

Mechanical Air & Vapor Eliminators

Installation &
Parts



LIQUID CONTROLS®

An IDEX Energy & Fuels Business

M300-10

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Mechanical Air & Vapor Eliminators

Congratulations on ownership of a Liquid Controls Mechanical Air & Vapor Eliminator. This manual provides the technical details on installation, hardware, setup, operation, and regulatory information for your equipment.

Resources in this Guide

For convenience, you can easily download the [PDF edition of this guide](#). Liquid Controls recommends that you read through the introductory and safety information, and then proceed to the Installation chapter.

NOTICE

This manual provides warnings and procedures that are intended to inform the owner and/or operator of the hazards present when using the Liquid Controls Meter on LP gas and other products. The reading of these warnings and the avoidance of such hazards is strictly in the hands of the owner-operators of the equipment. Neglect of that responsibility is not within the control of the manufacturer.

Publication Updates

The most current versions of all Liquid Controls publications are available on the [Liquid Controls web site](#). If there are questions about the language or interpretation of any LC manuals, instructions, or specification sheets, please first contact your local distributor for help with your inquiry.

For service related issues that require further support from the Liquid Controls Service Team, please call the Liquid Controls Corporate Office:

Phone: +1 847 295-1050

Toll-free: 800 458 5262

Address: Liquid Controls LLC, 105 Albrecht Drive, Lake Bluff, IL 60044 USA

Website: www.LCmeter.com

Safety Procedures



BE PREPARED

- Before using this product, read and understand the instructions.
- All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of equipment and/or systems in accordance with all applicable codes and ordinances.
- When handling electronic components/boards, always use proper Electrostatic Discharge (ESD) equipment and follow proper procedures.
- Make sure that all necessary safety precautions have been taken.
- Provide for proper ventilation, temperature control, fire prevention, evacuation, and fire management.
- Provide easy access to appropriate fire extinguishers for your product.
- Consult with your local fire department, state, and local codes to ensure adequate preparation.
- Read this manual and all the literature provided in your owner's packet.
- Save these instructions for future reference.
- Failure to follow the instructions in this publication could result in, personal injury, or death from fire and/or explosion, property damage, or other hazards that may be associated with this type of equipment.



SAFELY EVACUATE PIPING SYSTEM

Before disassembly of any meter or accessory component: **ALL INTERNAL PRESSURES MUST BE RELIEVED AND ALL LIQUID DRAINED FROM THE SYSTEM IN ACCORDANCE WITH ALL APPLICABLE PROCEDURES.**

- Pressure must be 0 (zero) psi.
- Close all liquid and vapor lines between the meter and liquid source.

Failure to follow this warning could result in property damage, personal injury, or death from fire and/or explosion, or other hazards that may be associated with this type of equipment.



OBSERVE NATIONAL & LOCAL CODES

Power, input, and output (I/O) wiring must be in accordance with the area classification for which it is used (Class I, Div 2). For North America, installations must be per the U. S. National Electrical Code, NFPA 70, or the Canadian Electrical Code in order to maintain Class I, Division 2 ratings. This may require using connections or other adaptations in accordance with the requirements of the authority having jurisdiction.

Peripheral equipment must be suitable for the hazardous location where it is installed. (L'équipement périphérique doit être adapté à la zone dangereux où il est installé.)

WARNING: Explosion Hazard

When in hazardous locations, turn power OFF before replacing or wiring modules. (Lorsque dans des endroits dangereux, coupler le courant avant de remplacer ou de câbler des modules.)

DO NOT disconnect equipment unless power has been switched OFF or the area is known to be Non-Hazardous. (NE PAS déconnecter l'équipement sans coupler l'alimentation ou sans s'assurer que la zone est non dangereuse.)

WARNING: Use 3.5 in • lb (0.4 N • m) torque when tightening terminal block screws.



IN THE EVENT OF A GAS FIRE

IN THE EVENT OF A LARGE FIRE OR FIRES THAT ARE SPREADING

- Evacuate the building and notify your local fire department.
- Stop the leakage only if you can safely reach the equipment.

IN THE EVENT OF SMALL, CONTAINED FIRES THAT YOU CAN SAFELY CONTROL

- Stop the leakage, if you can safely reach the equipment.
- Use the appropriate extinguisher for the materials that have caught fire, such a Class B fire extinguisher, water, or fog extinguisher.
- If in doubt, call your local fire department.



IN THE EVENT OF A GAS LEAK

IN THE EVENT OF A LARGE GAS LEAK

- Evacuate the building and notify your local fire department.

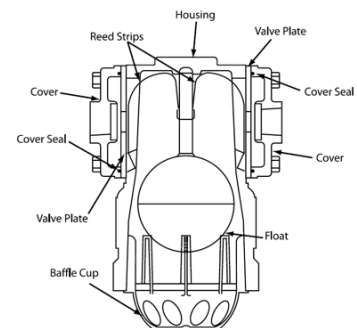
IN THE EVENT OF A SMALL, CONTAINED GAS LEAK

- Stop the leak and prevent accidental ignition.
- Prevent the entrance of gas into other portions of the buildings. Some gases such as LPG seek lower levels, while other gases seek higher levels.
- Evacuate all people from the danger zone.
- Ensure that the gas is dispersed before resuming business and operating motors.
- If in doubt, notify your local fire department.

General Information

Liquid Controls Mechanical Air & Vapor Eliminators remove air and vapor from metering systems. Removing the air and vapor from a metering system increases the accuracy of the meter by allowing only liquid to pass through the meter for measurement.

At installation, Liquid Controls mechanical air and vapor eliminators are piped to a storage tank to provide a pathway and a receptacle where the evacuated air and vapor can be deposited. After the air (or vapor) has left the metering system, mechanical air and vapor eliminators seal off the pathway to prevent liquid from entering the storage tank.



Storage Tank

In this manual, the term “storage tank,” refers to any type of receptacle meant to hold air or vapor expelled from the meter system by an air eliminator. Because mechanical air and vapor eliminators remove both air and vapor, depending on the application, the terms “air” and “vapor” are interchangeable throughout this guide.

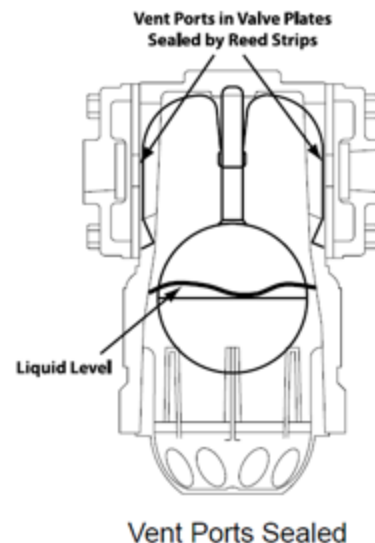
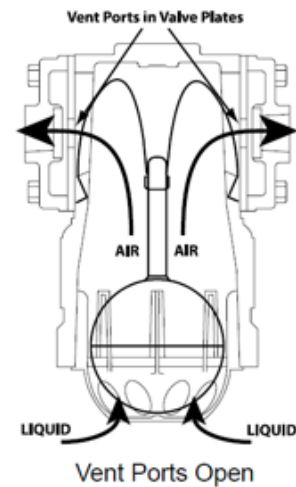
Orientation and Components

Liquid Controls mechanical air and vapor eliminators are typically bolted, in an upright position, onto the top of a strainer on the inlet side of the meter. Before operation, air and vapor eliminators must be piped to a storage tank and—on most meter systems— to an air-check (or differential) valve. Installation and maintenance must be done by a qualified technician. See [Installation](#) ²⁷ for Field Piping installation.

Air and Vapor Elimination

Liquid Controls mechanical air and vapor eliminators eliminate air (or vapor) instantly and continuously as it enters the meter system. Because air and vapor are lighter and less dense than liquid, they are naturally pushed up above the product flow. Air and vapor eliminators are set above the product flow so that air in the system is pushed up into the cavity inside the air eliminator housing, out the valve plate vent ports, through the piping, and into a storage tank (see "Vent Ports Open" figure).

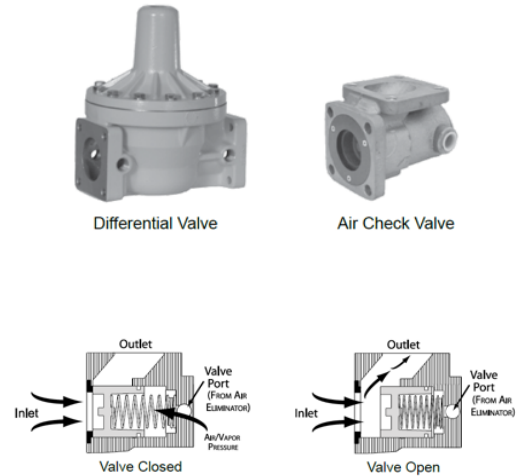
As air is evacuated from the system, the liquid level inside the air eliminator cavity is allowed to rise and push the float up. As the float moves up, it presses the reed strips against the valve plate sealing the vent ports and preventing product from passing through the piping and into the storage tank. If more air enters the system, it will rise to the top of the air eliminator cavity. The air will accumulate there and push the liquid level, and the float, lower. As the float falls, the reed strips pull away from the vent ports, and air can be vented before it enters the system.



Air Check and Differential Valves

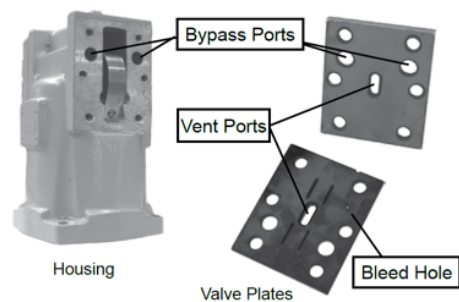
Air check and differential valves are spring loaded valves on the outlet side of the meter. Most Liquid Controls meter systems with an air eliminator also have an air check or a differential valve. Air eliminators and air-check (or differential) valves work in conjunction to stop the flow of product through the meter until the air is eliminated from the system. In order to do this, the air eliminator and the valve are piped together at installation.

Air-check (or differential) valves are normally closed, but when the pump starts and pushes product into the system, the valve spring will give way to the flow pressure. In order to keep the valve closed when air is being expelled from the air eliminator, the air from the air eliminator is routed through the piping to the back side of the valve spring. The combined force of the expelled air and the strength of the spring keep the valve closed until the air is eliminated.



Limited Bleed Valve Plates

After the air is eliminated and the reed strips pull away from the vent ports, the air pressure on the back side of the spring is relieved and the valve opens. To avoid the system shock sustained by an abruptly opened valve, the pressure must be released slowly. In order to do this, a 1/32-inch bleed hole has been drilled into one of the valve plates so that it sits over a bypass port. The small bleed hole gradually releases the pressure on the valve spring allowing it to open it slowly.



Storage Tank

Bypass ports provide a pathway through the mechanical air eliminator housing to allow air or vapor to pass from one side of the air eliminator to the other while the valve plate vent ports are sealed.

Limited Bleed Tee Assemblies

Some Liquid Controls mechanical air eliminator models are designed without bypass ports in their housings (for example, bulk plant air eliminators). For those models to retain the functions of a limited bleed valve plate, a limited bleed tee assembly can be installed in the piping.



Limited Bleed Tee Assembly

Dual-Head Bulk Plant Air Eliminators

By employing two air eliminators—a high-mount air eliminator and a low-mount air eliminator—dual-head bulk plant air eliminators save the metering system from shocks incurred by recurring small slugs of air (or vapor) and prevent large slugs of air from passing by the air eliminator and through the meter system.

Each time a standard air eliminator removes a small slug of air, it closes the downstream differential valve. When the differential valve closes at a high flow rate, meter systems can incur a significant hydraulic shock. Repeated shocks of this nature can shorten the life of the metering system.

Dual-head bulk plant air eliminators have a high-mount air eliminator that eliminate small slugs of air without stopping the product flow through the meter system to save the system from shock. Dual-head bulk plant air eliminators also have a low-mount air eliminator to remove large air slugs.

Occasionally, large slugs of air can overtake a standard air eliminator, and excess air can blow by the air eliminator and pass through the meter—which can cause inaccurate metering. With a dual-head bulk plant air eliminator and a differential valve as part of the metering system, the float in the low-mount air eliminator drops in the presence of a large slugs of air, the differential valve senses the presence of air as the pressure above and below the diaphragm, and the

valve closes until the large slug of air is removed. When the float rises and the valve opens, the high-mount air eliminator removes the remaining air in the vessel.

Dual-head bulk plant air eliminators require a differential valve and they can only be mounted in fixed installations. They are ideal for applications when product is being metered into storage from a truck or transport with a pump mounted on the truck.



Dual Head Bulk Plant Air Eliminator

Single-Head Bulk Plant Air Eliminator with Optical Sensor

The Single-Head Bulk Plant Air Eliminator with Optical Sensor performs the same functions as the Dual-Head Bulk Plant Air Eliminator. Both air eliminators use a high mount air eliminator to siphon air without stopping the flow. But instead of a low-mount mechanical air eliminator, the Single-Head Bulk Plant Air Eliminator with Optical Sensor uses an optical sensor to identify large air slugs. When the optical sensor identifies a large air slug, it instantly signals an electronic preset or register (Toptech MultiLoad presets or Liquid Controls LectroCount registers). The electronic device closes a downstream control valve—which stops the product flow—and the air slug is quickly vented.



Single Head Bulk Plant Air Eliminator with Optical Sensor

The optical sensor provides several advantages over its mechanical counterpart. The response time of the optical sensor is much faster than pneumatic-based mechanical air eliminators. The optical sensor has no moving parts or piping requirements, which can simplify installation and maintenance.

Specifications

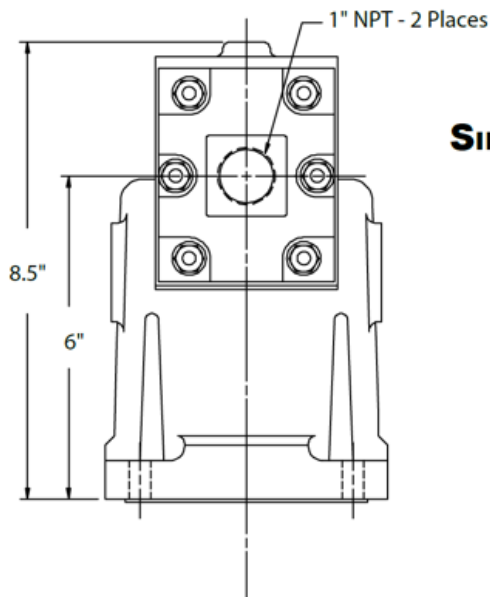
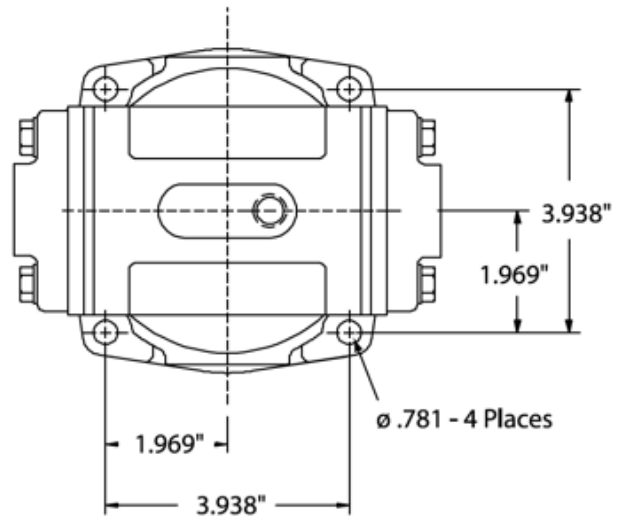
Aluminum High-Mount Air & Vapor Eliminators

For use with aluminum M-5, M-7, M-10, M-15, M-25, M-30, M-40, M-60 and M-80 meters. Typically installed with aluminum F7, F15, and F30 strainers.

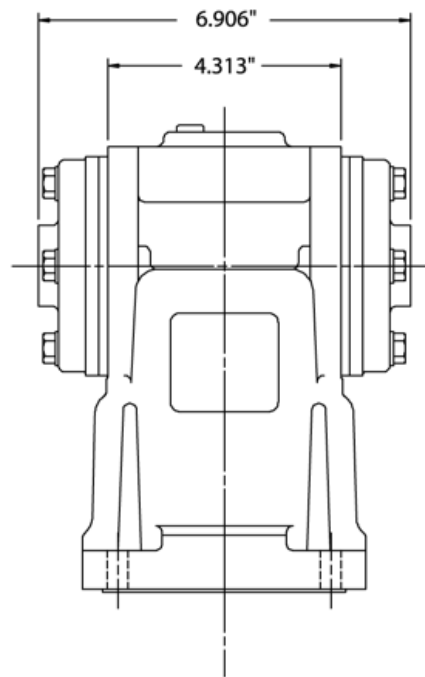
- Working Pressure = 150 PSI
- Typical Products are Refined Fuels

NOTE: Consult the factory when certified engineering drawings are required. Dimensions shown are not suitable for construction or modifications.

TOP VIEW



SIDE VIEWS



Dimensions are of the A8197 only

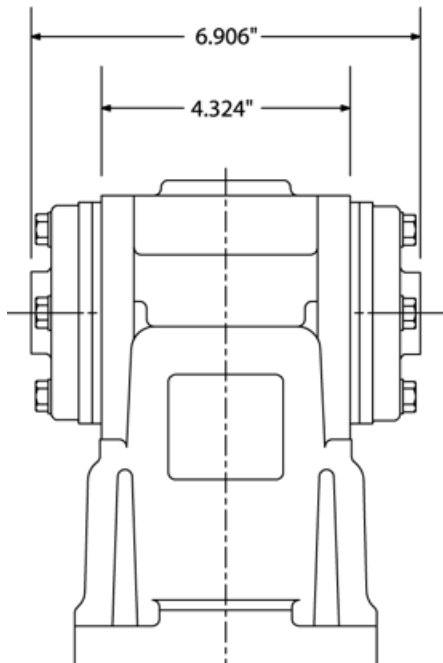
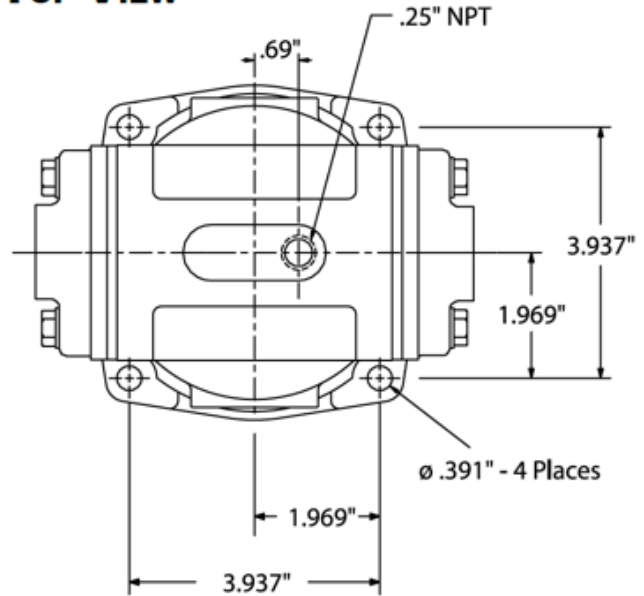
High-Pressure Aluminum Air & Vapor Eliminators

For use with aluminum MA-4, MA-5, and MA-7 and MA-15 meters. Typically installed with the aluminum FA7 strainer.

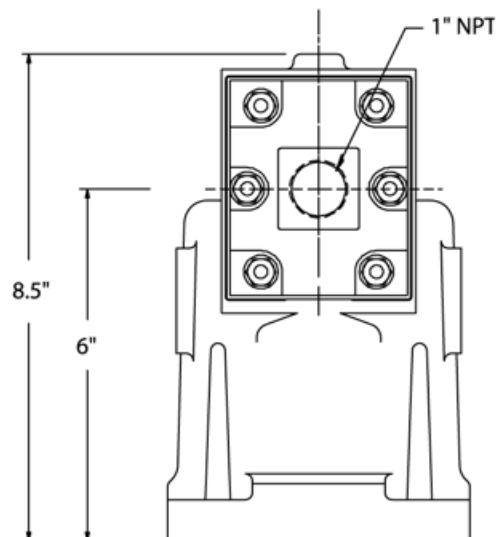
- Working Pressure = 350 PSI
- Typical products are LPG and Anhydrous Ammonia

NOTE: Consult the factory when certified engineering drawings are required. Dimensions shown are not suitable for construction or modifications.

TOP VIEW



SIDE VIEWS



Dimensions are of the A8340A only

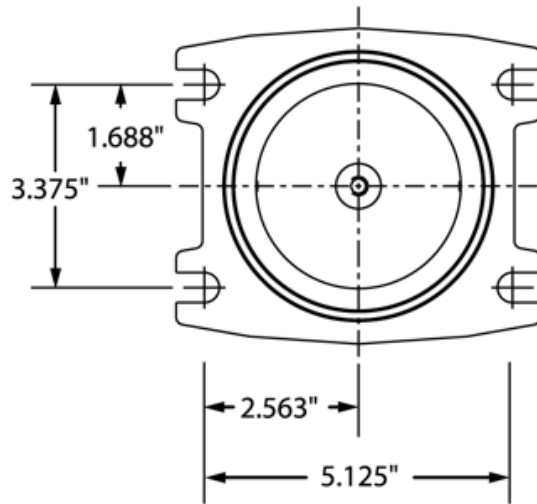
Cast Iron High-Mount Air & Vapor Eliminators

For use with cast iron M-7 meters.
Typically installed with the cast iron F7 strainers.

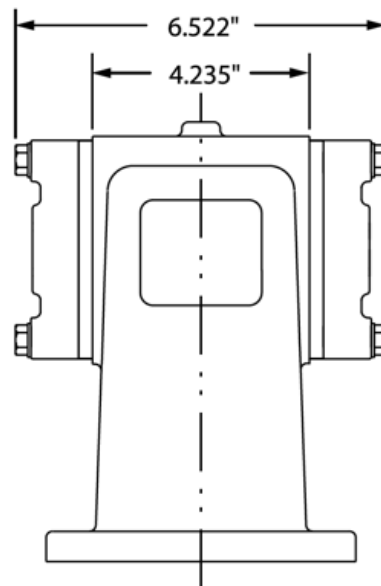
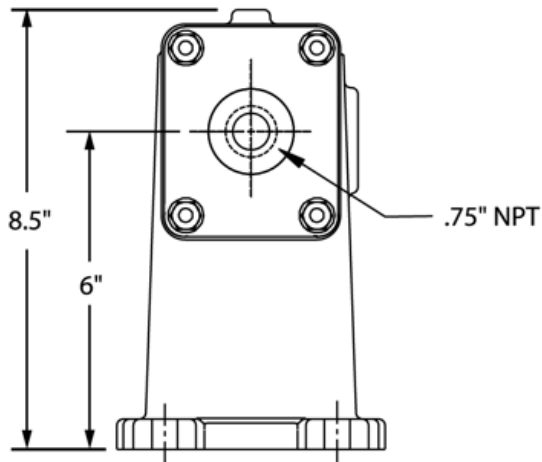
- Working Pressure = 150 PSI
- Typical products are Chlorinated Solvents

NOTE: Consult the factory when certified engineering drawings are required.
Dimensions shown are not suitable for construction or modifications.

BOTTOM VIEW



SIDE VIEWS



Dimensions are of the A8977 only

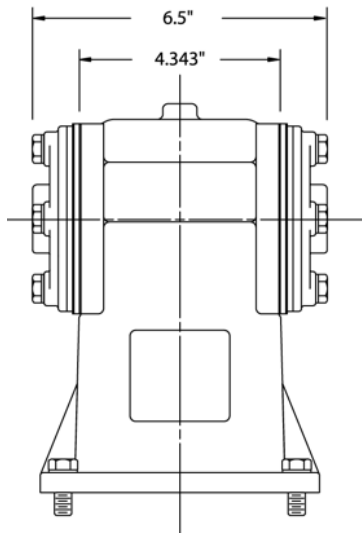
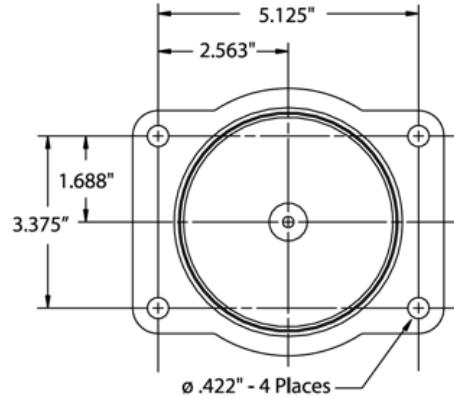
Stainless Steel High-Mount Air & Vapor Eliminators

For use with stainless steel M-5 class 8 and M-7 class 8 meters. Installed with stainless steel F7 class 8 strainers.

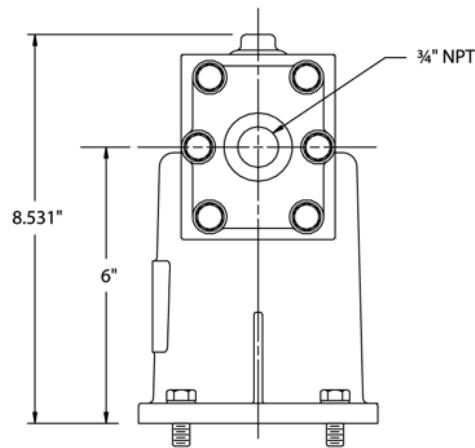
- Working Pressure = 150 PSI
- Typical products are Acidic Solutions

NOTE: Consult the factory when certified engineering drawings are required. Dimensions shown are not suitable for construction or modifications.

BOTTOM VIEW



SIDE VIEWS



Dimensions are of the A8985 only

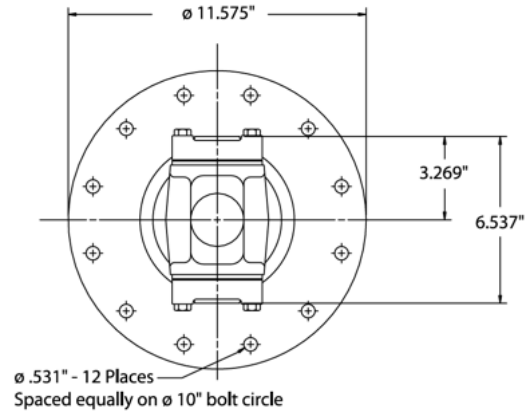
Steel Air & Vapor Eliminators

For use with MS, MSAA, and MSA series steel case meters. Installed with FS, FSAA, and FSA steel series strainers.

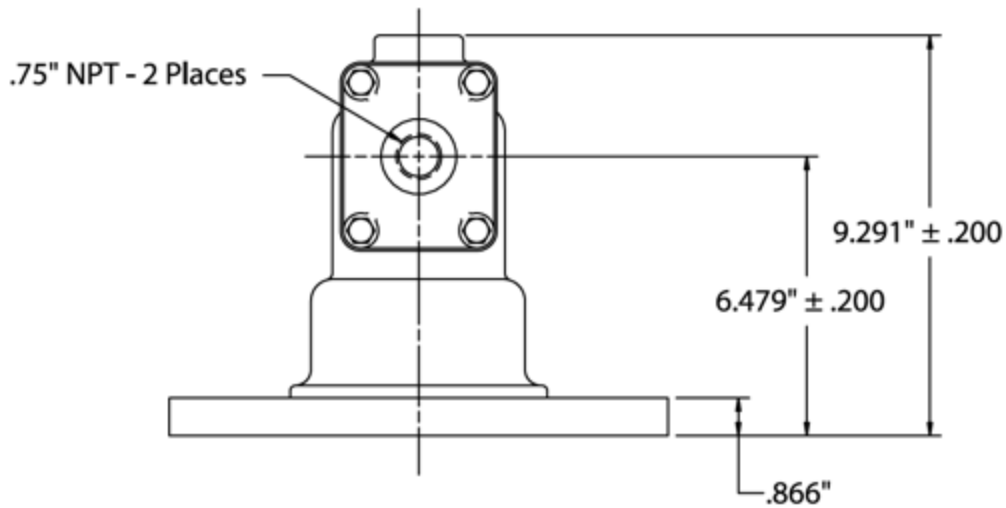
- Working Pressure = 150 PSI, 275 PSI and 300 PSI (Three products are available)
- Typical products are Refined Fuels and Light Hydrocarbons

NOTE: Consult the factory when certified engineering drawings are required. Dimensions shown are not suitable for construction or modifications.

TOP VIEW



SIDE VIEW



Dimensions are of the A8935 only

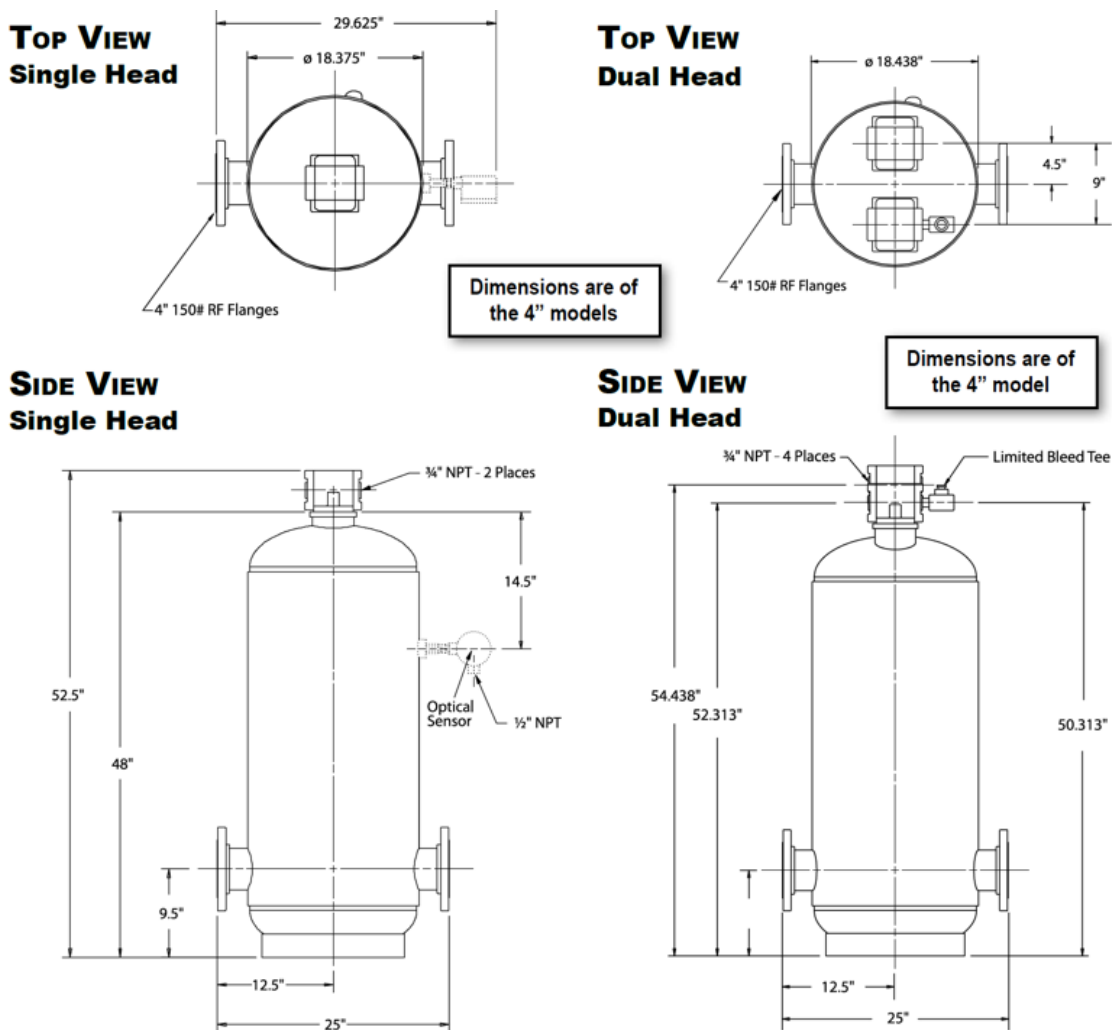
Steel Bulk Plant Air Eliminators

For use with aluminum M or MS series meters.

Choices of 3, 4, 6 and 8 inch ANSI flanged connections. Offered in single-head, dual-head, and single-head with optical sensor models to provide high-venting capacity for metering into storage systems.

- Working Pressure = 150 PSI
- Typical products are Refined Fuels
- Optical Sensor - Power Input: +10 to +28VDC, 0.5A maximum

NOTE: Consult the factory when certified engineering drawings are required. Dimensions shown are not suitable for construction or modifications.



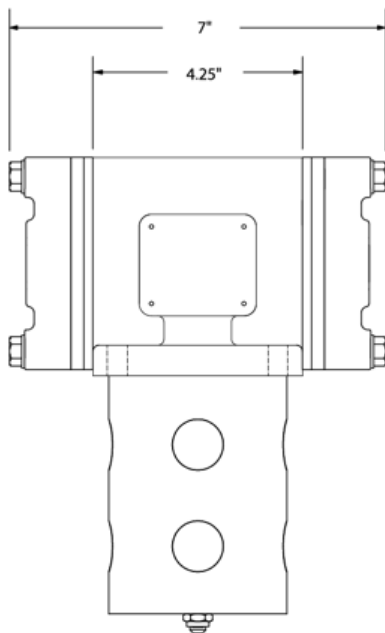
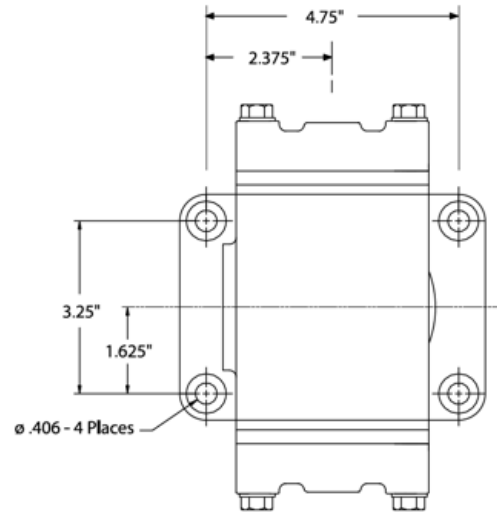
Steel Low-Mount Air Eliminators

For use with filter/separators.

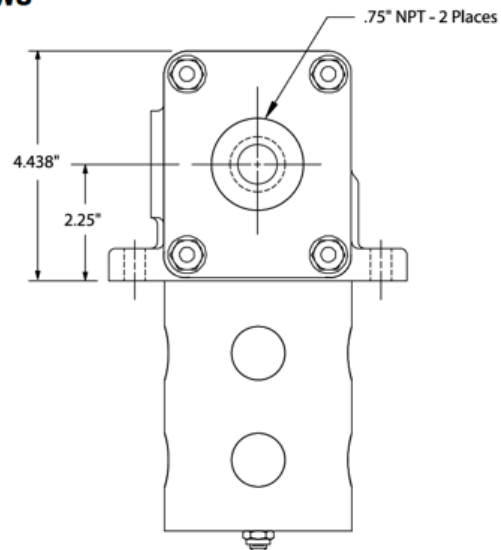
- Working Pressure = 150 PSI
- Typical products are Aviation Fuels

NOTE: Consult the factory when certified engineering drawings are required. Dimensions shown are not suitable for construction or modifications.

TOP VIEW



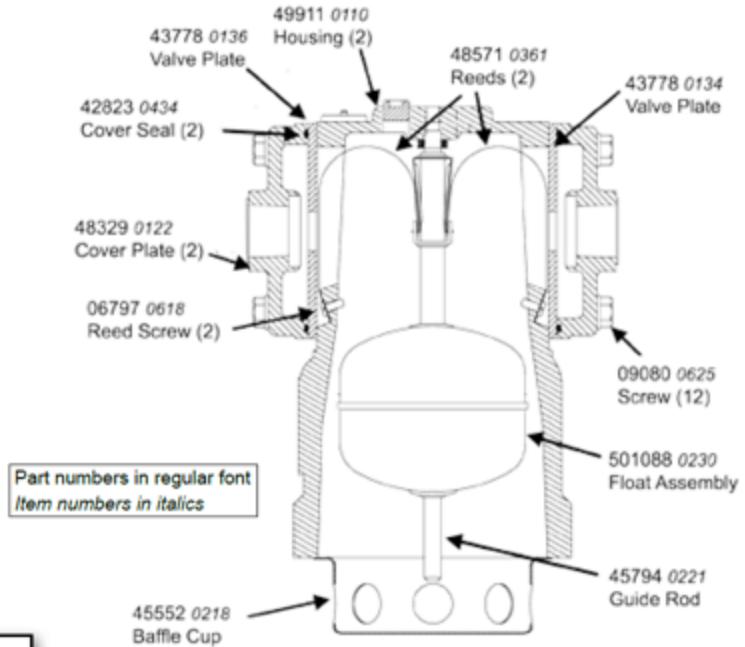
SIDE VIEWS



Dimensions are of the A8175 only

Bill of Materials

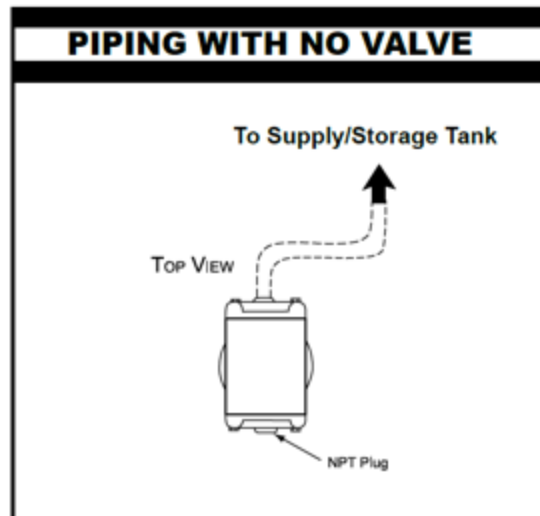
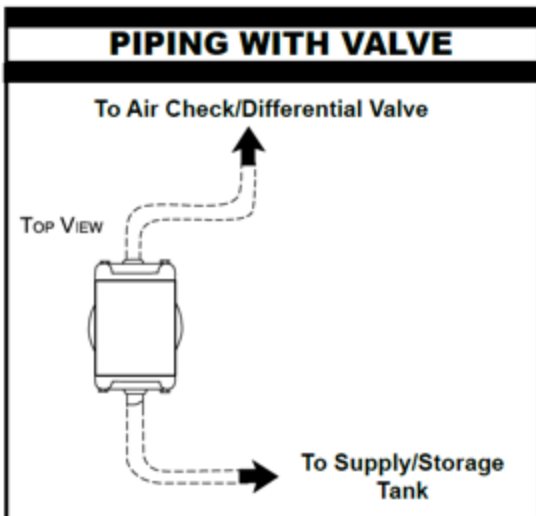
Aluminum High Mount Air and Vapor Eliminators A8180 Series



Part numbers in regular font
Item numbers in italics

Part numbers are for the A8197 standard air eliminator only

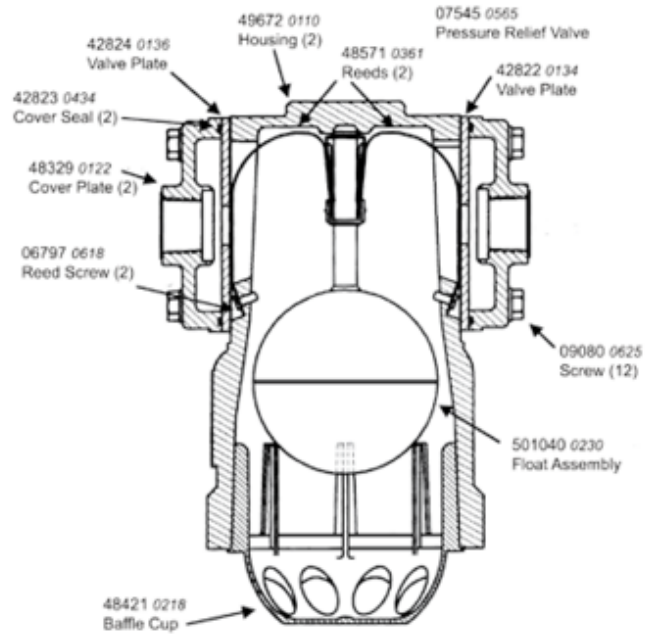
* 4 cover gaskets (0434) are required on air eliminators with kalrez seals



**Aluminum High Pressure Air and Vapor Eliminators
A8340A Series**

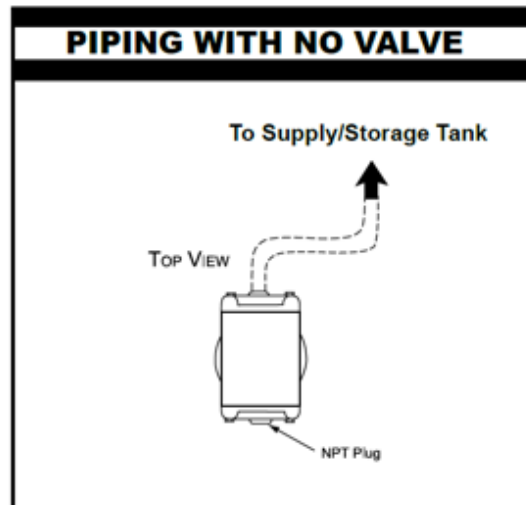
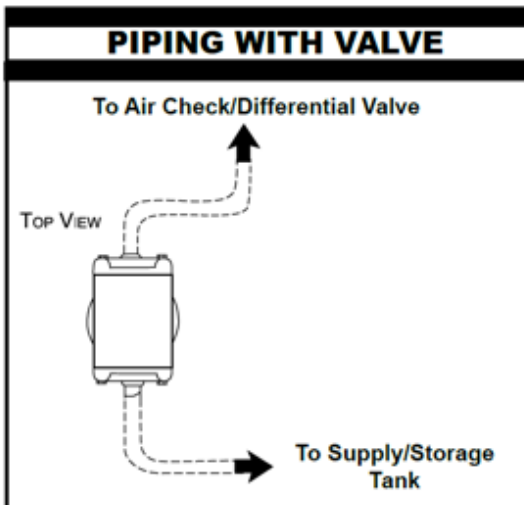


Part numbers are for the A8197 standard air eliminator only

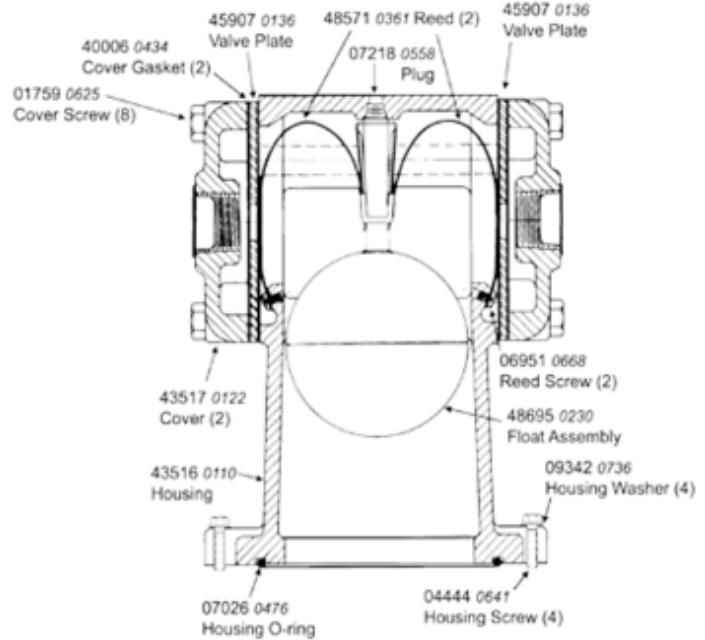


* 4 cover gaskets (0434) are required on air eliminators with kalrez seals

Part numbers in regular font
Item numbers in italics



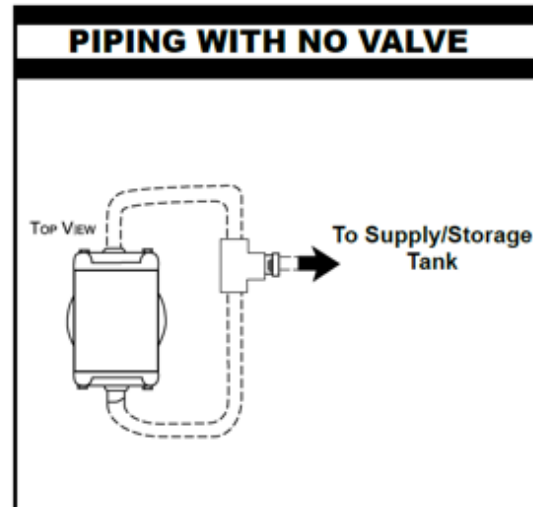
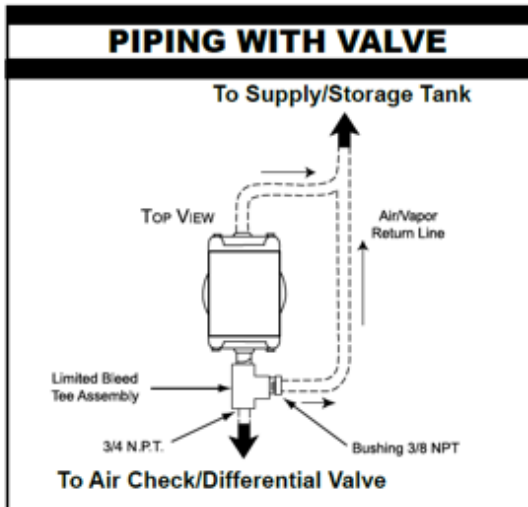
**Cast Iron High Mount Air and Vapor Eliminators
A8976 Series**



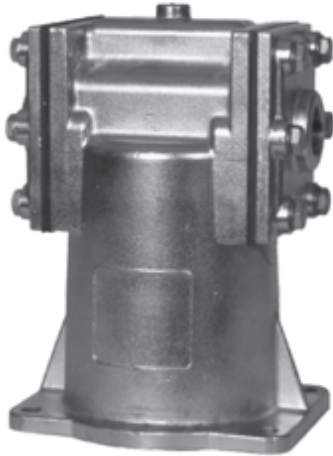
Part numbers are for the A8977 standard air eliminator only

* 4 cover gaskets (0434) are required on air eliminators with kalrez seals

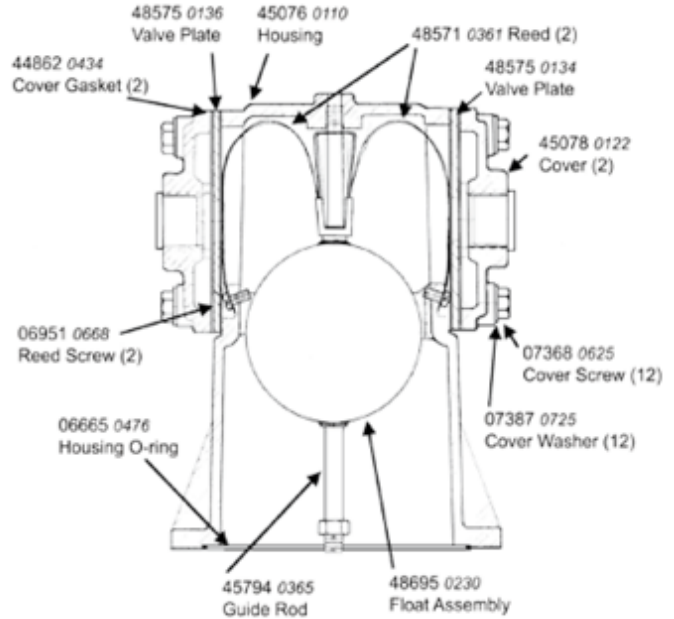
Part numbers in regular font
Item numbers in italics



**Stainless Steel High Mount Air Eliminators
A8985 Series**

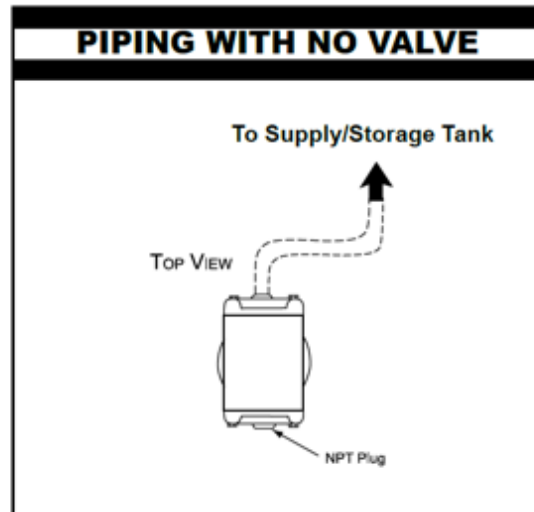
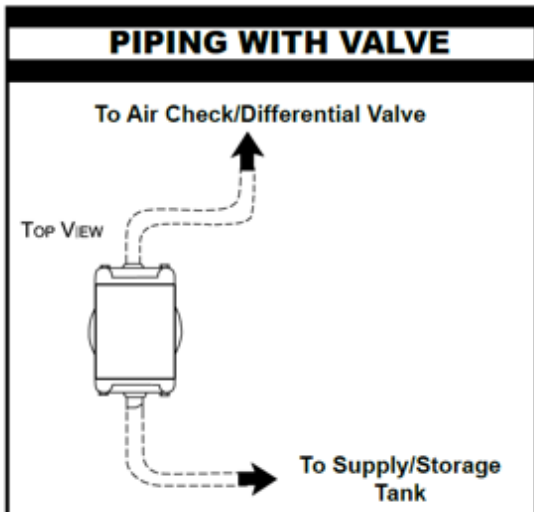


Part numbers are for the A8985 standard air eliminator only



* 4 cover gaskets (0434) are required on air eliminators with kalrez seals

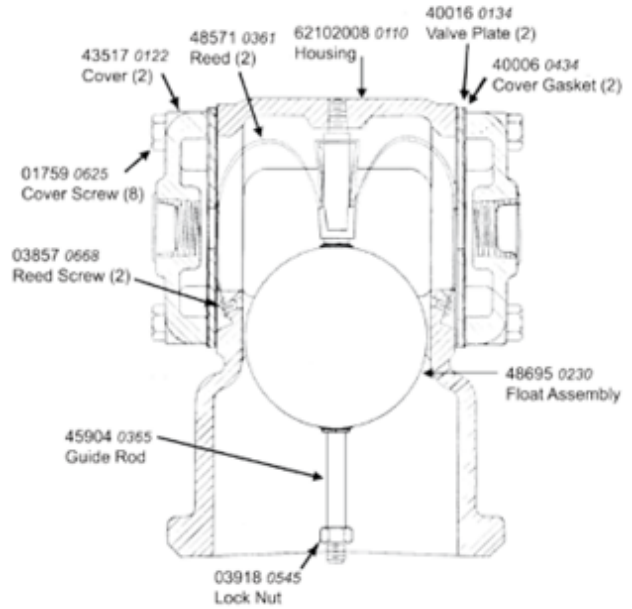
Part numbers in regular font
Item numbers in italics



**Steel Air and Vapor Eliminators with Strainer Cover
A8930 Series**

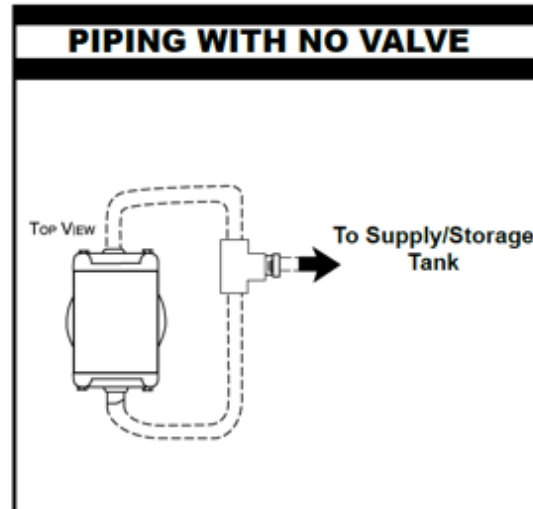
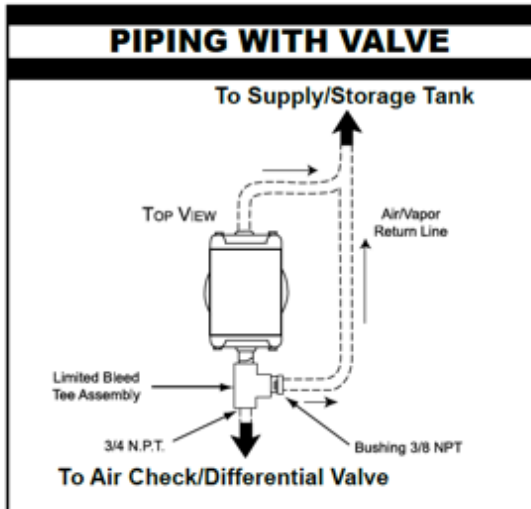


Part numbers are for the A8935 standard air eliminator only



* 4 cover gaskets (0434) are required on air eliminators with kalrez seals

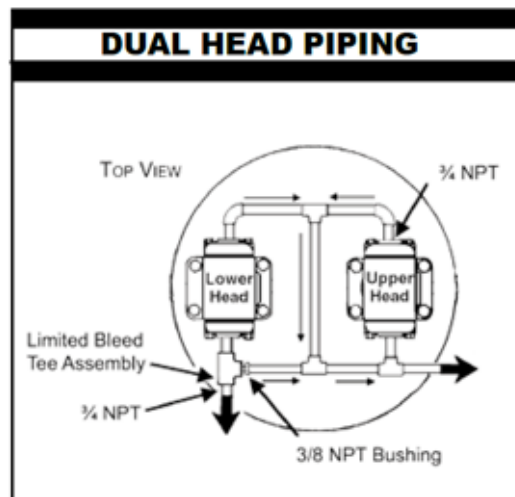
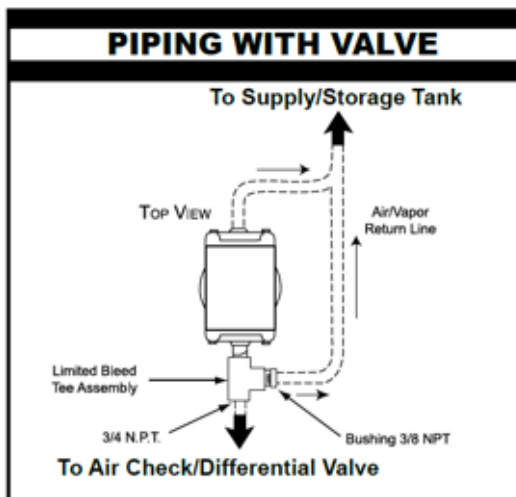
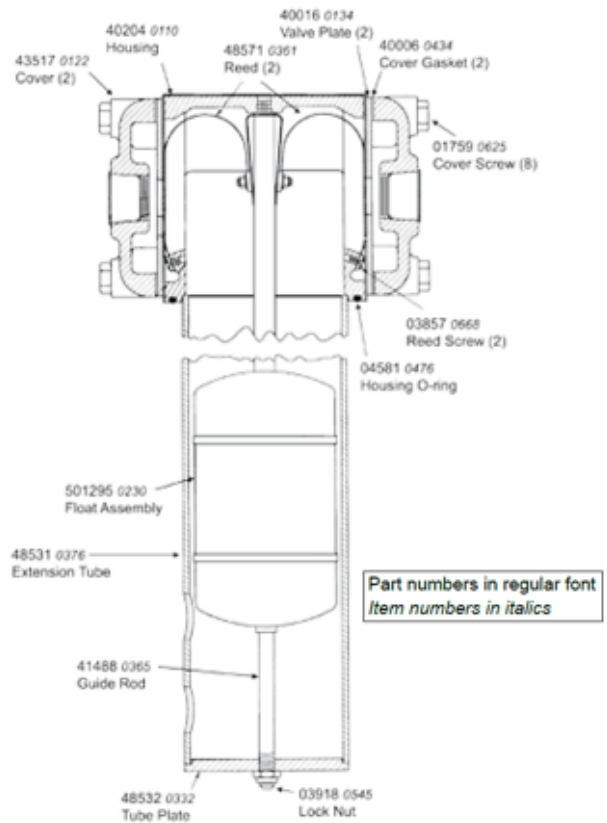
Part numbers in regular font
Item numbers in italics



**Bulk Plant Air Eliminators
A8950 Series**



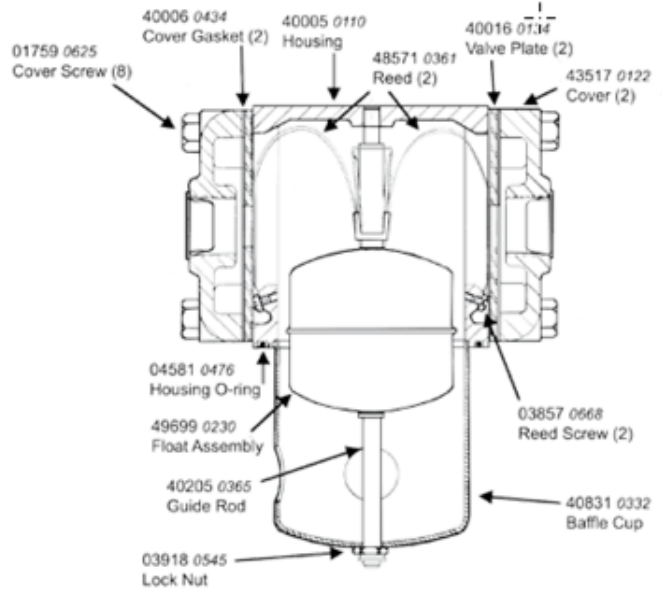
Part numbers are for the A8170 standard air eliminator only



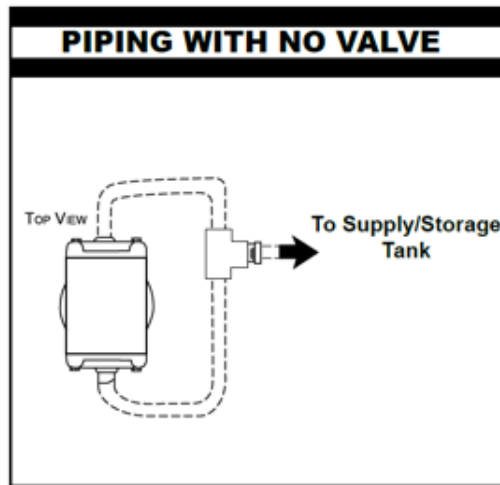
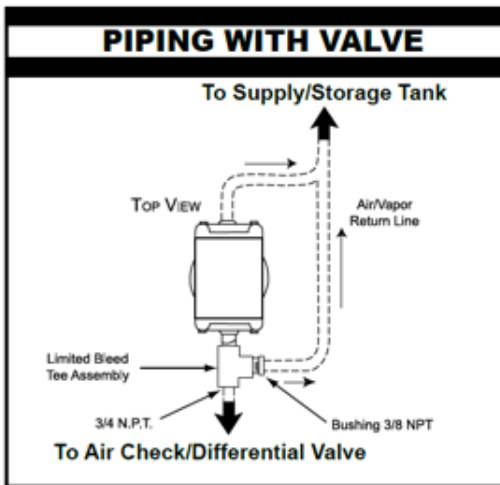
**Low Mount Air Eliminators
A8175 Series**



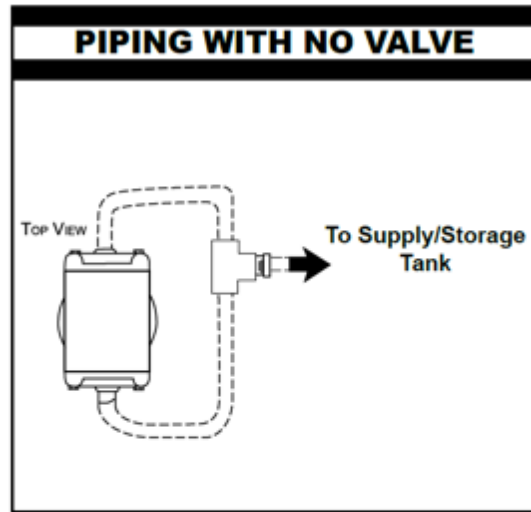
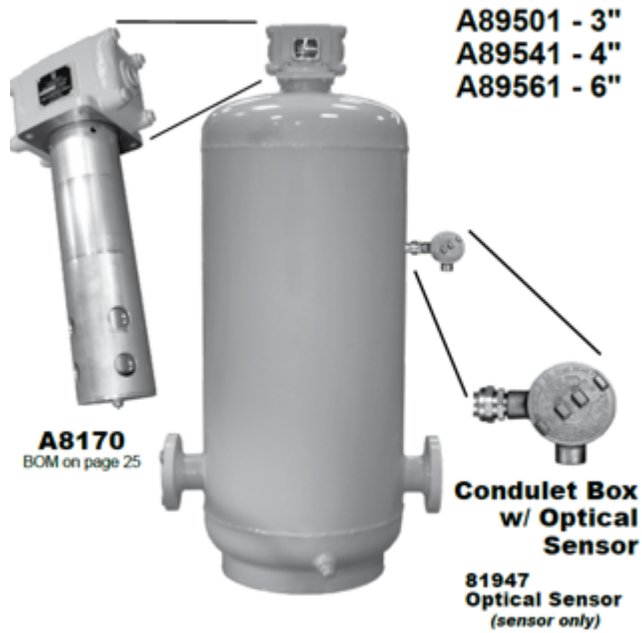
Part numbers are for the A8175 standard air eliminator only



Part numbers in regular font
Item numbers in italics

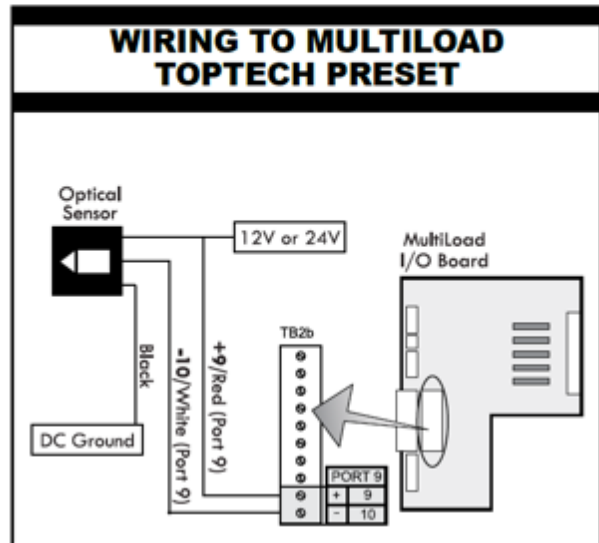
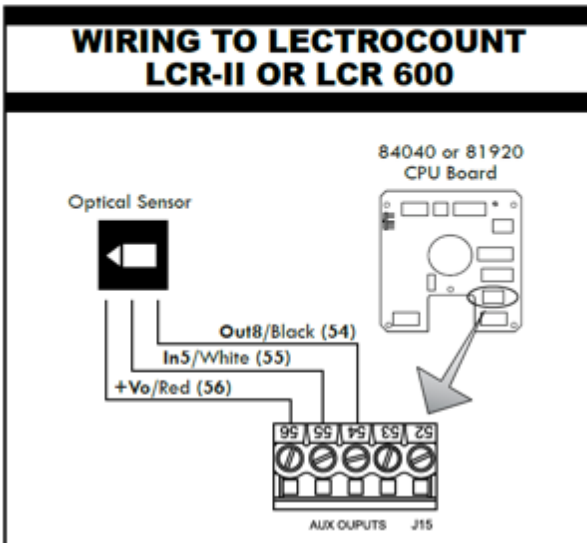


Single Head Bulk Plant Air Eliminator with Optical Sensor



To configure the Single Head Bulk Plant Air Eliminator with Optical Sensor to MultiLoad:

1. Set the number of seconds in Low Flow Time Alarm to the desired time between Optical Sensor detection of air and the valve closing to stop the flow .
2. Configure custom logic: Set Output Port 8 active (Control Valve Enable) when Input Port 9 is active.



Installation



RELIEVING INTERNAL PRESSURE

All internal pressure must be relieved to zero pressure before disassembly or inspection of the strainer, vapor eliminator, any valves in the system, the packing gland, and the front or rear covers.

Serious injury or death from fire or explosion could result in performing maintenance on an improperly depressurized and evacuated system.

Strictly follow this procedure Relieving Internal Pressure Procedure for LPG and NH3 Meters:

1. Close the belly valve of the supply tank.
2. Close the valve on the vapor return line.
3. Close the manual valve in the supply line on the inlet side of the meter. If no manual valve exists on the inlet side, consult the truck manufacturer for procedures to depressurize the system.
4. Slowly open the valve/nozzle at the end of the supply line.
5. After product has bled off, close the valve/nozzle at the end of the supply line.
6. Slowly crack the fitting on top of the differential valve to relieve product pressure in the system. Product will drain from the meter system.
7. As product is bleeding from the differential valve, slowly reopen and close the valve/nozzle on the discharge line. Repeat this step until the product stops draining from the differential valve and discharge line valve/nozzle.
8. Leave the discharge line valve/nozzle open while working on the system.

Field Piping

Storage Tank

In this manual, the term “storage tank,” refers to any type of receptacle meant to hold air or vapor expelled from the meter system by an air eliminator. Because mechanical air and vapor eliminators remove both air and vapor, depending on the application, the terms “air” and “vapor” are interchangeable throughout this manual.

Most Liquid Controls mechanical air and vapor eliminators are shipped from the factory as part of a complete meter system. These air eliminators will arrive bolted to the top of a strainer on the inlet side of the meter.

Before the meter system can be put in operation, the vent ports of the air or vapor eliminator must be piped to a storage tank and/or a valve.

Piping to Storage Tanks

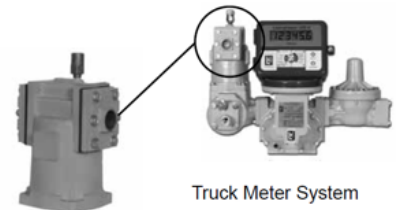
Piping configurations for Liquid Controls mechanical air and vapor eliminators are determined by two factors, (i) the presence or absence of a valve in the meter system and the presence or absence of bypass ports and (ii) a limited bleed valve plate in the mechanical air eliminator assembly.



Bulk Plant Meter System

Piping to Air Check (or Differential) Valve

For meter systems installed into LPG applications, differential valves are often piped to the mechanical vapor eliminator in the Liquid Controls factory before shipment, but for other meter systems, the air eliminator will have to be piped in the field.



Truck Meter System

Piping Configurations & Connections

Piping configurations for Liquid Controls mechanical air and vapor eliminators are determined by two factors, (i) the presence or absence of a valve in the meter system and the presence or absence of bypass ports and (ii) a limited bleed valve plate in the mechanical air eliminator assembly.

If the meter system has an air check or differential valve, the air or vapor eliminator and the valve must be piped together. If no air check or differential valve exists, you must either plug one of the vent ports (Figure 2) or pipe both vent ports to the storage tank (Figure 3).

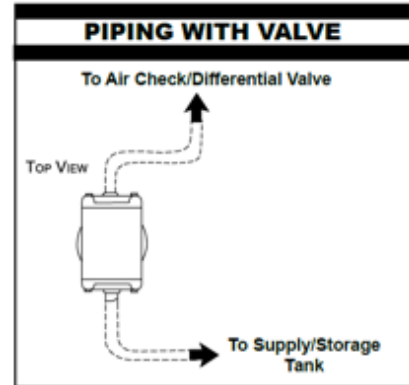


Figure 1

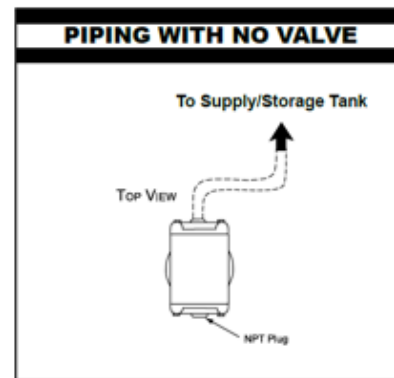


Figure 2

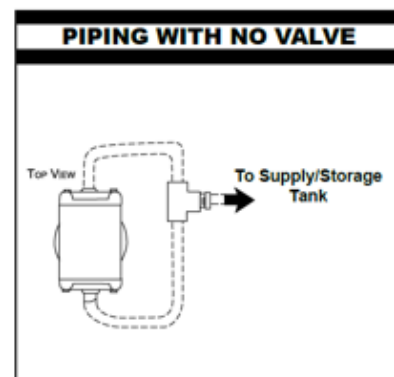


Figure 3

Air eliminator models cast without bypass ports cannot be assembled with a limited-bleed valve plate at the Liquid Controls factory. To retain the pressure control that a limited-bleed valve plate provides, a limited-bleed tee assembly must be installed in the piping between the air eliminator and the valve (Figure 4).

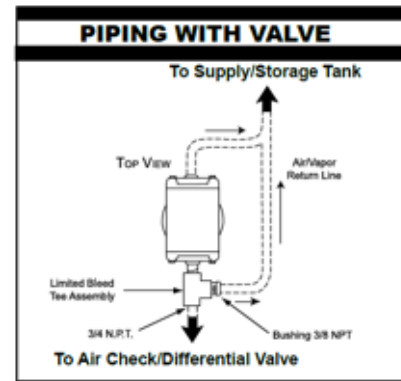
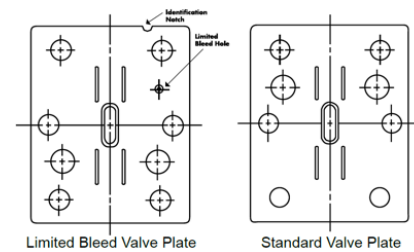


Figure 4

Under normal circumstances, it is irrelevant which vent port is piped to the valve and which vent port is piped to the storage tank. However, there is one exception: air eliminators with an increased venting capacity valve plate. These include part numbers A8201, A8198, A8190, A8188, and A8183. When installing these air eliminators, the increased venting valve plate should be piped to the storage tank, and the limited-bleed valve plate should be piped to the valve. The limited-bleed valve plate is easily identified by the notch in the top of the plate (see below).



Piping Configuration

The piping configuration for each air and vapor eliminator series is shown in the [Bill of Materials](#) ¹⁹.

Electronic Valves

When using an electronic valve, product may become trapped between the vapor eliminator and the valve.

Piping Guidelines

- Pipe with as little restriction as possible. By minimizing restrictions, the air or vapor eliminator will work as efficiently as possible.
- $\frac{3}{4}$ " (or larger) pipe/hose is recommend to vent air or vapor to the storage tank.
- $\frac{1}{2}$ " pipe/hose is recommended for piping to an air check or differential valve ($\frac{3}{8}$ " is acceptable).
- If using hose, choose a type that will not collapse in on itself (heater hose, hydraulic hose, etc.).
- Be sure a catch vessel or spit receptacle is vented with a vent no smaller than the pipe/hose connected to it. (Catch vessels vary in size but most are between 2 and 5 gallons.)
- Pipe the air eliminator vent port into the top of the catch vessel for maximum efficiency.
- Liquid Controls recommends that catch vessels be drained regularly and that the volume is indicated with a sight gauge, for example.

Maintenance



RELIEVING INTERNAL PRESSURE

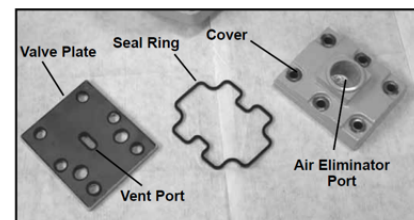
All internal pressure must be relieved to zero pressure before disassembly or inspection of the strainer, vapor eliminator, any valves in the system, the packing gland, and the front or rear covers.

Serious injury or death from fire or explosion could result in performing maintenance on an improperly depressurized and evacuated system.

Strictly follow this procedure Relieving Internal Pressure Procedure for LPG and NH3 Meters:

1. Close the belly valve of the supply tank.
2. Close the valve on the vapor return line.
3. Close the manual valve in the supply line on the inlet side of the meter. If no manual valve exists on the inlet side, consult the truck manufacturer for procedures to depressurize the system.
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6. Slowly crack the fitting on top of the differential valve to relieve product pressure in the system. Product will drain from the meter system.
7. As product is bleeding from the differential valve, slowly reopen and close the valve/nozzle on the discharge line. Repeat this step until the product stops draining from the differential valve and discharge line valve/nozzle.
8. Leave the discharge line valve/nozzle open while working on the system.

The most common indication of mechanical air and vapor eliminator failure is leakage in and around the cover and valve plate area. Common causes of air eliminator failure are valve plate wear, a broken reed strip, a damaged cover gasket, and a punctured float filled with product.



Relieving Internal Pressure

Be sure to relieve internal pressure and remove all product from the system before disassembling the mechanical air eliminator. See the warning above.

Replace the Valve Plates & Cover Gaskets

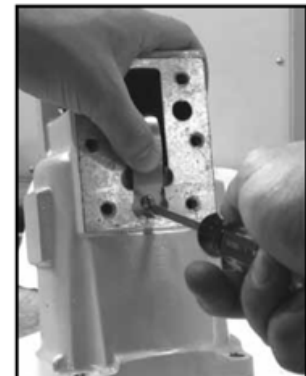
Follow these steps:

1. Remove the cover screws from the air eliminator cover with a 1/2-inch wrench or socket. Then pull the cover, vent plate, and seal ring from the housing.
2. Inspect the raised ridge of the vent port opening in the middle of the valve plate for marring or debris. Inspect the seal ring for damage.
3. Replace the seal ring and/or valve plate. Tighten the cover screws to a torque of 17.5 - 20.5 ft-lbs.

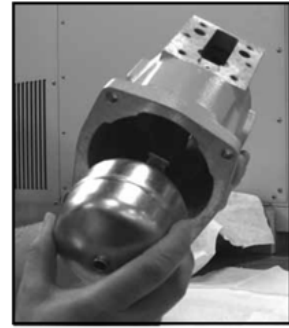
Replace the Reed Strips & Float Assemblies

Follow these steps:

1. Remove the 4 screws and washers at the base of the air eliminator. Pull the air eliminator off the strainer.
2. Remove the baffle plate and the baffle cup (aluminum air eliminators only) from the housing. If the air eliminator has a lock nut and a bushing on the bottom of the guide post, remove them.
3. Remove the cover screws from the air eliminator cover with a 1/2-inch wrench or socket, Then pull the cover, vent plate and seal ring from the housing.
4. To remove a reed strip that is still intact, hold down the reed strip and unscrew the reed screw (shown on the top right). Gently allow the reed strip to straighten. Reed strips violently snap back if they are not held down while removing the reed screw. Failure to hold down the reed strip could result in injury and is the cause of many lost screws.



5. Pull the float, along with the attached reed strips, out from the bottom of the air eliminator (shown on the right). If the float is heavy and full of product, replace it with a new float assembly.
6. If one of the reed strips is broken, remove it and replace with a new reed strip.
7. Begin reassembly. Push the float, along with the attached reed strips, up into the air eliminator cavity. Pull the reed strips out of the side slots (shown on the right). Hold the reed strips down and screw them down with the reed screws. If the air eliminator had a lock nut and a bushing on the bottom of the guide post, replace them.
8. Replace the valve plate, cover gasket, and cover. Tighten the cover screws to a torque of 17.5 - 20.5 ft-lbs.



Customer Service

Contacting the Factory

Before you contact the factory, note the model number and serial number of the component. The serial number directs Liquid Controls staff to a file containing all information on material specifications and test data applying to your specific component. When ordering parts, the Liquid Controls Group technical manual should be consulted for the proper part numbers. Always include the model number and serial number when ordering parts.

The model and serial numbers are shown on the nameplate of the unit. Record this information for future reference.

MODEL NO.	<input type="text"/>
SERIAL NO.	<input type="text"/>
DATE PURCHASED	<input type="text"/>
DATE INSTALLED	<input type="text"/>
PURCHASED FROM	<input type="text"/>
INSTALLED BY	<input type="text"/>

Liquid Controls Return Material Authorization Requests

When returning Liquid Controls products for repair, warranty evaluation or calibration, follow these directions:

1. Remove all residue from the Liquid Controls component(s) to be returned. Ensure that the grooves and corners around or inside seals and crevices are cleaned. This is especially important if the component was in contact with hazardous materials. See the Remove Hazardous Material Warning below.
2. Complete the Return Material Authorization request form.

3. If necessary, include special handling instructions, such as MSDS forms or certifications.
4. Attach the completed Return Material Authorization request form, the MSDS form, and the packing slip to the outside of the box.

RMA Forms

Return Material Authorization request forms are included in the red literature packet of every Liquid Controls product shipment. They are also available at www.lcmeter.com in the **Publications** menu selection.



REMOVE HAZARDOUS SUBSTANCES

Do not return a Liquid Controls component until all traces of hazardous substances have been removed. This includes, for example, substances that have diffused through plastic or remain in crevices.

Costs incurred for waste disposal and in injuries due to poor cleaning of returned Liquid Controls components will be charged to the originator of the return.

Returned Material Authorization Handling Procedure for Hazardous Materials

All returned parts must be cleaned by customers prior to return shipment. The person who actually cleaned the parts is required to complete the Return Material Authorization form. If the component has been contaminated, customers must include an M.S.D.S. sheet with the return shipment. If a part is returned without the proper paperwork, the service department will contact the sender and attempt to procure the correct documents. If the proper paperwork is not received within ten days of receipt, the parts will be sent back to the customer for correction. Many Liquid Controls employees handle returned components, and they are exposed to substances left behind on the components. It is our intention to make handling these parts as safe as possible. We regret any hardship these stipulations may cause, but because of the many different applications we service, it is a necessary precaution taken to protect our employees.



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