

Condensate Drain System

The Condensate Handler™ is the Newest Drain-All Model and Replaces the Model 1700™. This is the Flagship Condensate Trap in the Drain-All Product Family. The Condensate Handler™ Includes Drain-All's Patented "Through Port" Design for Increased Capacity for Handling of Solid Debris.



Key Features of the Condensate Handler™

- **Zero Air Loss Drain**
- **Will Fit Most Industrial Applications and Compressors Up to Approximately 1500 Hp**
- **Industrially Robust Unit With Fewer Moving Parts Than Competitive Traps So It Can Stand Up to the Most Demanding Applications With Minimal Maintenance**
- **Requires No Electrical Connections**
- **5 Micron Pre-Filter Included (Replacement Elements Available)**
- **Manual "Push to Test" Button For Easy Check of Operation**
- **Manufactured Under an ISO 9001 2008 Certified Quality System**
- **Backed By an Industry Best 3 - Year Factory Warranty**
- **Energy Savings Rebate Available Thru Most Utility Companies**
- **Made in USA**

Patented "Through Port" Design

The New Condensate Handler™ Includes Drain-All's Patented "Through Port" Design That Provides Increased Capability for Handling of Solid Debris. This Provides Increased Reliability in Applications With Heavy Rust and Debris That May Clog Other Traps. This Means Smooth Trouble Free Operation and Fewer Maintenance Hassles.

Environmentally Safe "Green Product"

Drain-All Traps Are Environmentally Friendly Green Products That Are Totally Pneumatic and Don't Require Electricity for Operation. This Helps Minimize and Reduce Total Plant Wide Energy Costs. Bottom Line, Drain-All Traps Can Save On Operating Costs.

Corrosion Resistant Materials and Fewer Parts

The Condensate Handler™ is Manufactured Using Corrosion Resistant Materials and Has the Fewest Moving Parts When Compared to Some Competitive Pneumatic Traps. This Provides for Less Maintenance and Longer Life. Total Life Cycle Cost Can Be Significantly Lower With a Drain-All Trap. Each Unit is 100% Factory Tested. Most Competitive Traps Come With a Standard One Year Warranty. The Drain-All Trap Comes With an Unprecedented Three Year Factory Warranty.

Automatic Design

The Condensate Handler™ Works On Demand As Liquid Accumulates in the Reservoir. Its Fully Automatic. Once Installed, No Daily Maintenance or On Going Adjustments Are Required. This Saves on the Constant Need for Maintenance Attention and Additional Labor.

Easy to Install

Because All Drain-All Traps Are Completely Pneumatic, Installation is Simple and Can Be made Anywhere Along the Compressed Air System by Plant Personnel. Installation Can Be Flexible Including in Remote Facilities, Explosive Risk Areas or Hard to Reach Points Along the System Where Electricity is Not Available. This Saves On Installation Time, Material and Labor.



How Drain-All Works It's Simple and Efficient

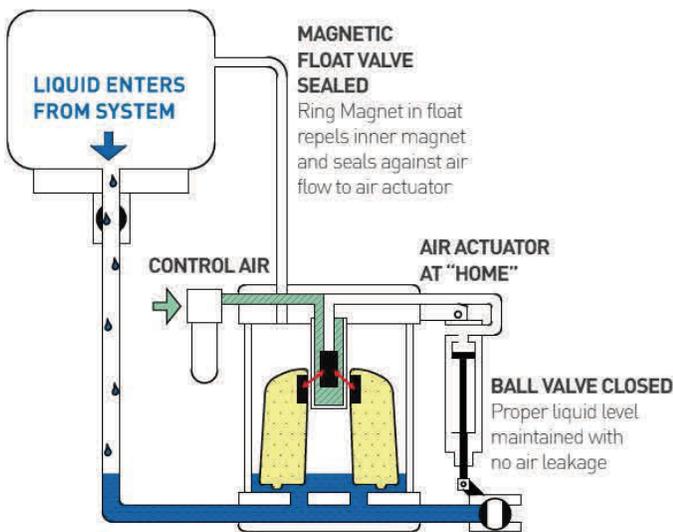


Figure 1

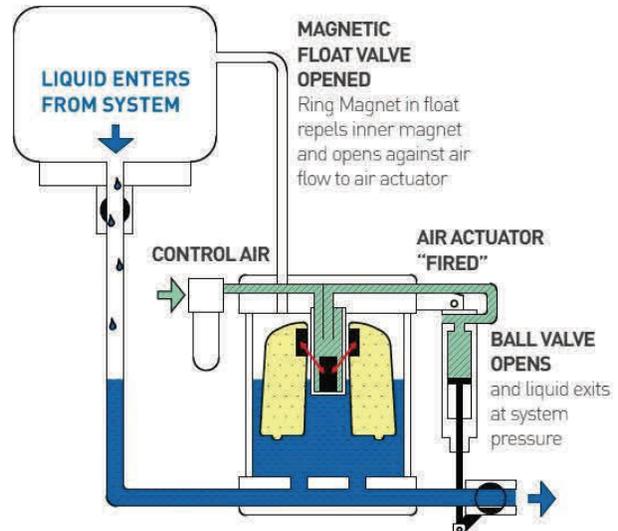


Figure 2

Figure 1 Start of Cycle

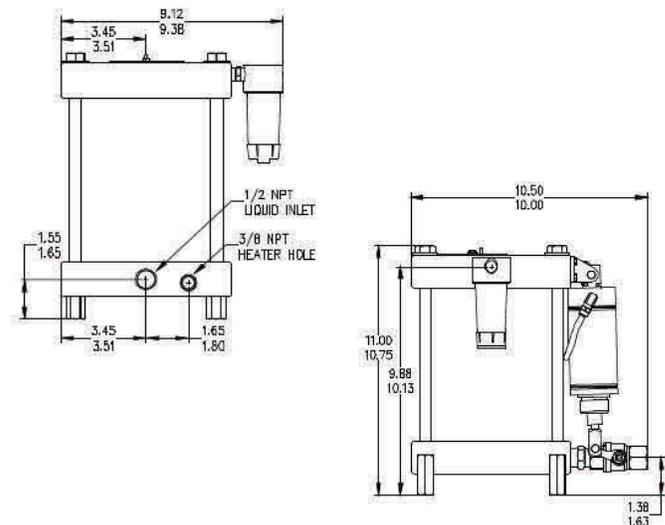
The Polymer Float With Integral Magnet Is Resting on the Base of the Reservoir. The Integral Float Magnet Exerts a Magnetic Force Repelling the Inner Magnet Upward and Holding It Seated Against An Orifice in the Lower End of the Control Air Valve Stem. The Control Air Circuit, Including the Inner Magnet and Valve Stem, is Isolated From Liquid that Flows Into the Reservoir. The Air Actuator is in the Home Position and the Discharge Ball Valve is Closed.

Figure 2 Start of Discharge

Liquid Continues to Flow Into the Reservoir and Raises the Float to It's Highest Position. The Integral Float Magnet is Then Raised Up Past the Inner Magnet and Repels the Inner Magnet Downward Opening the Orifice in the Control Air Valve Stem. This Allows the Control Air From the Center Tube to Flow Through to the Other Side of the Control Air Circuit to the Actuator. Control Air Pressure Extends the Air Actuator and Opens the Ball Valve Starting the Discharge of the Liquid Accumulated in the Reservoir. The Unit has a Capacity of 2.5 Pints (Discharge = 1.5 Pints, Liquid Seal = 1 Pint).

Condensate Handler Catalog #870700 Specifications & Dimensions

Max Liquid Temp - °F (°C)	170 (76.7)
Max Liquid Pressure - psig (barg)	170 (11.7)
Control Air Min - psig (barg)	40 (2.8)
Control Air Max - psig (barg)	130 (9.0)
Ht - inches (cm)	11 (27.9)
Width - inches (cm)	9-1/4 (23.5)
Depth (Inlet/BV) - inches (cm)	10-1/2 (26.7)
Inlet/Outlet - NPT	1/2"
Control Air - NPT	1/4"
Balance Line - NPT	1/8"
Capacity	Based on pressure/piping
Weight - lbs (kg)	21 (9.5)



Frequently Asked Questions

Where should a Drain-All be installed?

At liquid accumulation points within a system at compressors, air receiver tanks, intercoolers, aftercoolers, dryers, separators, filters and drip legs.

Is this an oil-water separator?

No. Drain-All is a liquid drain and it will drain oil, water, and particulates from the compressed air system. Once this is accomplished, the discharge should be piped to an oil-water separator for final processing.

Does this replace a dryer?

No. Drain-All works in conjunction with a dryer. Dryers typically convert water vapor in the compressed air into liquid which is usually discharged through a small automatic drain device integral to the dryer. These small automatic drains are often prone to clogging and failure. When this occurs, such drains are normally replaced with Drain-All units which do not clog. A dryer prepares the moisture for removal from the system by condensing it. It is the job of the reliable Drain-All to ensure that the liquid is actually discharged from the air system.

Is it mandatory to use a balance line?

Yes. The balance line provides a means to handle the displaced air from the reservoir as the liquid enters the reservoir.

What is the capacity?

In each application, based on pressures and piping layout for that application, a Drain-All model will eject a specific amount of liquid on each cycle. This varies by model and application.

What size compressor can it handle?

There are Drain-All models that will function effectively on any size compressor, compressed air system, atmospheric, or vacuum system. Provide your distributor with specifications on the pressure and capacity of liquid you need to handle and an appropriately sized Drain-All can be selected for your application.

Can one Drain-All be used to drain multiple tanks and/or compressor systems?

No. They will not all be of precisely the same pressure level and the liquid would accumulate in the lowest pressure drain or system thereby bypassing the Drain-All. Also, the use of check valves in multiple drains to one Drain-All installation will not make this work properly. Always install one Drain-All for each item of equipment to be drained.

Can a Drain-All be used in systems with pressure greater than 170 PSIG?

Yes. Higher pressure models are available. If the control air comes from higher pressure systems, a pressure regulator on the control air line may be used and set at the proper control air pressure or optional control air components can be ordered to accommodate higher pressures.

Can the balance line and the control air line be hooked together via a tee connection?

No. Do not do this. Each of these air lines has its own specific purpose and should never be tied together. The control air should be the cleanest driest air available since it supplies air to the control circuit to operate the pneumatic actuating cylinder which functions best and lasts longer if clean dry air is used. The balance line allows the air in the reservoir to move out leaving room in the reservoir for the incoming liquid. This air contains moisture that would be drawn across a tee fitting tied to the control air line and be pulled directly into the control air circuit, which can damage control air pathways and the air cylinder.

Is there only one model Drain-All?

No. There are models for a wide range of special applications. Dimensional alterations, design changes, component options and special materials or coatings are used in models to withstand high temperatures and highly corrosive environments as well as accommodate high volume discharge requirements.

What if the system has an abundance of metallic trash?

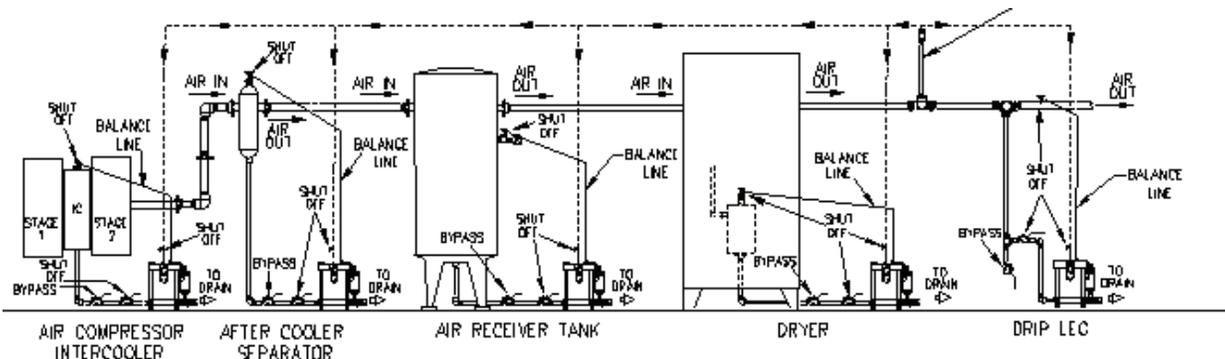
Before installing the Drain-All, blow down the system being drained to eliminate as much existing loose scale as possible. The large, smoothly contoured flow paths in Drain-All units handle normal levels of debris found in most applications. Should there be an excessive amount of debris such as heavy rust, ask your distributor about Drain-All's Rust Handler™ Model designed for that kind of severe duty.

How can the Drain-All be used as an instrument to gather data on condensation in a compressed air system?

With the use of Drain-All's optional cycle counter, the Drain-All can provide accurate data on the amount of liquid that a compressed air system generates. This is very useful when buying new compressed air system equipment because a Drain-All with a cycle counter is a benchmarking instrument. Since the Drain-All discharges the same amount of liquid on every cycle, knowing the number of cycles over a specific period of time under specific temperature and humidity conditions provides the ability to track liquid production. This benchmarking can be correlated to ongoing changes in ambient temperature and humidity conditions to identify variances in liquid production indicating changes which need investigation. Too few cycles would mean not enough liquid is reaching the Drain-All and should be investigated. Too many cycles would mean too much liquid is being made or too much liquid from somewhere is reaching the Drain-All and should be investigated. Knowing the amount of liquid a system produces is also essential for properly sizing oil-water separators.

INSTALLATION LOCATIONS

1. Connect balance line to vessel being drained, to header leaving vessel being drained, or vent to atmosphere - do not manifold balance lines together.
2. Balance line balances reservoir of trap to vessel being drained. Control air operates air cylinder. These two should not be connected together.
3. Bring control air from clean dry source downstream of dryer if possible, you can manifold control air lines together.



THERE ARE THREE METHODS USED TO CONNECT THE BALANCE LINE PORT

Method -1

Connect the balance line port to the vessel producing the condensate. This is the preferred method since it is a closed-loop arrangement. In the first four applications above, the balance line is connected back to the vessel that is producing the condensate. The pressure on the incoming condensate to the trap and the pressure in the balance line are the same and the trap is filling by gravity. For this method, the top of the trap must be below the bottom of the vessel being drained.

Method -2

Connect the balance line port to the header pipe leaving the vessel producing the condensate. This is an alternate method to Method-1 when there is no convenient location to connect the balance line to the vessel. This is shown above in the drip leg application. In the case of a dryer, however, connecting the balance line to the header pipe leaving the dryer essentially results in a bypass of the dryer function. The condensate from the dryer would have a path up the balance line and back into the flow of dry air leaving the dryer. That would not be desirable.

Method -3

Vent the balance line port to atmosphere using a needle valve inserted in the balance line port and slightly opened. This can be used on any application but must be used when the bottom of the vessel is lower than the top of the trap. The needle valve should be opened slightly to a point where only a small amount of air can be felt leaving the needle valve. This method provides a pressure differential in the trap reservoir and condensate is blown into the reservoir instead of filling by gravity.

VESSELS WITH BOTTOM LOWER THAN THE TRAP'S TRIGGER LEVEL

In the drawing shown, there is a dotted line indicating the 7" trigger level of the trap. This is the height the condensate must reach in the trap to start the discharge cycle.

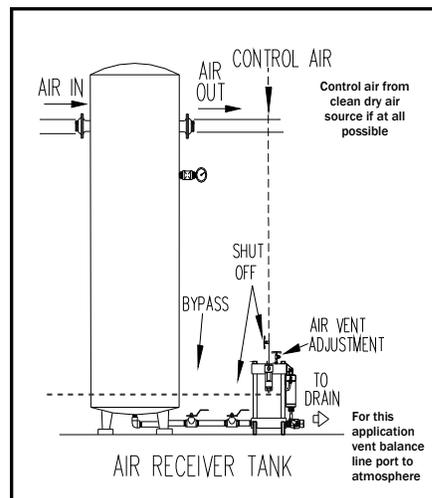
When the balance line port is connected back to the vessel or header pipe, as shown in the drawing above, the trap is filling by gravity. In these applications the bottom of the vessel must be higher than the top of the trap so that the condensate flows by gravity down and out of the vessel into the trap.

When the bottom of a vessel being drained is lower than the trigger point in the trap, as shown in the drawing to the right, do not connect the balance line port to the vessel or header pipe.

In the drawing to the right, if the balance line were connected to the vessel or header pipe, the condensate would be filling the trap by gravity.

With the bottom of the vessel being lower than the top of the trap, this would result in condensate backing up in the vessel to the same height of the condensate in the trap. When the condensate reached the trigger level in the trap (shown by the dotted line) the condensate would also reach the same height in the vessel.

In an application where the bottom of the vessel is lower than the top of the trap, the balance line must be vented to atmosphere. Venting a small amount of air from the trap reservoir to atmosphere results in a pressure differential in the trap reservoir. This allows the pressure in the vessel to push the condensate downward, out of the vessel, and up into the trap. This achieves proper filling of the trap while removing all condensate from the vessel.



Vessel like air receiver tank above with low vessel bottom