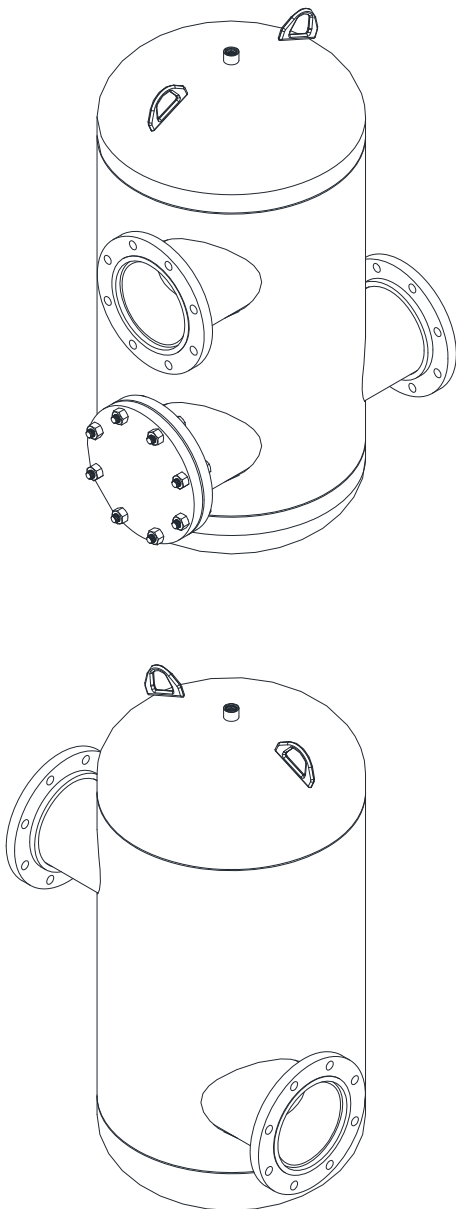




Air Separators AS & ASL

Manual # 9636-1220 Rev. A

Operation & Maintenance Manual



340 West 8th Street

Peru, IN 46970

PH: 765-472-3351

FX: 765-472-3968

www.thrushco.com

COPYRIGHT THRUSH CO., INC. 2014

Table of Contents

<u>Section No.</u>	<u>Description</u>	<u>Page No.</u>
1	General Product Information	1
2	Safety Information/Warnings	2
3	Component and Operational Information	3-6
4	Installation	7-8
5	Maintenance Procedure	9
6	Parts Ordering/Contact Information	9

COPYRIGHT THRUSH CO., INC. 2014

THIS DOCUMENT CONTAINS INFORMATION THAT THRUSH DEEMS CONFIDENTIAL AND PROPRIETARY. THE BASIC THRUSH PRODUCT REVEALED IN THIS DOCUMENT IS PATENTED, AS ARE CERTAIN PRODUCT COMPONENTS. IN CONSIDERATION FOR THE RECEIPT OF THIS DOCUMENT, RECIPIENT AGREES NOT TO REPRODUCE, COPY, USE OR TRANSMIT THIS DOCUMENT OR THE INFORMATION CONTAINED HEREIN, IN WHOLE OR IN PART, OR TO PERMIT OTHERS TO DO SO, FOR ANY PURPOSE WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN PERMISSION FROM THRUSH.

Section 1
General Product Information

1.1 Overview

The Air Separator separates entrained air from flowing system water by the creation of a vortex which will allow free air to rise in the center, the point of lowest velocity, to the air collection chamber in the body of the air elimination valve.

The Thrush Co., Inc. (Thrush) Tangential Air Separator has been carefully assembled and factory tested to provide years of trouble-free service. This manual provides information to allow the installer/operator to install, operate, service and maintain the Air Separator. In this manual the installer/operator will find that two Air Separator models are covered. Visually these models will look very similar. The major difference between models is the removable strainer option equipped only on the AS model. The model number designates the size of the unit (Figure 1-1).

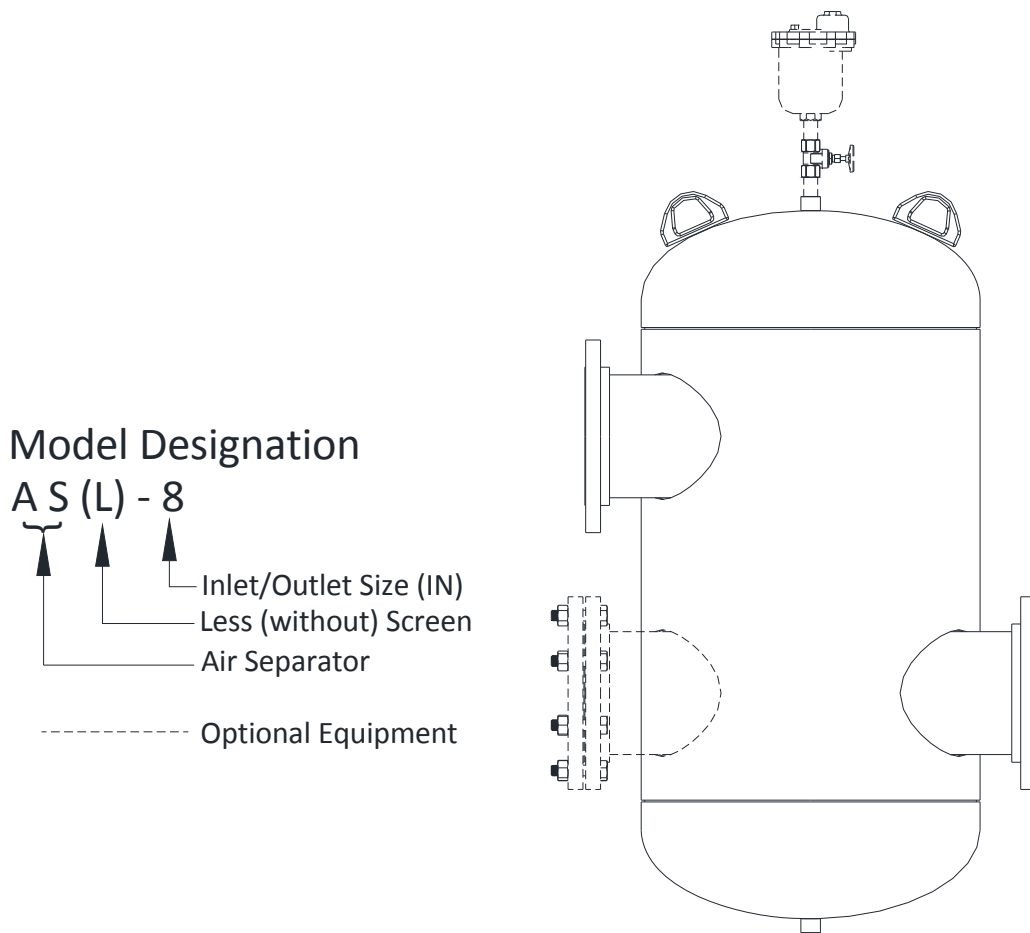


Figure 1-1 Overview

Section 2 Safety Information/Warnings

2.1 Safety Information and Warnings

Every practical safety feature has been incorporated into the design and manufacture of the Thrush Co. *Air Separator*. If questions are not answered by this manual, or if specific installation, operation, and/or maintenance procedures are not clearly understood, contact your local representative before proceeding. Personnel must, at all times, observe all safety regulations while performing maintenance or repairs.

All installation, operation, and maintenance procedures should be performed by qualified, experienced and well trained personnel. The potential exists for severe personal injury if proper procedures are not followed.



System water over 100°F can be very hazardous. Keep flow away from the body when flushing the unit or removing the strainer. Failure to do so could result in serious bodily injury or property damage.



4" and larger *Air Separators* have lift lugs to aid in lifting and locating the unit. The lift lugs are not intended to be used to support the *Air Separators* during operation. Adequately sized and spaced supports/hangers should be used to prevent damage or strain on the system piping.



With any piece of equipment utilizing boiler water or high temperature water under pressure, there is a potential for severe personal injury or death if proper installation, operation and maintenance procedures are not followed.

Section 3 Component and Operational Information

3.1 AS/ASL Component Identification

The major difference between the Air Separator AS/ASL models, is that the AS model comes equipped with a removable strainer for maintenance.

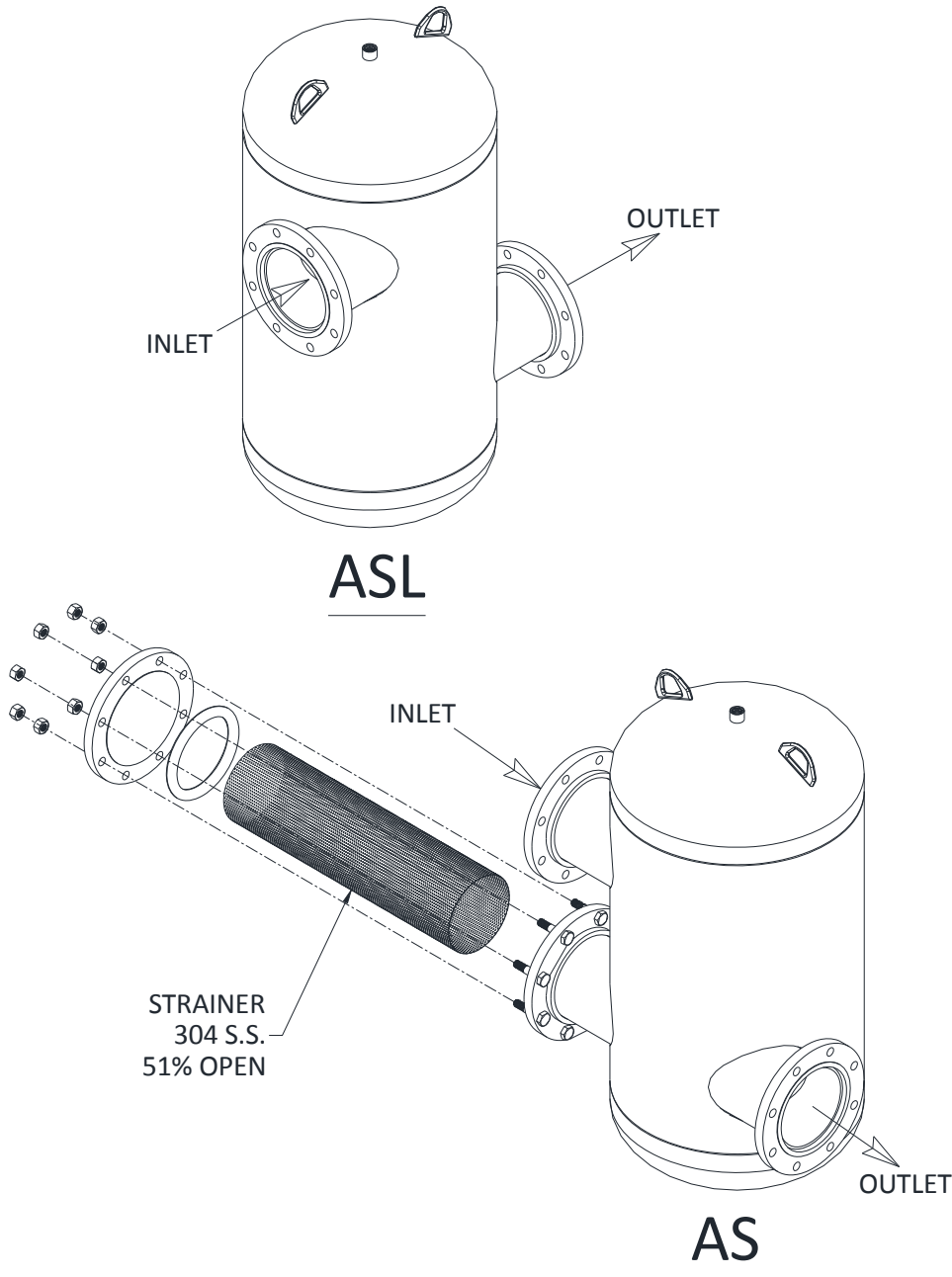


Figure 3-1 AS/ASL Components

3.1.1 Removable Strainer Option

The removable strainer option is a rolled 304 stainless perforated cylinder that allows the user to easily remove the strainer for cleaning and /or inspection (Figure 3-2).



System water over 100°F can be very hazardous. Keep flow away from the body when flushing the unit or removing the strainer. Failure to do so could result in serious bodily injury or property damage.



Figure 3-2 Strainer

3.2 Optional Connections

The standard inlet and outlet flanged connections can be replaced with an alternate grooved end pipe connection (Figure 3-3). This comes with or without strainer option.

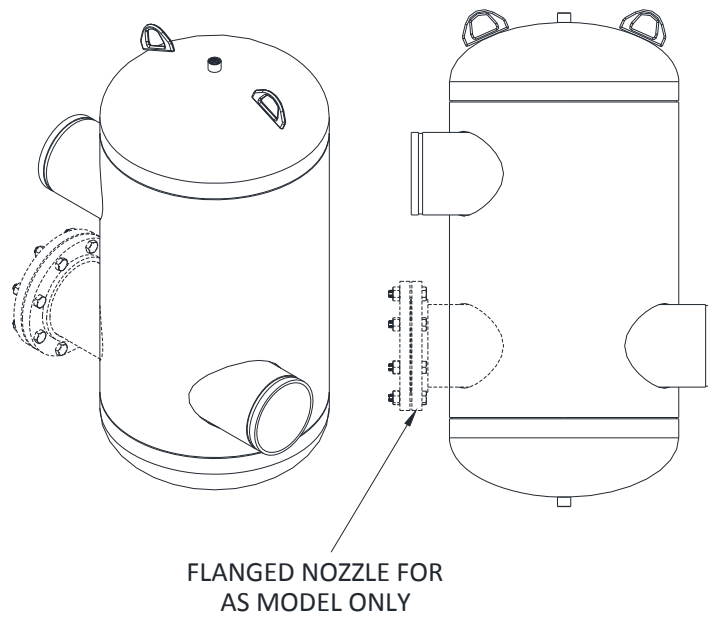


Figure 3-3 Grooved End Connection

3.3 Suggested Equipment

Although the standard Air Separator is a simple design, a Thrush Model 720 Air Eliminator is recommended to vent air from the system.

3.3.1 Model 720 Air Eliminator

The Model 720 Air Eliminator is a unique high capacity, air elimination device. It is designed to eliminate air as fast as it can be separated from liquid. The valve will not open if negative pressure occurs, preventing air from being drawn back into the system.

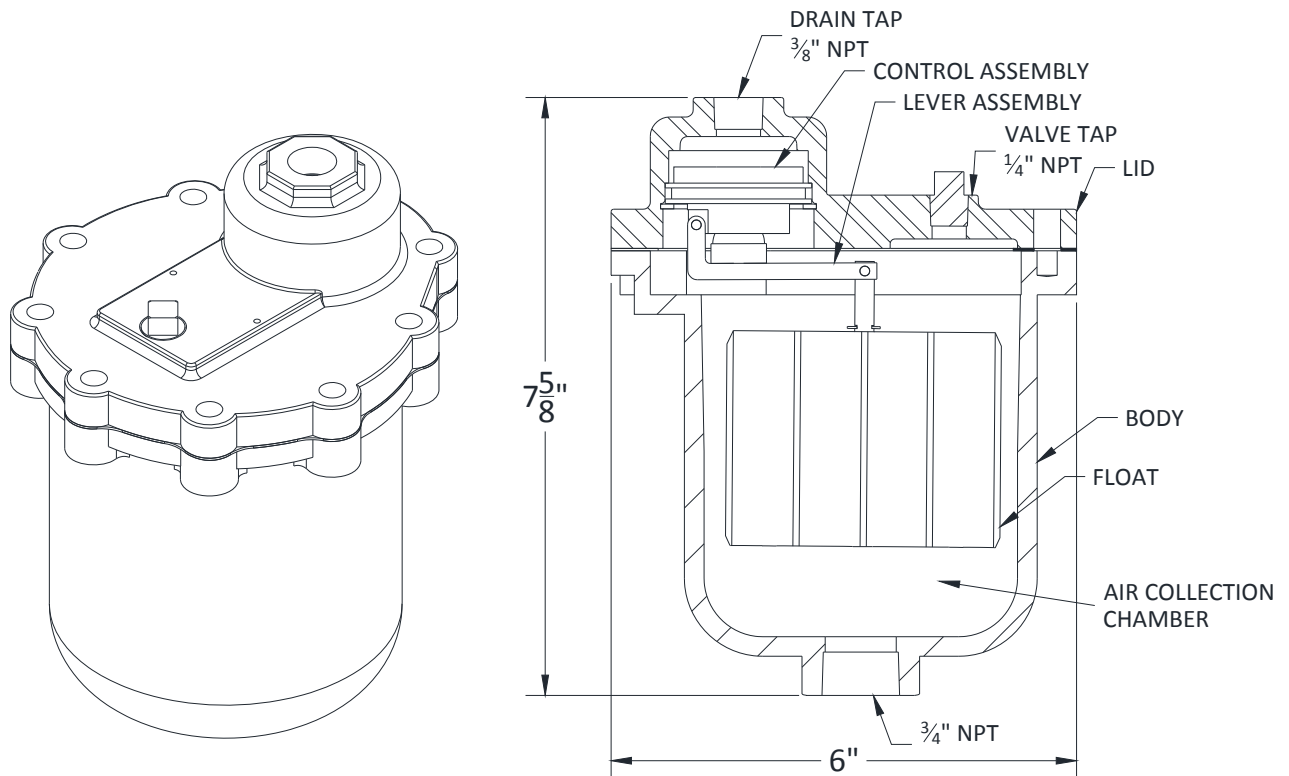


Figure 3-4 Model 720 Air Eliminator

Operation

The air eliminator is designed to remove unwanted air that could reduce system performance, increase operational cost, and support the damaging effects of corrosion.

The collection of air in the body of the air eliminator causes the float to drop allowing the air to be vented through an air eliminating orifice. As the liquid level rises in the eliminator body, the float also rises shutting off the flow of vented air (Figure 3-4)

3.3.1 Model 720 Air Eliminator (Continued)

Installation Tips

1. The Model 720 Air Eliminator should be located in a clean, open area, where it is easily accessible for inspection, service and repair.
2. The Model 720 Air Eliminator should be installed at the top of each air separator (Figure 3-5), or it may be installed at the system piping highest point with a pipe run from the air separator.
3. Additional Model 720 Air Eliminators are recommended for each component and pipe locations where air could accumulate.
4. A shut off valve should be provided to simplify cleaning and replacement of float and control assembly if necessary. Valve should remain open during normal operating processes.

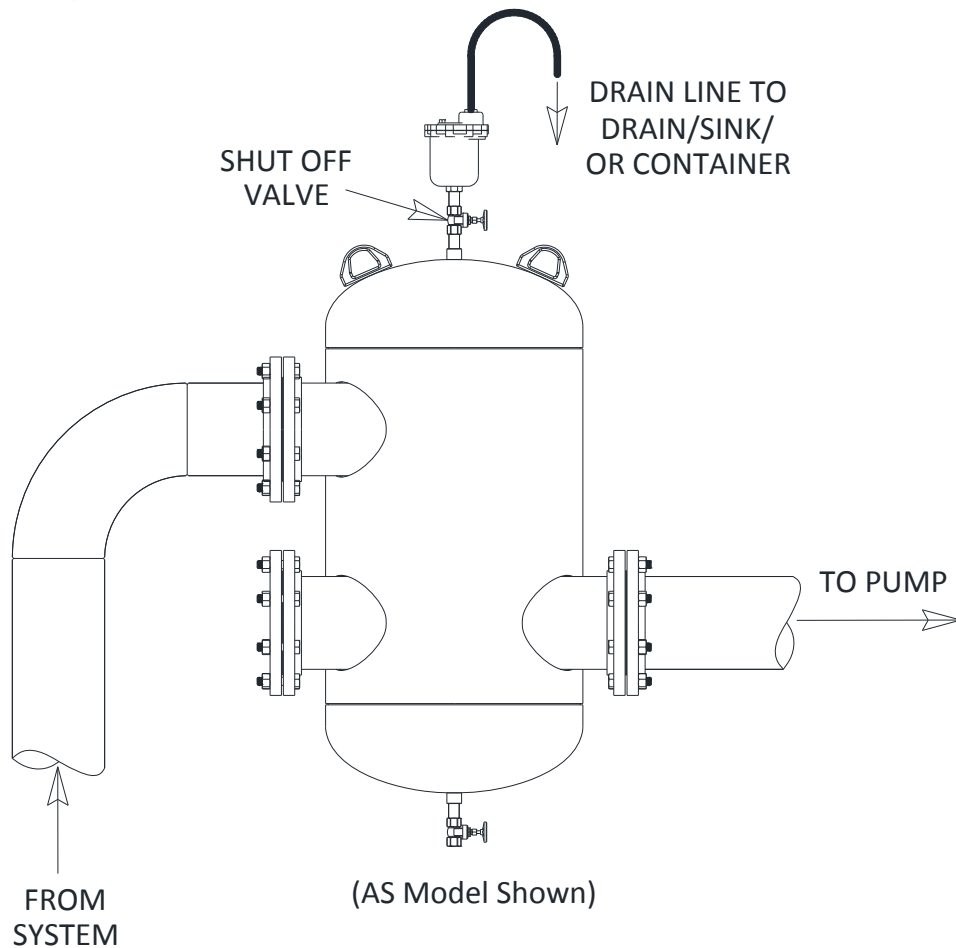


Figure 3-5 Model 720 Air Elimination Installation

Section 4 Installation

4.1 Installation Tips

The following procedures are to aid the operator in installing the Air Separator. All procedures are to be performed by experienced, trained, and certified personnel only.



4” and larger *Air Separators* have lift lugs to aid in lifting and locating the unit. The lift lugs are not intended to be used to support the *Air Separators* during operation. Adequately sized and spaced supports/hangers should be used to prevent damage or strain on the system piping.

1. The Air Separator should be located in a clean, open area, where it is easily accessible for inspection, service and repair. Installation of the unit in an area with adequate drainage is recommended.
2. A standard Air Separator is installed in-line of the system piping. Adequately sized and spaced pipe supports/hangers should be used to prevent damage or strain on the system piping.
3. When placing the Air Separator (AS Model) with strainer in the system piping, be aware of the clearance required for strainer removal for cleaning and replacement
4. When piping the unit into system piping, the pipe size should be sized to allow adequate flow at a minimal head loss, and be, at minimum, the same size as the Air Separator connections. The use of fittings (elbows, tees and couplings) should be kept to a minimum as well.

Some considerations: Isolation valves are required to allow gasket changes and inspection of strainer. Expansion joints and or flex connectors are recommended to prevent pipe strain caused by thermal expansion or piping misalignment. System by-pass piping is also recommended in the event of system service and or maintenance.



With any piece of equipment utilizing boiler water or high temperature water under pressure, there is a potential for severe personal injury or death if proper installation, operation and maintenance procedures are not followed.

4.2 Installation Tips (Continued)

Using the figure below as reference, follow the steps outlined to install piping for the Air Separator (Figure 4-1, shown with AS Model). Before making any piping connections, ensure that all piping is clean and free of any foreign material such as debris or scale. Foreign material in the piping can cause damage to the unit and/or affect the performance and operation. Manual shutoff valves should be installed upstream/downstream from all connections to act as an isolation device. These valves should be in the closed position and remain so until the installation is complete. Expansion joints and/or flex connectors are recommended to prevent pipe strain caused by thermal expansion or piping misalignment.

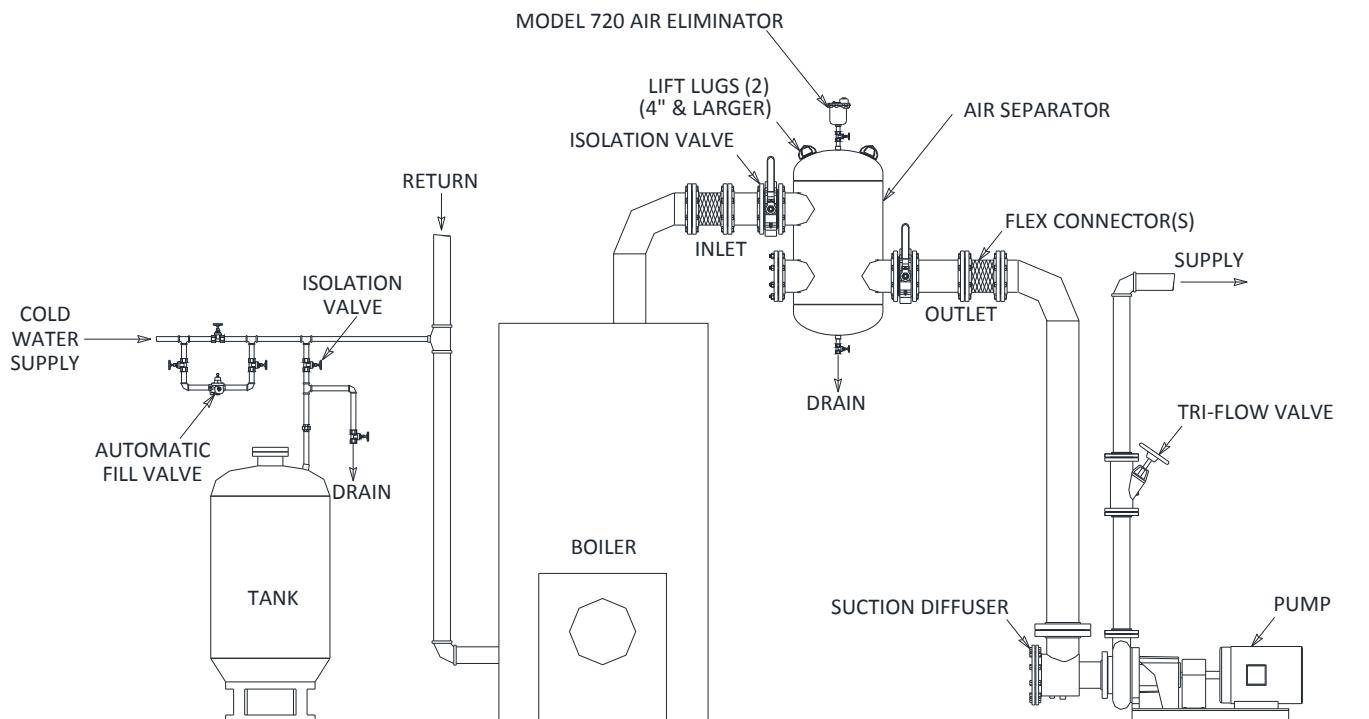


Figure 4-1 Typical Piping Diagram

1. Connect the supply source to the inlet connection of the Air Separator. Be sure the upstream manual shutoff valve is in the closed position (Figure 4-1).
2. Connect the suction piping of the pump to the outlet connection of the Air Separator. Be sure the downstream manual shutoff valve is in the closed position (Figure 4-1).

Section 5 Maintenance Procedures

5.1 Maintenance Procedure

Because of the simple design of the Air Separator, minimal maintenance is necessary. Periodical inspections by competent personnel for signs of corrosion, defects or cracks are suggested. Examine the strainer (if applicable) for any debris, especially during initial start-up period. Contact your representative for replacement gaskets and/or strainers.

Section 6 Maintenance Procedures

6.1 Contact Information

Any additional information not supplied in this manual can be given by your representative.

If your representative cannot be reached, please contact our customer service department:

Thrush Co., Inc.
PO Box 228
340 West 8th Street
Peru, IN 46970
Attention: Customer Service Group

Phone: (765) 472-3351
(800) 755-8110
Fax: (765) 472-3968
E-mail: customerservice@thrushco.com

When calling or writing to place a parts order to your representative, it is recommended to have the following items for reference:

1. Part number(s).
2. Description of product(s).
3. Quantity required.
4. National Board Number (if applicable).