Zero Air Loss Condensate Drains

for Compressed Air Applications

Parker Finite

ENGINEERING YOUR SUCCESS.

Zero Air Loss Condensate Drains

for Compressed Air Applications

What is a zero air loss condensate drain?

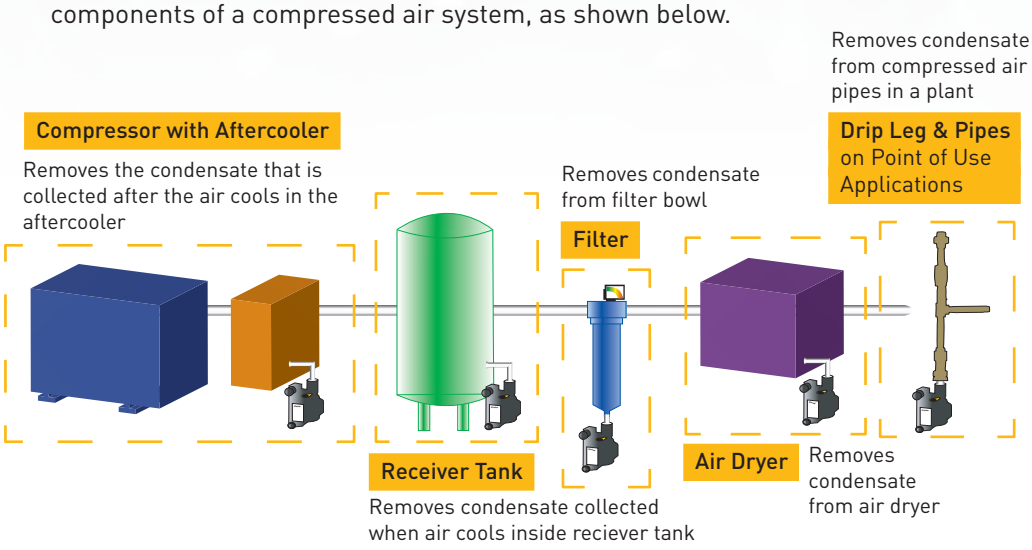
Finite's zero air loss condensate drains are designed for economical removal of unwanted water, oil emulsions, and other liquids. These drains will only open when liquid is present and will not allow any compressed air to escape from the system.

Why are they needed?

Condensate is always present in a compressed air system. If condensate is not removed from a compressed air system, it will adversely affect product quality and production efficiency and will eventually lead to costly downtime.

Where are condensate drains used?

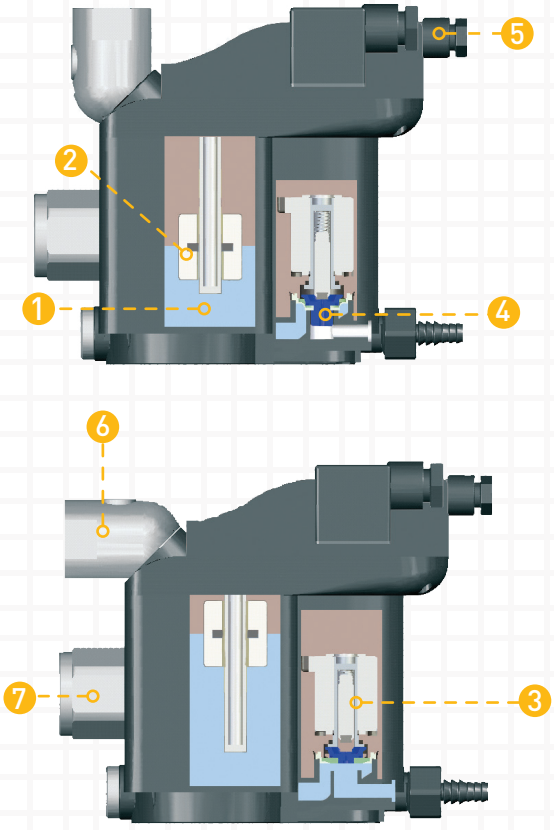
Zero air loss condensate drains are remove condensate from various components of a compressed air system, as shown below.



How does the Finite Zero Air Loss Condensate drain compare to other drains?

Condensate Removal Method	Disadvantages of Other Drains	Advantages of Finite's ZLD
Manual Drain (operators must manually open valves to discharge condensate)	Requires constant attention	Automatically drains condensate
	Always leads to excess air loss because air escapes when the valve is left open to drain the condensate	When a minimum level of condensate is reached, the valve closes in time before compressed air can escape
Float Drain (uses a float connected to a drain valve that opens when enough condensate is present and closes when condensate has been removed)	Float is susceptible to blockage from particulate contamination in condensate	Includes an integrated dirt screen between the level measurement and drain valve to protect the diaphragm valve
	Often sticks in open (leaks excess air) or closed position (no condensate is drained)	Particulate contamination is removed by the integrated dirt screen before fouling the moving parts
Solenoid Operated Drain Valves (uses a timer which allows user to open and close valve at specified intervals)	The period for which the valve is open might not be long enough for adequate drainage of accumulated condensate	Drain will remove condensate when liquid reaches the high level sensor
	The valve will operate even if little or no condensate is present, resulting in air loss	The drain will not operate until the liquid level reaches the high level sensor
	Often requires a strainer to remove particulate contamination which can block the inlet and outlet ports	Particulate contamination is removed by the integrated dirt screen before fouling the outlet port

How does this drain work?

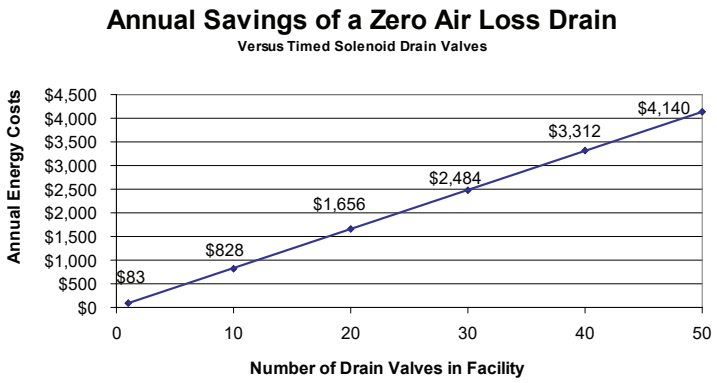


1. This collection vessel stores condensate until it is drained away.
2. This electronic level controller continuously monitors the liquid level inside the drain.
3. This depicts the electric drain valve. As soon as the electronic level controller detects a buildup of liquid, the valve opens and condensate is drained. When a minimum liquid level is reached, the valve closes before compressed air can escape.
4. The diaphragm valve ensures that contaminants are flushed out and that the condensate is prevented from forming an emulsion that would need expensive condensate treatment.
5. If an error has occurred (i.e. if the condensate cannot be discharged), the electronic control board (5) of the condensate drain generates an alarm signal. This allows timely detection of a problem and helps avoid excessive costs associated with condensate carryover to downstream components.
6. Unique swivel inlet connection for easy adaptability on ZLD-013 and ZLD-023. This allows the condensate line to be connected from the top or the rear. The ZLD-006 has a fixed inlet port with dynamic seal which allows the filter bowl to be removed while the drain is attached (not shown).
7. An additional liquid inlet on the ZLD-023 allows for the connection of a balance or vent line. This provides new connections so that condensate can no longer back up into the feed lines.

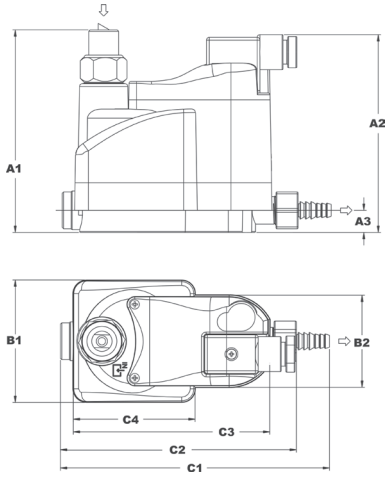
The cost of compressed air when using a timed drain valve

The annual cost of compressed air was calculated using data from the U.S. Department of Energy and several compressed air consultants. The average annual energy cost to maintain a compressed air system is $0.23 per 1000 ft^3. If a timed solenoid drain valve opens 3-4 times per hour, the cost of the wasted air will be $80 per valve, per year.

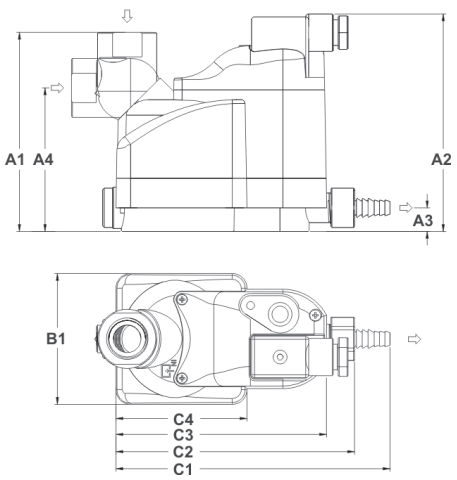
Finite's Zero Loss Drains don't waste any compressed air and have a payback of approximately 6 months to 1 year.



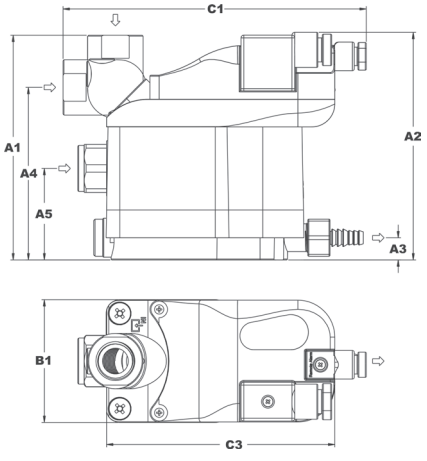
Dimension Drawings



ZLD-006



ZLD-013



ZLD-023, -100, -330

Specifications

Dimensions (in)	ZLD-006	ZLD-013	ZLD-023	ZLD-100	ZLD-330
A1	4.33	3.97	4.80	5.39	7.75
A2	4.21	4.37	4.84	5.39	7.79
A3	0.47	0.47	0.47	0.47	0.47
A4	—	2.87	3.66	4.25	6.61
A5	—	—	1.94	1.94	1.94
B1	2.63	2.63	2.63	2.63	2.63
B2	1.96	—	—	—	—
C1	5.74	5.47	6.45	6.45	6.45
C2	5.03	4.76	—	—	—
C3	4.17	4.21	4.88	4.88	4.88
C4	1.73	2.63	—	—	—
Weight (lbs.)	1.10	1.32	2.20	2.42	3.30

NPT connections at condensate inlet					
Top Inlet	3/8"	1/2"	1/2"	1/2"	1/2"
Vent	Integrated in connection	1/8"	1/8"	1/8"	1/8"
Bottom vent	—	—	1/2"	1/2"	1/2"
Connection at condensate outlet					
3/8" BSP or 0.3–0.4 in hose tail					

ZLD-006

ZLD-013

ZLD-023, -100, -330

Technical Data

	ZLD-006	ZLD-013	ZLD-023	ZLD-100	ZLD-330
Compressor aftercooler (SCFM)	—	141	247	1059	3531
Refrigeration dryer (SCFM)	—	282	494	2118	7062
Filter[2] (SCFM)	424	1410	2470	10590	35310
Nominal flow rate (ft³/h)	0.035	0.074	0.13	0.57	1.87
Operating pressure range	3-232 psig				
Temperature range	35-140°F				
Supply voltage[3] (selectable)	115 V—60 Hz 50-60 Hz.24 Vac/50-60 HZ 50-60 Hz/24 V DC (available on request)				
Potential-free contact[4]	—		110 V DV, 250 V AV 1A 30 W DC, 250 VA AC		
Power Consumption: Standby	1 VA		1.8 VA		
Valve operation	6 VA		6.8 VA		
Protection class	IP 65				

1. At 14.5 psi and 68°F, operating pressure 100 psi, suction: compressor or 77°F at 60% relative humidity, compressed air outlet temperature at aftercooler 95°F; refrigeration dryer dewpoint 37.4°F.
2. Main condensate already drained from aftercooler or refrigeration dryer; only for residual oil or low condensate volumes arising from condensation.
3. Magnetic valve connector type B industrial standard (0.43 in) 2+PE.
4. Magnetic valve connector type C industrial standard (0.37 in) 3+PE.

Worldwide Filtration Manufacturing Locations

North America

Compressed Air Treatment

Industrial Gas Filtration and Generation Division
Lancaster, NY
716 686 6400
www.parker.com/igfg

Haverhill, MA
978 858 0505
www.parker.com/igfg

Engine Filtration

Racor
Modesto, CA
209 521 7860
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Holly Springs, MS
662 252 2656
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Hydraulic & Fuel Filtration
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www.parkerfarr.com

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719 531 5855
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Process Filtration

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Oxnard, CA
805 604 3400
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Water Purification

Village Marine, Sea Recovery, Horizon Reverse Osmosis
Carson, CA
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Europe

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