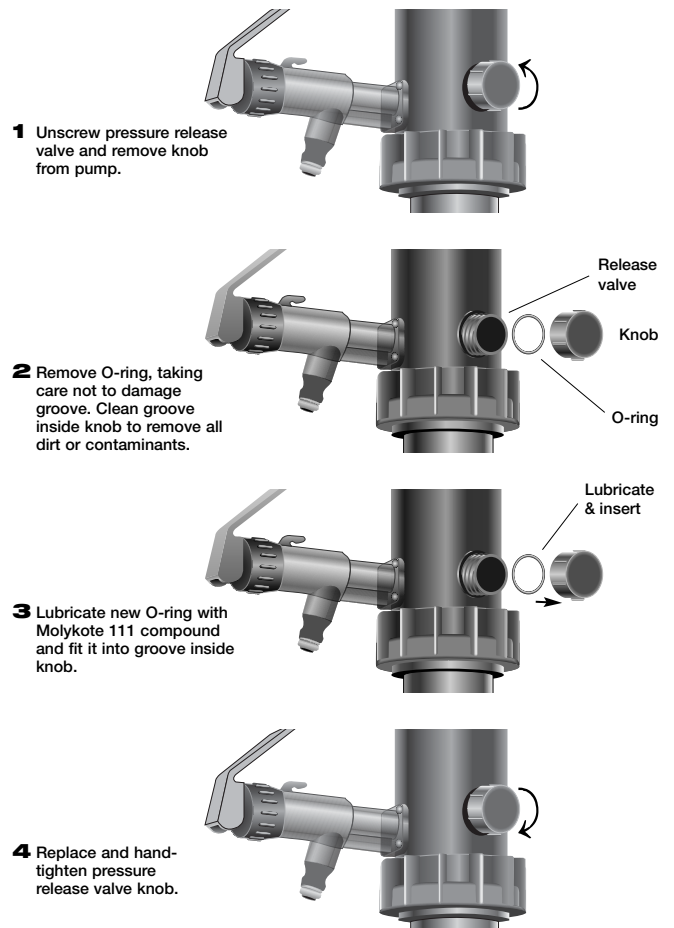
Replacing tap washers and O-rings

Periodically check tap washer and O-rings (both at the tap and at the pressure release valve) for wear, and replace if necessary. A replacement kit containing both O-rings and a tap washer is available from your GoatThroat dealer. After installing a new O-ring, smear a liberal amount of Molykote 111 lubricant around the ring and the adjacent area.



Replacing pressure release valve O-rings

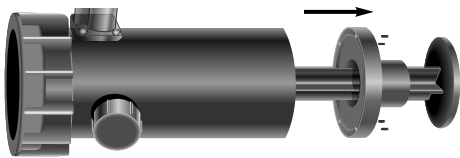
Periodically check the pressure valve O-ring for wear, and replace if necessary. Replacement pressure valve O-rings are available from your GoatThroat dealer.



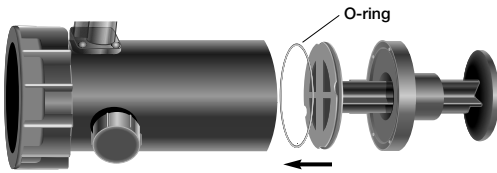
Replacing piston O-rings

Periodically check the piston O-ring for wear, and replace if necessary. Replacement piston O-rings are available from your GoatThroat dealer.

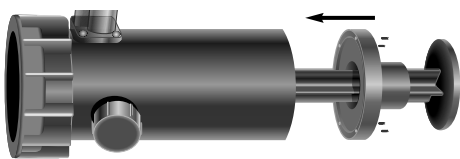
- 1** Remove 4 screws, then remove cap and piston from pump



- 2** Use spade-tip screwdriver to pry O-ring from piston. Lubricate new O-ring with Molykote 111 compound and fit it to piston, making sure it is seated properly in the groove.



- 3** Replace piston. Align tab on underside of cap with hole on pump body, then replace and tighten screws.



Replacing drum seals

Drum seals are color-coded. For safe operation, drum seals must match the color coding of the pump.:

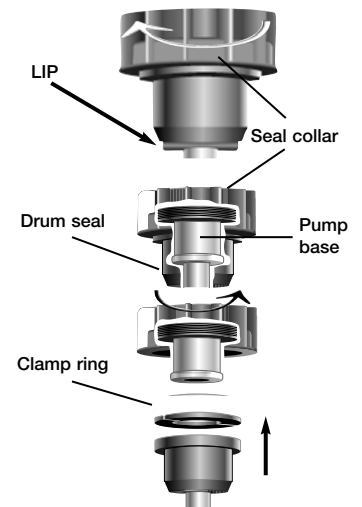
Red drum seal	Nitrile; use only with red GT 100 pumps (oils and petroleum-based liquids)
Blue drum seal	Ethylene propylene (EPDM); use only with blue GT 200 pumps (general purpose chemicals)
Green drum seal	Viton; use only with green GT 300 pumps (aggressive chemicals and solvents)
Black drum seal	Santoprene; for special applications only (see GoatThroat Pump Compatibility Guide)

Drum seals are provided in three sizes. Be sure to choose the size that most closely fits the container opening. If none of the three sizes can form a tight seal, the container cannot be used with a GoatThroat pump.



WARNING: Drum seals must match pump color coding. Replacing a seal with the wrong type may contaminate some types of chemicals or damage the pump which could cause risk of personal injury resulting from exposure to potentially hazardous substances.

- 1** Ease leading inner edge of drum seal out and over the lip on base of pump body. Screw seal collar clockwise as far as possible, which pushes drum seal down and off pump.
- 2** Re-tighten seal collar to expose clamp ring. Push drum seal off of pump with clamp ring.
- 3** Lubricate lip of pump body with Molykote 111 compound. Press new drum seal into position. The seal should fit snugly on the base of the pump.

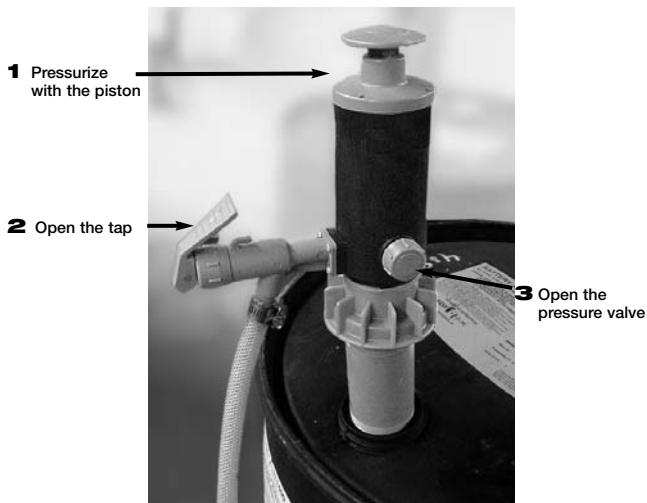


Using the pump as a siphon

Your GoatThroat™ Pump can be used as a hand pump or as a siphon. The siphon method is especially useful for a 30 or 55 gallon container .

To use it as a siphon:

- Clamp a 5' piece of hose, which is compatible with your liquid, to the tap.
- Pressurize the container as normal.
- Depending on the height differential between the fluid level and the receiving container, fluid should flow at about 1 - 2 gallons per minute. To increase speed, add pressure using the piston on the top of the pumps.
- When finished with transfer, close the tap, raise the end of the hose above the pump, reopen the tap and let the fluid in the hose drain back into the container. Then close your tap again. Finally, close the pressure release knob.



Using the pump with Shop air

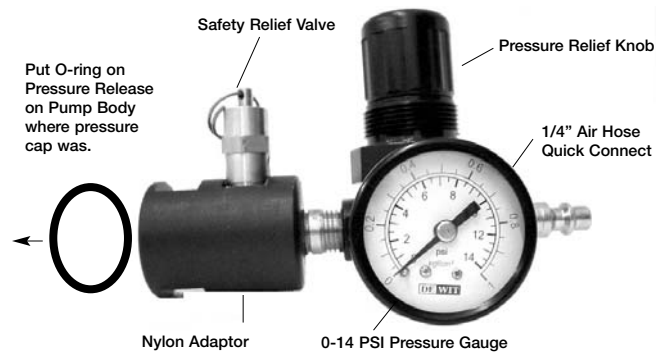
BillyGoat™ Adapter for GoatThroat™ Pumps For use with Shop Air, Compressors, and Bottled Air

To Install and Operate

1. Install attached o-ring
2. Remove the pressure relief valve cap from your pump
3. Screw the BillyGoat™ Adapter on in place of the cap. Keep the cap in a safe place.
4. Make sure the air regulator adjustment knob is completely closed.
5. Connect air hose from shop air or compressor to the BillyGoat™
6. Lift knob on regulator and turn counterclockwise to 2 PSI. Push down to lock in place
7. If fluid is to be delivered above 6' vertical, increase pressure to 4 - 6 PSI
8. The external safety relief valve will open automatically if air pressure exceeds 6-7 PSI. If this happens please reduce air pressure and close the safety relief valve completely.

To Remove

1. Close airflow completely
2. Disconnect hose from BillyGoat™
3. Open the safety relief valve on the BillyGoat™ system manually by pulling up, and wait for air pressure to be released
4. Shut off regulator
5. Unscrew the BillyGoat™ from the pump, including the o-ring
6. Replace the cap



Pump Standoff

If you are using the GoatThroat™ with a 55 or a 30 Gallon container, you may wish to purchase a 4" pump standoff kit as sometimes the spout hits the edge of the container.



Remote Discharge Tap

Remote Discharge Taps are available singly, or with several hose options. RTw/h5 (above right) comes fitted with a 5 foot hose for permanent connection to the pump body. RTw/10 includes a 10 foot hose. All standard hoses are PVC. We offer special hose selections for sulfuric acid and other fluids not compatible with PVC.

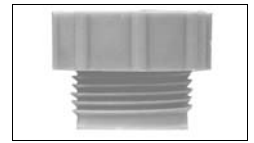


Buttress Adapters

You may have containers which have a coarse thread - such as you see here. The GoatThroat™ Drum seals are not pliable enough to work with these large threads. We offer buttress adapters for these special openings : 2.25" for most Asian manufactured drums, 2.5" for most U.S. drums, and 2.75" for most European drums. These PVC adapters are sold with a large o-ring to assist with the seal on the container.



2.5" Adapter



2.25" Adapter

Shop Air/Compressor Adapter

BillyGoat™ Adapter for Shop Air or Compressors

Makes Liquid Delivery Even Easier

Featuring two external pressure safety valves and a pressure regulator, the new compressor setup connects to a standard 1/2" quick disconnect hose and delivers fluids at up to 4.5 gallons per minute with a working pressure of only 2PSI.

