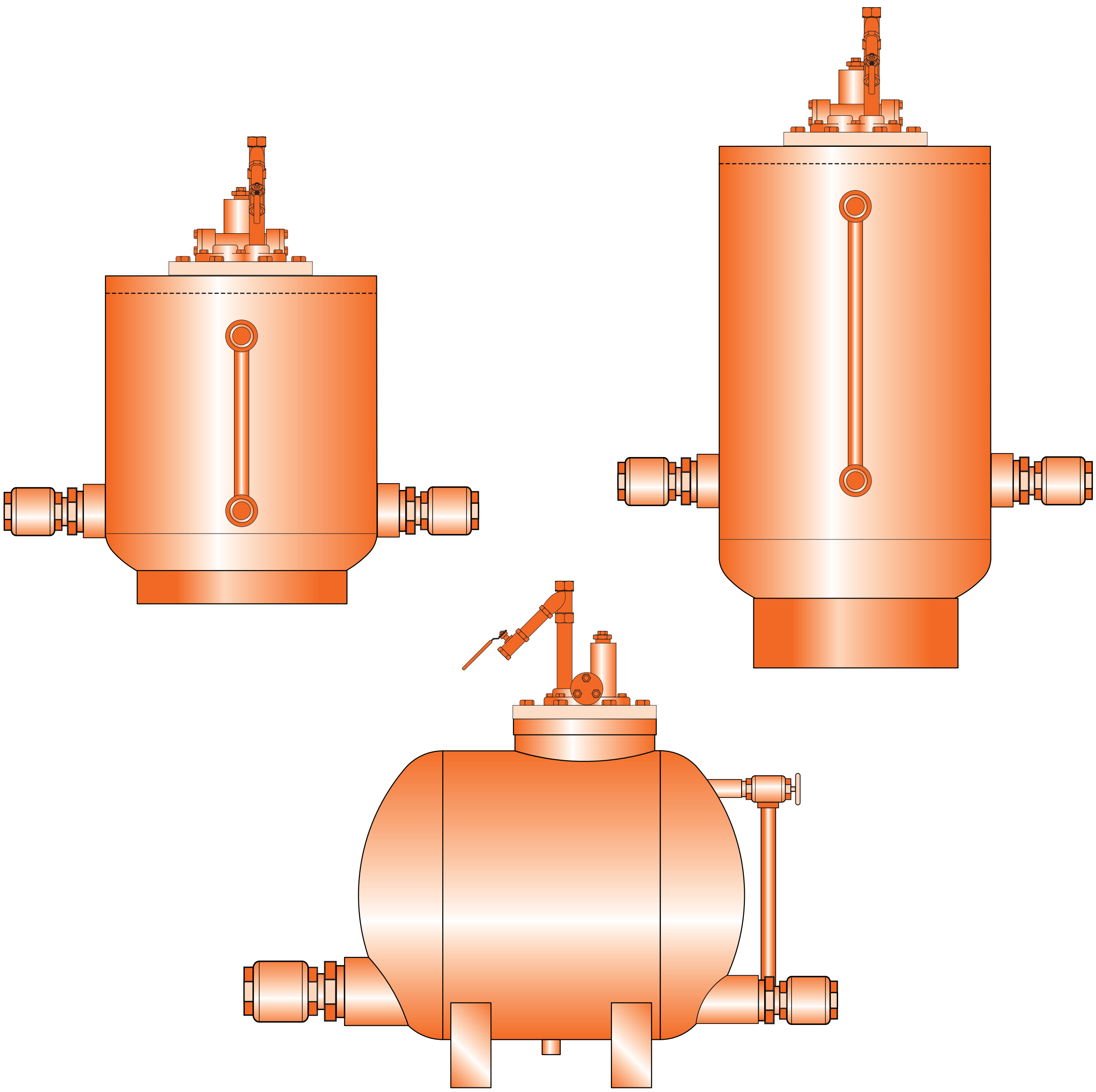
CCP Series

CEMLINE® CORPORATION

Non-Electric Steam or Air Powered Condensate Pump

Used to pump condensate using plant steam or compressed air as motive force



CEMLINE CORPORATION
P.O. BOX 55 CHESWICK, PENNSYLVANIA 15024
Phone: (724) 274-5430 FAX (724) 274-5448
www.cemline.com

Cemline Condensate Pumps

Cemline non-electric condensate pumps have many advantages. There are no impellers or seals, or cavitation problems and no electricity is required. Condensate is efficiently moved at reduced operating cost.

Cemline Condensate Pumps (CCP Series) use steam or compressed air as a motive force to move condensate from points of lower elevation to points of higher elevation, from points of lower to higher pressure, or from a vacuum to a point of higher pressure or elevation.

Traditionally, condensate has been transferred with the use of electrically operated condensate pumps. When moving condensate with electric pumps, the electric pumps tend to wear out quickly. Electric condensate pumps have impellers and seals which can wear, leak, or break down due to harsh condensate environments. The benefit of using non-electric condensate pumps instead of electric condensate pumps is the non-electric condensate pumps have no impellers or seals to wear, requiring less downtime and maintenance. In addition, there are some remote locations where electrical service is not readily available or it is hazardous to use electricity.

Additional benefits from the use of non-electric condensate pumps is the reduction of operating costs associated with returning hot condensate to the boiler. Typically electric condensate pumps require the condensate be flashed to atmospheric pressure and decreased in temperature before being pumped to the boiler. The non-electric condensate pumps reduce costs compared to electric condensate pumps because the non-electric condensate pumps can return condensate to the boiler at a higher temperature, which reduces the heating costs required to re-heat the condensate. Along with the reduced expense of re-heating of condensate, less water treatment chemicals are required and less make up water is required to be added to the system.

Applications:

Typical installations would be remote locations, hazardous environments or any application where electric pumps fail rapidly.

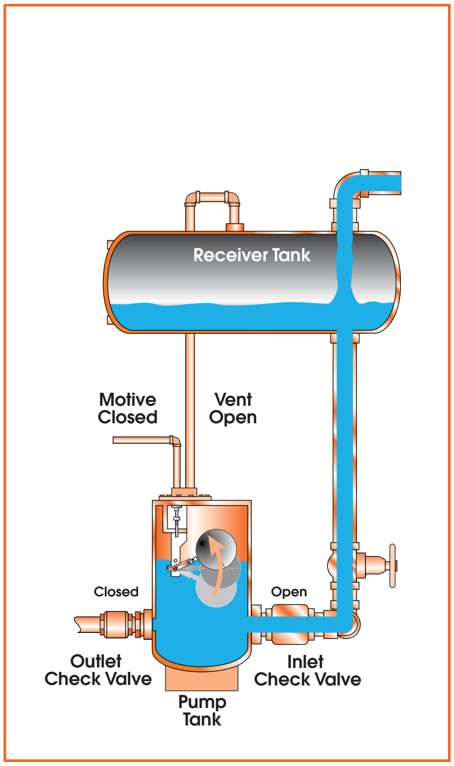
Pump Mechanism— The Cemline Piston Powered Condensate Pump is unique from the other non-electric condensate pumps in that it is springless. This updated reliable springless design uses a dual piston type configuration that acts as a spool selector to shift the valve positions. The pump is able to work with up to 250 PSI motive steam pressure. It can operate from almost no load to it's rated maximum capacity. The piston powered condensate pump has easy maintenance, is interchangeable with most current spring pumps out on the market today and is made of all stainless steel components. This design solves the poor reliability issue of the spring snap mechanism of the past.

In addition, the piston powered condensate pump due to a larger orifice, less friction and longer travel, has an increased capacity over the spring mechanism pumps. This may allow for a smaller pump than before therefore saving you valuable space and money.

Description of the Spring Mechanism 3 step process:

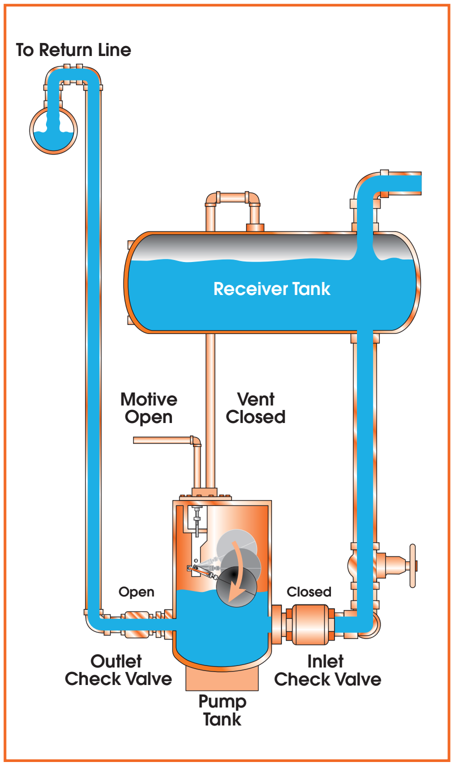
The below illustrations demonstrate how non-electrical condensate pumps work during the traditional three step process of moving condensate with a spring mechanism.

1. Fill Stage:



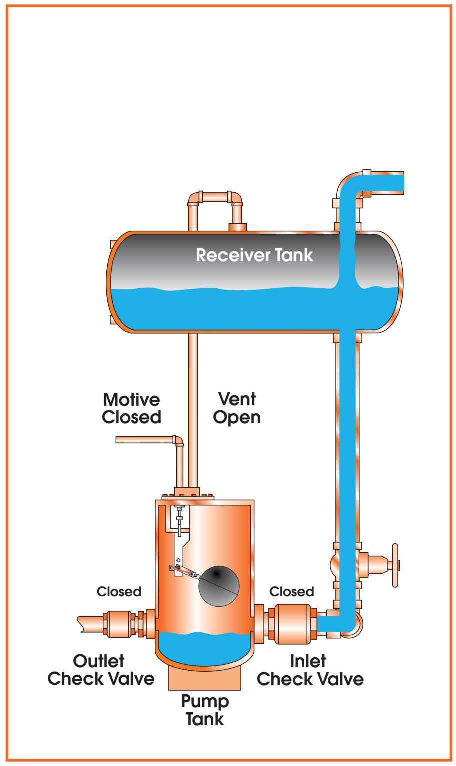
Gravity causes condensate flow from receiver tank through the inlet check valve into the pump tank. At the point the outlet check valve and motive force valve are closed. The vent valve is open allowing for equalization of pressure between the receiver and the pump tank.

2. Discharge Stage:



The condensate fills the pump tank until the pump mechanism opens the motive force valve and simultaneously closes the vent valve. With the motive force valve open, the pump tank begins to pressurize as the motive force pressure becomes great enough to close the inlet check valve. When the pressure in the pump tank becomes greater than the pressure at the outlet check valve, the outlet check valve opens and condensate is discharged from the pump tank into the condensate return piping. Because the inlet check valve is closed condensate is stored in the receiver tank.

3. Equalization Stage:



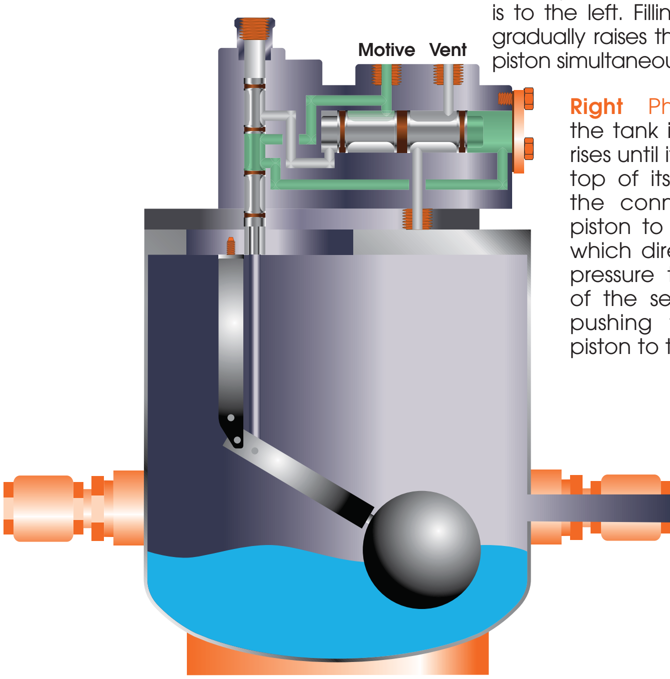
The condensate is pumped out and reaches a low level causing pump mechanism to close the motive force valve and open the vent valve. The outlet check valve closes when the pressure in the pump tank is less than that of the outlet line. At this time the inlet check valve is also closed. Then the pressure in the pump and the receiver equalize so that the inlet check valve will open and the fill cycle will begin again.

Description of the Springless Mechanism 4 step process
Piston Powered

The illustrations below demonstrate how the springless piston powered non-electrical condensate pumps work during the four step process of moving condensate.

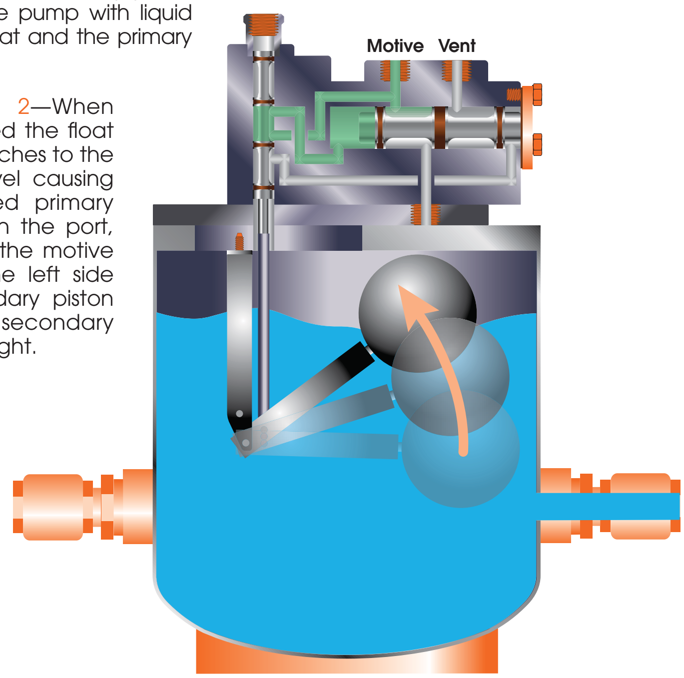
Phase 1:

Left Phase 1—At the beginning of the cycle, the pump is empty, the float and the connected primary piston are in the down position and the secondary piston is to the left. Filling the pump with liquid gradually raises the float and the primary piston simultaneously.



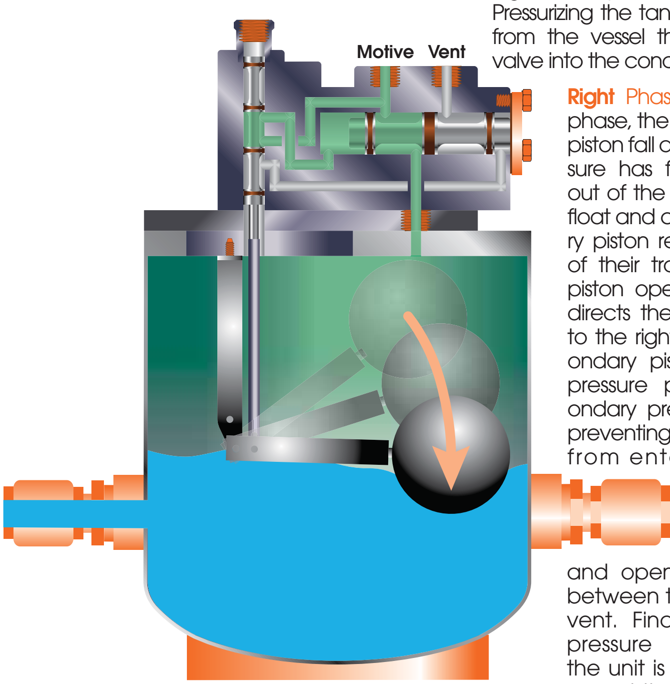
Phase 2:

Right Phase 2—When the tank is filled the float rises until it reaches to the top of its travel causing the connected primary piston to open the port, which directs the motive pressure to the left side of the secondary piston pushing the secondary piston to the right.



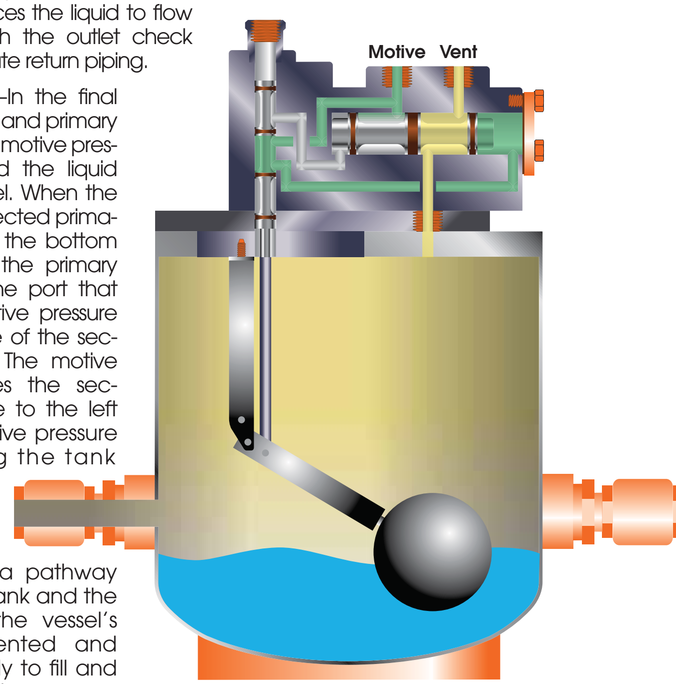
Phase 3:

Left Phase 3—With the secondary piston pushed all the way to the right, the motive pressure pathway to the vessel is open allowing motive pressure to pressurize the tank. Pressurizing the tank forces the liquid to flow from the vessel through the outlet check valve into the condensate return piping.



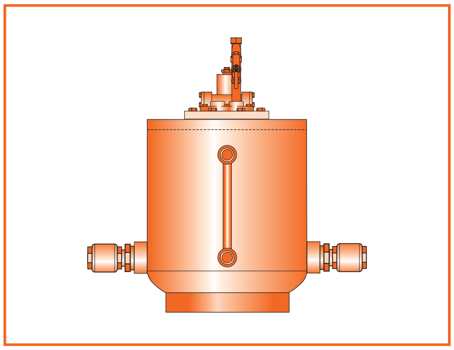
Phase 4:

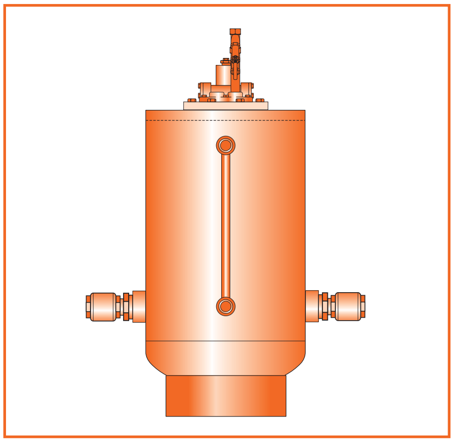
Right Phase 4—In the final phase, the float and primary piston fall as the motive pressure has forced the liquid out of the vessel. When the float and connected primary piston reach the bottom of their travel, the primary piston opens the port that directs the motive pressure to the right side of the secondary piston. The motive pressure pushes the secondary pressure to the left preventing motive pressure from entering the tank and opening a pathway between the tank and the vent. Finally, the vessel's pressure is vented and the unit is ready to fill and repeat the cycle.

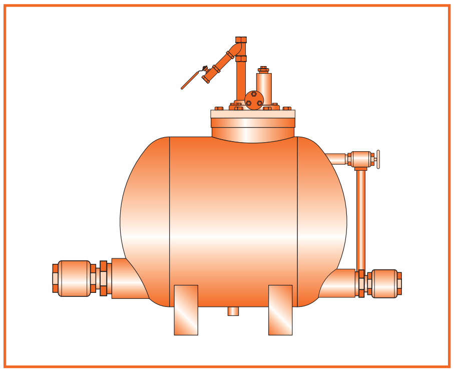


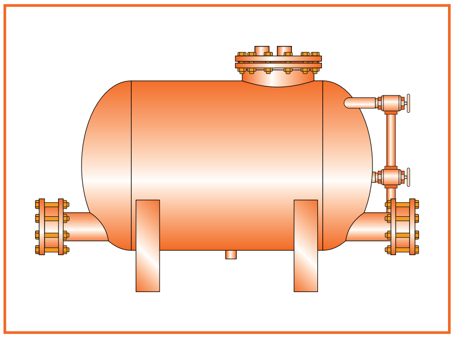
Standard Equipment

Cemline non-electric condensate pumps feature ductile iron or welded steel ASME code vessels, stainless steel check valves and stainless steel mechanism to assure highest quality.









Vessel

The pump body can be manufactured out of carbon steel or cast ductile iron.

Ductile Iron- The ductile iron is ASTM A395 materials of construction meeting ASME B16.42 pressure/temperature rating.

ASME Tank - Cemline tanks are manufactured in strict accordance with ASME Code requirements and registered with the National Board Registration. The fabricated steel tanks are rated for a working pressure of 150, 200, or 250 psig depending upon the size and application. The H22CCP and H240CCP are only available with an ASME vessel. Vessel can be made from carbon or stainless steel.

316 stainless steel check valves

The 316 stainless steel check valves are corrosive resistant and have low cracking pressures for easy opening during the pumping cycle.

Mechanism

The stainless steel mechanism is made from 316 stainless steel. Either a piston powered mechanism or a single spring reducing wear on the snap action mechanism are available.

Piston Powered - This new reliable springless design uses a dual piston type configuration that acts as a spool selector to shift the valve positions. *The springless pump is warrantied for 3 years for three million cycles.*

Snap Action Spring - The spring is not under tension in either the up or down position allowing a long service life. *The mechanism is warrantied for 3 years for one million cycles.*

Sight Glass

The brass sight glass allows for easy viewing of the water level in the condensate pump and easy trouble shooting of the condensate pump when required.

Options

Skid Mounted with Receiver Tank - Cemline can supply a skid mounted prepackaged unit with an A.S.M.E. rated receiver tank. Packages available are either simplex or duplex condensate pumps. The packaged systems include receiver tank gauge glass, shut off valves, and a skid.

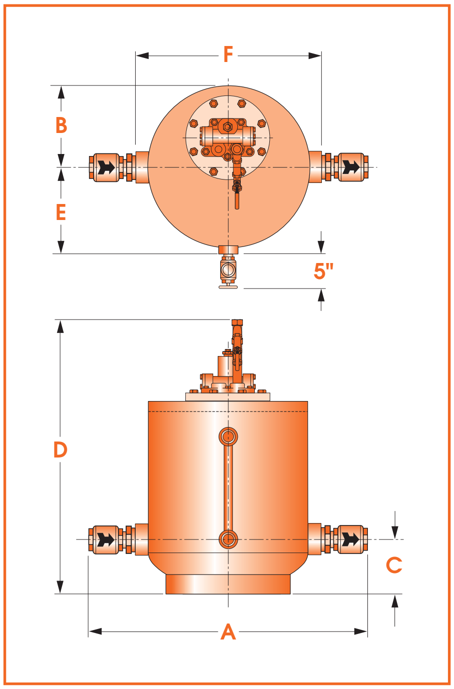
Cycle Counter - The cycle counter is available in either electric or mechanical. It counts the number of cycles the mechanism has made.

Insulating Jacket - The insulating jacket reduces heat loss of the condensate in the tank.

Non-Electric Steam or Air Powered Condensate Pump
Dimensional Data

Below is dimensional information for Cemline Condensate pumps.

V18CCP



ASME Carbon Steel Vessel

DIMENSIONS (inches)							
SIZE (Inlet x Outlet)	A	B	C	D*	E	F	Wt.
1" x 1"	26¾	8	5	27⅝	9	17¾	145
1½" x 1½"	29½	8	5	27⅝	9	17¾	155

Ducile Iron Vessel

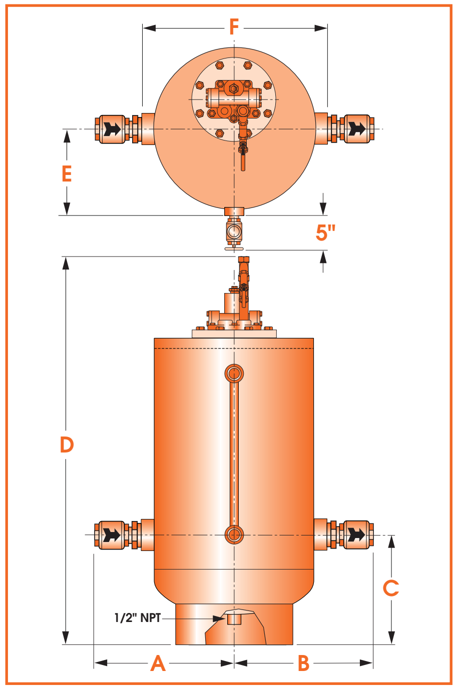
DIMENSIONS (inches)							
SIZE (Inlet x Outlet)	A	B	C	D*	E	F	Wt.
1" x 1"	26	7⅜	3	24¾	7½	15½	173
1½" x 1½"	28¾	7⅜	3	24¾	7½	15½	173

*Allow additional 18" clearance for maintenance.

V18CCP-Operating Characteristics

Pump Discharge per cycle: 4.2 - 5.1gallons
Steam consumption: ~3 lbs per 1000 lbs of liquid pumped
Air consumption: ~100 SCF per 1000 lbs of liquid pumped
Recommended fill head: 6"
Exhaust Outlet: 1/2" NPT
Motive Inlet: 1/2" NPT
Mechanism: Springless piston powered
Maximum operating pressure: 150psi @ 400°F max.

V25CCP



ASME Carbon Steel Vessel

DIMENSIONS (inches)							
SIZE (Inlet x Outlet)	A	B	C	D*	E	F	Wt.
1" x 1"	13⅜	13⅜	11	39⅛	9	17¾	192
1½" x 1½"	14¾	14¾	11	39⅛	9	17¾	194
2" x 2"	15	15	11	39⅛	9	17¾	197
3" x 2"	16½	15	11	39⅛	9	17¾	209

Ducile Iron Vessel

DIMENSIONS (inches)							
SIZE (Inlet x Outlet)	A	B	C	D*	E	F	Wt.
1" x 1"	13⅞	13⅛	7	37	7⅝	15¾	260
1½" x 1½"	15	14¼	7	37	7⅝	15¾	260
2" x 2"	15¼	14¼	7	37	7⅝	15¾	260
3" x 2"	15¼	15¾	7	37	7⅝	15¾	269

*Allow additional 18" clearance for maintenance.

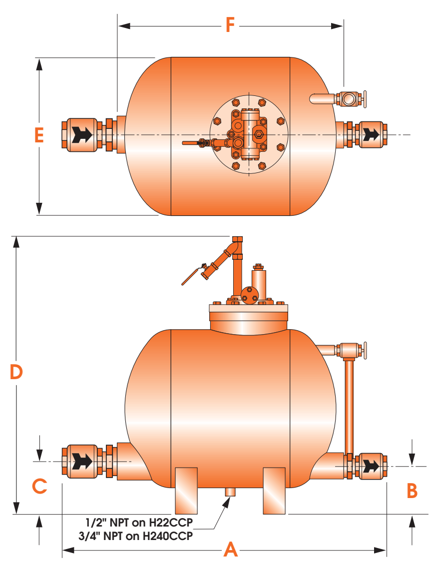
V25CCP-Operating Characteristics

Pump Discharge per cycle: 7.8 - 8.6 gallons
Steam consumption: ~3 lbs per 1000 lbs of liquid pumped
Air consumption: ~100 SCF per 1000 lbs of liquid pumped
Recommended fill head: 12"
Exhaust Outlet: 1/2" NPT
Motive Inlet: 1/2" NPT
Mechanism: Springless piston powered
Maximum operating pressure: 200psi @ 400°F max.

Non-Electric Steam or Air Powered Condensate Pump
Dimensional Data

Below is dimensional information for Cemline Condensate pumps.

H22CCP



H22CCP DIMENSIONS (inches)							
SIZE (Inlet x Outlet)	A	B	C	D*	E	F	Wt.
1" x 1"	34¼	5½	6	30⅝	18	25	198
1½" x 1½"	36¾	5½	6	30⅝	18	25	202
2" x 2"	37⅛	5½	6	30⅝	18	25	207
3" x 2"	38¼	5½	6	30⅝	18	25	214

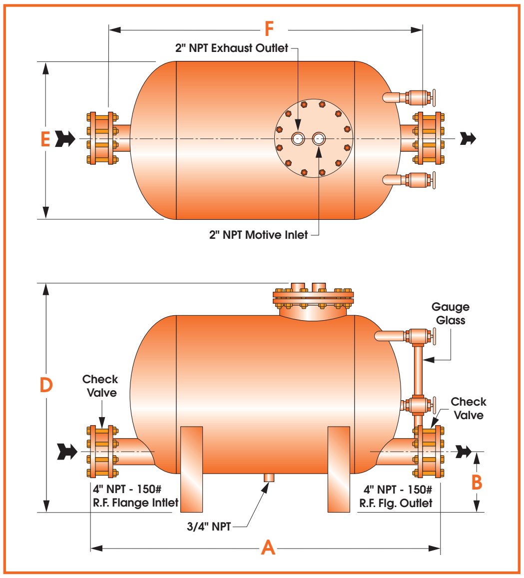
*Allow additional 18" clearance for maintenance.

H22CCP
Maximum operating pressure: 250psi @ 400°F max.

H22CCP-Operating Characteristics

Pump Discharge per cycle: 8.8 - 11 gallons
Steam consumption: ~3 lbs per 1000 lbs of liquid pumped
Air consumption: ~100 SCF per 1000 lbs of liquid pumped
Recommended fill head: 12"
Exhaust Outlet: 1/2" NPT
Motive Inlet: 1/2" NPT
Mechanism: Springless piston powered

H240CCP



H240CCP DIMENSIONS (inches)							
SIZE (Inlet x Outlet)	A	B	C	D*	E	F	Wt.
4" flg. x 4" flg.	68½	9	9	49⅜	36	62	400

*Allow additional 18" clearance for maintenance.

H240CCP
Maximum operating pressure: 150psi @ 400°F max.

H240CCP-Operating Characteristics

Pump Discharge per cycle: 140 - 185 gallons
Steam consumption: ~3 lbs per 1000 lbs of liquid pumped
Air consumption: ~100 SCF per 1000 lbs of liquid pumped
Recommended fill head: 24"
Exhaust Outlet: 2" NPT
Motive Inlet: 2" NPT
Mechanism: Spring

Non-Electric Condensate Pump Sizing

Sizing a non-electric condensate pump must be carefully done to be sure of a working system. Follow the steps below to properly size the pump.

Sizing:
In order to size a condensate pump the below information is required.

1. Condensate Load lb/hr.
2. Motive pressure (steam or air) available for operating the pump in psig.
3. Vertical lift (back pressure) in ft.
4. Pressure in the return piping in psig.
5. Filling head available in inches
6. Is the system open (vented) to atmosphere or closed.

Total back pressure must be calculated to size a non-electric condensate pump.

1. Total back pressure is the total head in feet multiplied by 0.433 plus the pressure in the return piping.

Example 1: 4500 lb/hr of condensate draining from heat exchangers in a vented to atmosphere or open system. The heat exchangers are using 75 psi source steam pressure.

1. Condensate Load = 4500 lb/hr
2. Motive pressure steam available for operating the pump = 75 psig
3. Vertical lift (back pressure) =15 ft.
4. Pressure in the return piping = 10 psig.
5. Filling head available =12 inches
6. Size receiver tank for unit located in open system.

Selection 1:

1. Calculate total back pressure. (15 ft x 0.433) + 10 psig = 17 psig
2. Select the pump from Table A (page 9) where the motive pressure is 75 psig , the back pressure is greater than or equal to 17, and the condensate pump capacity is greater than or equal to 4500 lb/hr. Resulting selection would be a V25CCP with 1" x 1" openings.

How to size a receiver tank for this unit, which is located in an open system.
The condensate load is 4500 lb/hr, the traps are draining a heat exchanger using 75 psig, and the receiver is vented to atmosphere. Table D (page 10) shows 11.3% of the condensate flashes to steam. The total flash steam is condensate load in lb/hr x % of condensate flashing to steam. Therefore, (4500 lb/hr x 0.113) = 509 lb/hr flash steam. Use the flash steam lb/hr to select the receiver size from Table E (page 10). From Table E receiver size is 10" diameter x 36" long with a 4" vent to atmosphere.

Example 2:
Same as 1 except filling head is 6".

Selection 2:
The filling head adjustment is calculated by dividing the condensate load lb/hr by the capacity correction factor from Table C (page 10). Divide the condensate load 4500 lb/hr by capacity correction factor of 0.70 from Table C. (4500 lb/hr) ÷ 0.70) = 6429 lb/hr. The adjusted capacity of the load for a 6" fill head is 6429 lb/hr. 6429 lb/hr is greater than 4649 lb/hr capacity of the V25CCP 1" x 1" so another pump will need to be selected from Table A (page 9). The result is a selection of a V25CCP with 1-1/2" x 1-1/2" openings with a 6" filling head.

Example 3:
A heat exchanger is producing 6000 lb/hr of condensate. The steam pressure to the heat exchanger is 75 psig, 125 psig motive air is available. The system is closed.

1. Condensate Load = 6000 lb/hr
2. Motive air pressure available for operating the pump = 125 psig
3. Vertical lift (back pressure) = 20 ft.
4. Pressure in the return piping = 10 psig.
5. Filling head available = 12 inches
6. Heat exchanger is located in a closed system.

Selection 3:

1. Calculate total back pressure (20 ft x 0.433) + 10 psig = 19 psig
2. Determine the correction factor for air as a motive source.
   - A. Divide total back pressure by the air pressure available (19 psig / 125 psig) = 15 %
   - B. Use the 15 % to select the correction factors for motive gas other than steam 15 % would be 1.06 from Table B (page 9).
   - C. Divide the condensate load by the correction factor (6000 lb/hr / 1.06 = 5660 lb/hr)
3. Select the pump from Table A (page 9) where the motive pressure is 125 psig, the back pressure is greater than or equal to 19, and the condensate pump capacity is greater than or equal to 5660 lb/hr. Resulting selection would be a V25CCP with 1.5" x 1.5" openings.
4. How to size a receiver tank for this unit, which is located in a closed system.
   The condensate load of 6000 lb/hr and 125 psig steam pressure. Use the condensate load lb/hr to select the receiver size from Table F (page 10). From Table F receiver size that can be used is either a 6" diameter x 36" long or a 8" diameter x 24" long.

Piston Powered Non-Electric Condensate Pump
Capacity Chart

The charts below are used to select the non-electric condensate pump. Be sure to follow sizing information on page 8 in making final selection.

Table A: Pump Capacity
Assuming Steam as motive force.

Motive Pressure (psig)	Back Pressure (psig)	V25CCP or H22CCP Fill Head 12"				V18CCP Fill Head 6"		V240CCP Fill Head 24"
		1" x 1"	1.5" x 1.5"	2" x 2"	3" x 2"	1" x 1"	1.5" x 1.5"	4"x4"
250	225	1700	3000	3050	3200	-	- -	
250	200	1850	3300	3350	3450	-	-	-
250	175	1900	3300	3400	3550	-	-	-
250	150	2050	3450	3650	3800	-	-	-
250	120	2200	3600	3950	4100	-	-	-
250	100	2350	3700	4000	4700	-	-	-
250	80	2650	4000	4850	5100	-	-	-
250	60	2750	4050	5600	6050	-	-	-
250	40	3000	4300	8700	9200	-	-	-
200	175	2150	3750	3800	4000	-	-	-
200	150	2300	3900	4100	4300	-	-	-
200	120	2500	4150	4450	4650	-	-	-
200	100	2700	4250	4600	4900	-	-	-
200	80	2900	4550	4950	5250	-	-	-
200	60	3200	4700	6500	7050	-	-	-
200	40	3450	4900	10000	10600	-	-	-
150	120	2450	4050	4100	4300	1800	1800	20613
150	100	2800	4400	4500	4750	1900	1950	27971
150	80	3150	4800	5350	5500	2050	2050	35452
150	60	3500	5100	6200	6500	2200	2250	39757
150	40	3900	5350	7400	7950	2300	2600	45382
150	25	4100	5900	12000	12700	2400	3000	47994
125	115	2750	3600	4500	4650	1800	1750	17512
125	100	2900	4100	5000	5300	1900	1900	25862
125	80	3050	4800	5750	6200	2000	2150	33012
125	60	3150	5500	6200	6500	2150	2500	38625
125	40	3250	6500	8300	8800	2300	2700	44256
125	25	3350	7750	10900	12300	2500	3050	48101
100	80	3300	4000	4650	5100	2100	2350	27783
100	60	3650	4600	5450	6000	2450	2850	35589
100	40	4000	6100	7650	9200	2900	3450	42041
100	25	4400	7300	10200	12200	3450	4300	45212
100	15	4950	9100	11900	15550	3950	5950	47156
75	60	3350	4700	5200	5650	2850	3450	20002
75	40	3700	6000	7500	9000	2950	5000	40027
75	25	4300	7250	10100	12200	3400	6300	43084
75	15	5100	8700	13700	16200	4000	7400	46485
50	40	3500	5500	5850	6250	2950	4000	19899
50	25	4050	7000	7900	8400	3350	5500	39727
50	10	3900	9050	12450	13200	4000	7650	46092
25	15	4000	6700	8550	8800	3750	5700	18694
25	10	4400	7700	11100	12150	4000	6600	39945
25	5	4650	8600	12800	16050	4100	7700	45329
10	5	3900	7250	7950	8450	3600	7150	-
10	2	4400	8350	12200	13250	4000	8200	-

Table B: Capacity Multiplying Factors for Motive Gas Supplies Other than Steam

% Back Pressure vs. Motive Pressure (BP/MP)	10%	20%	30%	40%	50%	60%	70%	80%	90%
Capacity Multiplying Factors	1.04	1.06	1.08	1.1	1.12	1.15	1.18	1.23	1.28

Correction Factors and Receiver Sizing

The charts shown below give correction for filling heads other than 12”, technical information on percent flash, and receiver sizing.

Table C: Capacity Correction Factors for Filling Head Variation

Filling Head Inches	Check Valve and Piping Sizing			
	1"	1.5"	2"	3"x2"
6"	0.7	0.7	0.7	0.84
12"	1	1	1	1
24"	1.2	1.2	1.2	1.08
36"	1.35	1.35	1.35	1.2

Table D: Percent of Flash Steam Formed

Initial Steam Pressure psig	Sat Temp. °F	Receiver Tank Pressure, psig							
		0	5	10	20	30	40	50	75
10	239	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
25	267	5.7	4.1	3.0	1.0	0.0	0.0	0.0	0.0
50	298	9.0	7.4	6.2	4.3	2.6	1.0	0.0	0.0
75	320	11.3	10.8	8.6	6.7	5.0	3.7	2.5	0.0
100	338	13.3	11.7	10.6	8.7	7.0	5.7	4.6	2.2
125	353	14.8	13.4	12.2	10.3	8.7	7.4	6.3	3.8

Table E: Vented Receiver Inlet Sizing

Flash Steam in lbs/hr	Diameter in inches	Length in inches	Vent Line Size in inches
75	4	36	1.5
150	6	36	2
300	8	36	3
600	10	36	4
900	12	36	6
1200	16	36	6
2000	20	36	8

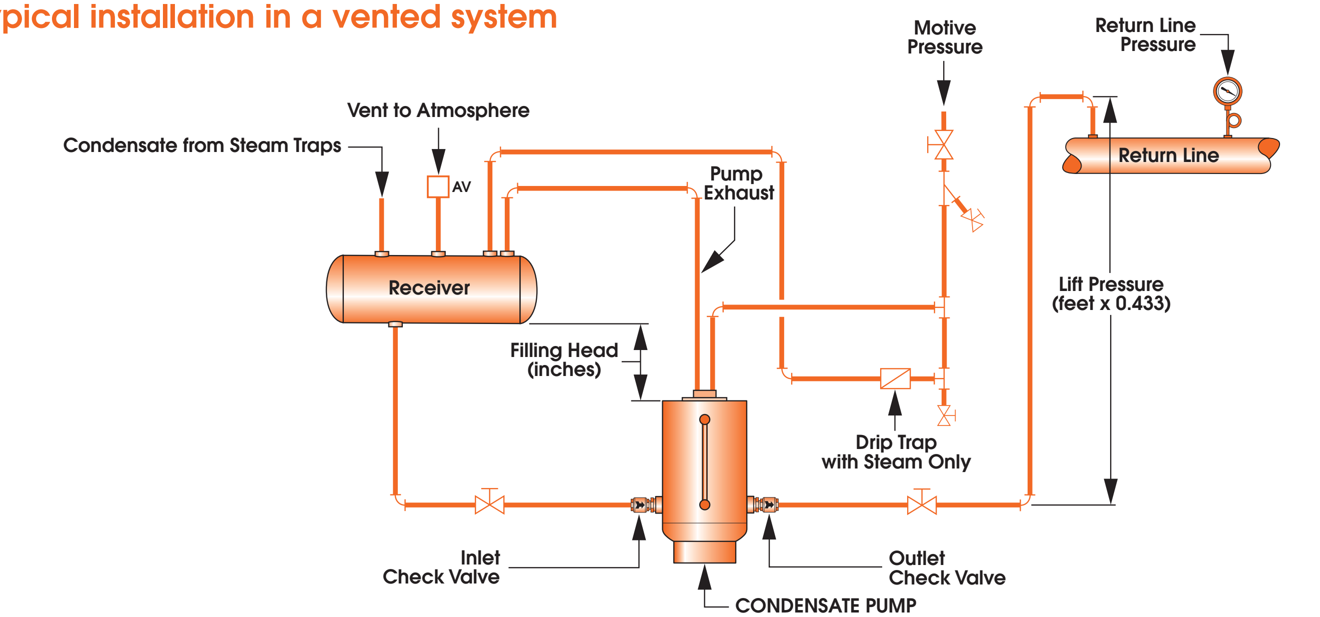
Table F: Closed System Receiver Sizing

Liquid (lb/hr)	Pipe Length Size in Inches				
	3" Dia	4" Dia	6" Dia	8" Dia	10" Dia
>500	24	-	-	-	-
1000	24	-	-	-	-
1500	36	24	-	-	-
2000	42	24	12	-	-
3000	-	36	24	-	-
4000	-	48	24	12	-
5000	-	72	36	24	-
6000	-	-	36	24	-
7000	-	-	36	24	-
8000	-	-	48	24	-
9000	-	-	54	36	24
10,000	-	-	60	36	24
11,000	-	-	60	36	24

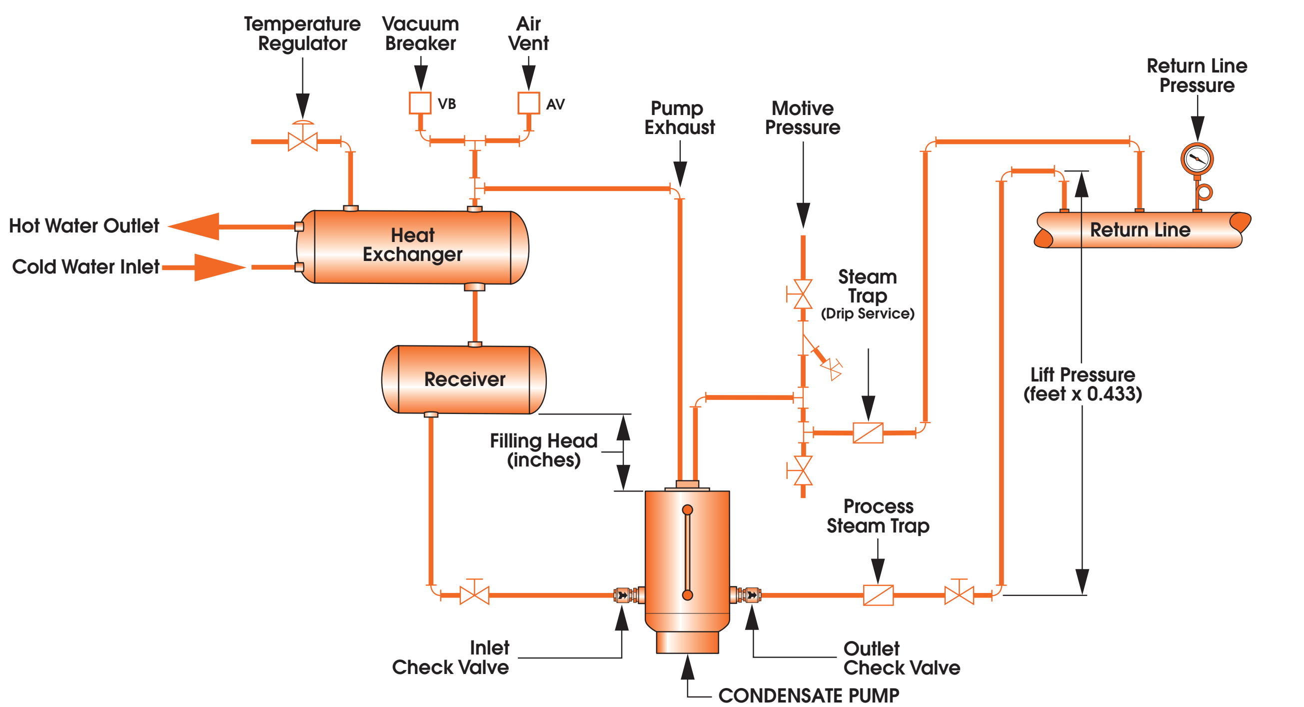
Cemline Condensate Pumps
Typical Installations

The drawings below show typical piping for non-electric condensate pumps installations.

Typical installation in a vented system



Typical installation in a closed system

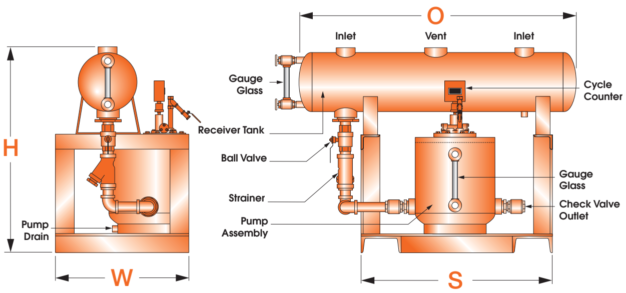


Skid Mounted Condensate Systems

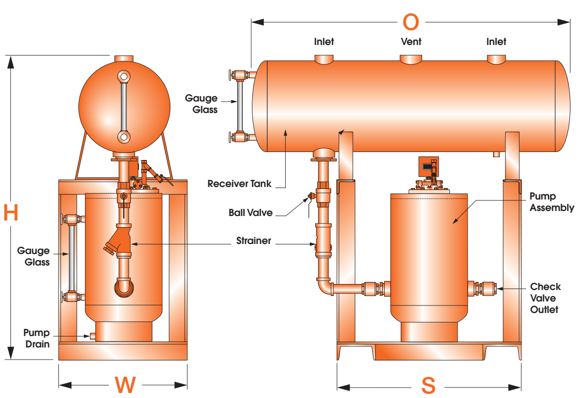
Dimensional Data — Simplex Units V18CCP, V25CCP, H22CCP

Cemline can supply a skid mounted prepackaged unit with an A.S.M.E. rated receiver tank. Packages below are for simplex condensate pumps. The packaged systems include a receiver tank gauge glass, shut off valves, and a skid.

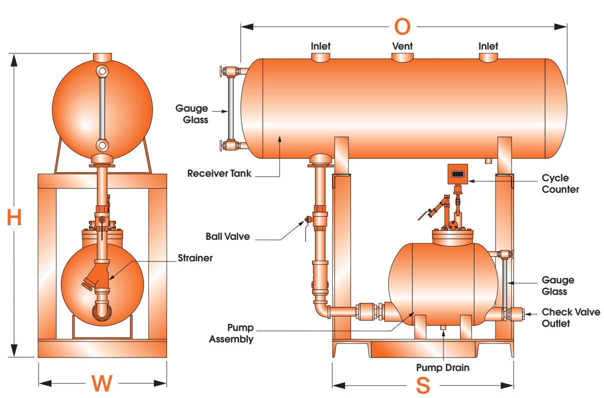
Typical skid mounted condensate package



Dimensions (inches)							
Model Number	Check Valve Size (inches)	Receiver Size (gallons)	H	W	O	S	Wt. Lbs.
V18CCP-1x1-S-25	1" x 1"	25	$45\frac{5}{8}$	27	54	39	618
V18CCP-1.5x1.5-S-25	1.5" x 1.5"	25	$45\frac{5}{8}$	27	64	39	878



Dimensions (inches)							
Model Number	Check Valve Size (inches)	Receiver Size (gallons)	H	W	O	S	Wt. Lbs.
V25CCP-2x2-S-25	2" x 2"	25	$61\frac{1}{8}$	30	54	39	920
V25CCP-2x2-S-65	2" x 2"	65	$66\frac{3}{8}$	30	64	39	1134
V25CCP-3x2-S-25	3" x 2"	25	$61\frac{1}{8}$	30	54	39	920
V25CCP-3x2-S-65	3" x 2"	65	$66\frac{3}{8}$	30	64	39	1134



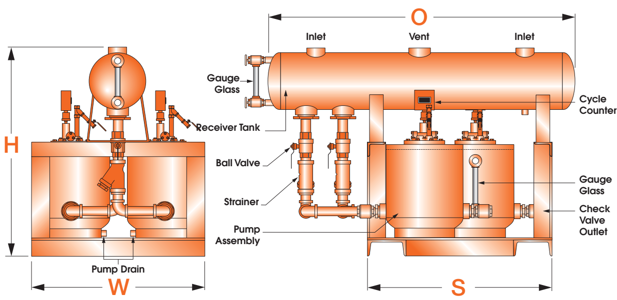
Dimensions (inches)							
Model Number	Check Valve Size (inches)	Receiver Size (gallons)	H	W	O	S	Wt. Lbs.
H22CCP-2x2-S-25	2" x 2"	25	$61\frac{1}{8}$	30	54	39	990
H22CCP-2x2-S-65	2" x 2"	65	$66\frac{3}{8}$	30	64	39	1150
H22CCP-3x2-S-25	3" x 2"	25	$61\frac{1}{8}$	30	54	39	990
H22CCP-3x2-S-65	3" x 2"	65	$66\frac{3}{8}$	30	64	39	1150

Skid Mounted Condensate Systems

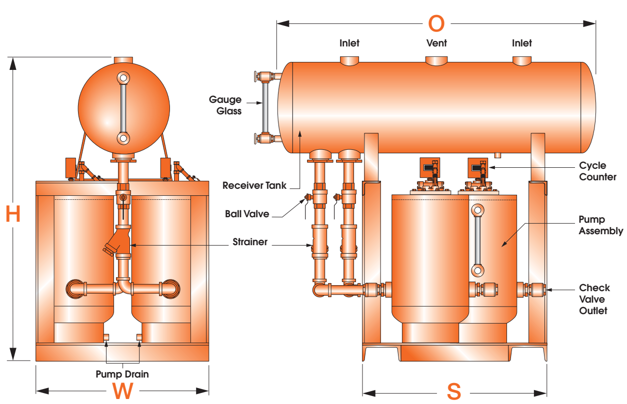
Dimensional Data — Duplex Units V18CCP, V25CCP, H22CCP

Cemline can supply a skid mounted prepackaged unit with an A.S.M.E. rated receiver tank. Packages available are for duplex condensate pumps. The packaged systems include a receiver tank gauge glass, shut off valves, and a skid.

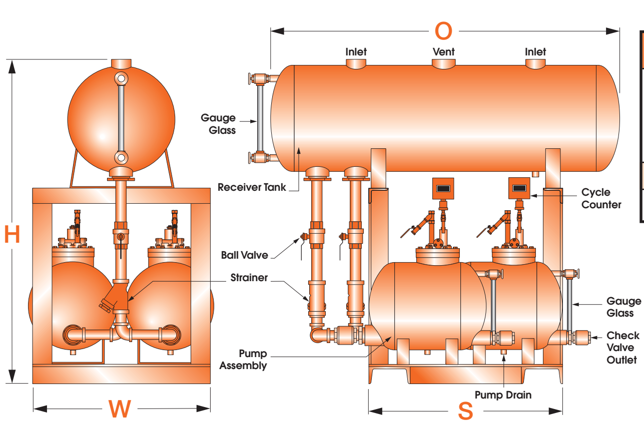
Typical skid mounted condensate package



DIMENSIONS (inches)							
Model Number	**Check Valve Size (inches)**	**Receiver Size (gallons)**	**H**	**W**	**O**	**S**	**Wt. Lbs.**
V18CCP-1x1-D-25	1" x 1"	25	$45\frac{5}{8}$	36	54	39	950



DIMENSIONS (inches)							
Model Number	**Check Valve Size (inches)**	**Receiver Size (gallons)**	**H**	**W**	**O**	**S**	**Wt. Lbs.**
V25CCP-3x2-D-65	3" x 2"	65	$66\frac{7}{16}$	36	66	$48\frac{1}{2}$	1220
V25CCP-3x2-D-80	3" x 2"	80	$68\frac{7}{16}$	36	66	$48\frac{1}{2}$	1771



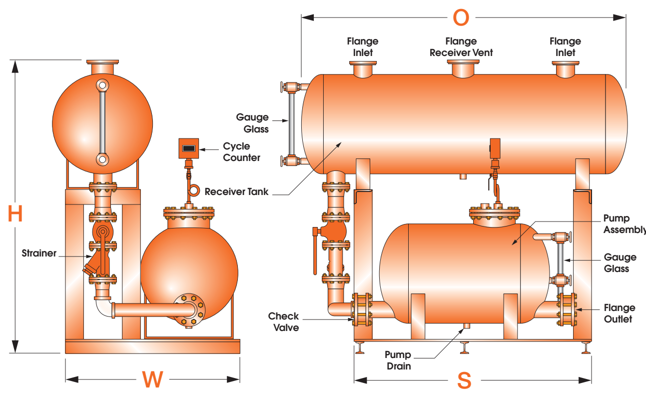
DIMENSIONS (inches)							
Model Number	**Check Valve Size (inches)**	**Receiver Size (gallons)**	**H**	**W**	**O**	**S**	**Wt. Lbs.**
H22CCP-3x2-D-25	3" x 2"	65	$66\frac{7}{16}$	36	66	$48\frac{1}{2}$	1743
H22CCP-3x2-D-65	3" x 2"	80	$68\frac{7}{16}$	36	66	$48\frac{1}{2}$	1791

Skid Mounted Condensate Systems

Dimensional Data — Simplex and Duplex Units H240CCP

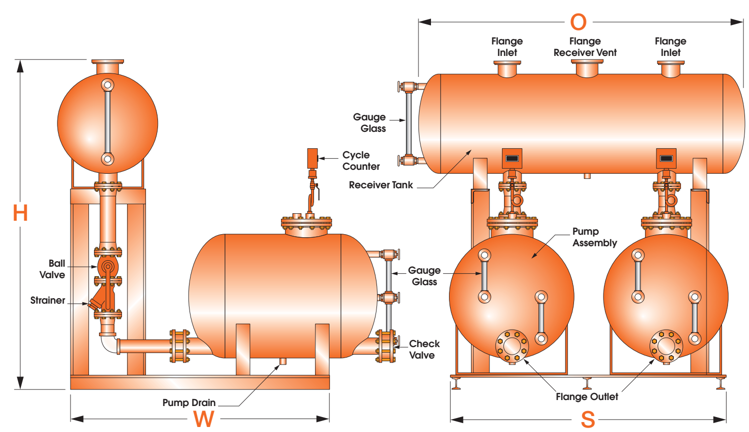
Cemline can supply a skid mounted prepackaged unit with an A.S.M.E. rated receiver tank. Packages available are a simplex, or duplex condensate pumps. The packaged systems include receiver tank gauge glass, shut off valves, and a skid.

Typical skid mounted Simplex condensate package



DIMENSIONS (inches)							
Model Number	Check Valve Size (inches)	Receiver Size (gallons)	H	W	O	S	Wt. Lbs.
H240CCP-4x4-S-115	4" x 4"	115	87¾	50	96	70½	1900
H240CCP-4x4-S-250	4" x 4"	250	87¾	50	96	70½	1900

Typical skid mounted Duplex condensate package



DIMENSIONS (inches)							
Model Number	Check Valve Size (inches)	Receiver Size (gallons)	H	W	O	S	Wt. Lbs.
H240CCP-4x4-D-250	4" x 4"	250	97¾	76	92	80	3050

Checklist

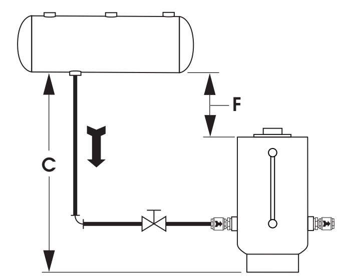
Name ______________________ Company ______________________

Address ______________________ Job Name ______________________

City ______ State ______ Zip ______ TAG ______________________

Cemline Requires the checklist to be filled out before the unit can be shipped.

Sizing Requirements



1. What is the Fluid to be Pumped? ______________________

2. What is the fluid's Specific Gravity (water = 1)? ______________

3. What is the fluid's temperature? ____________ °F

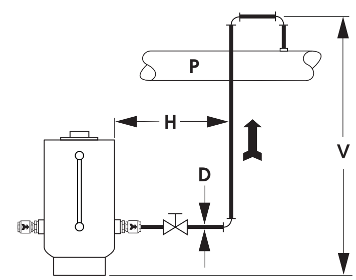
***4.** What is the required Flow Rate? ____________ lb/hr or ________ GPM

***5.** What is the Fill Head (F)? ____________ inches

***6.** What is the Clearance (C)? ____________ inches

7. Does the system have a modulating control valve? ☐ Yes ☐ No

Installation Requirements



Pump connections ________ Inlet ________ Outlet ☐ N.P.T. ☐ Flanged

*Motive Gas ____________ psig ________ °F ☐ Air ☐ Steam

*Total Return Header Pressure ____________ psig**

Existing Back Pressure in Condensate Return Line (P) ________ psig

Horizontal Run to Return header (H) ________ feet

Downstream pipe size (D) ________ inches

Vertical lift to return header (V) ________ feet

Can pump be vented to atmosphere? ☐ Yes ☐ No If "No", please explain ______________

If "Yes", is it vented to atmosphere or under pressure? ☐ Atmospheric ☐ Pressure ________ psig

Does the system have an existing flash tank or receiver tank? ☐ Yes ☐ No

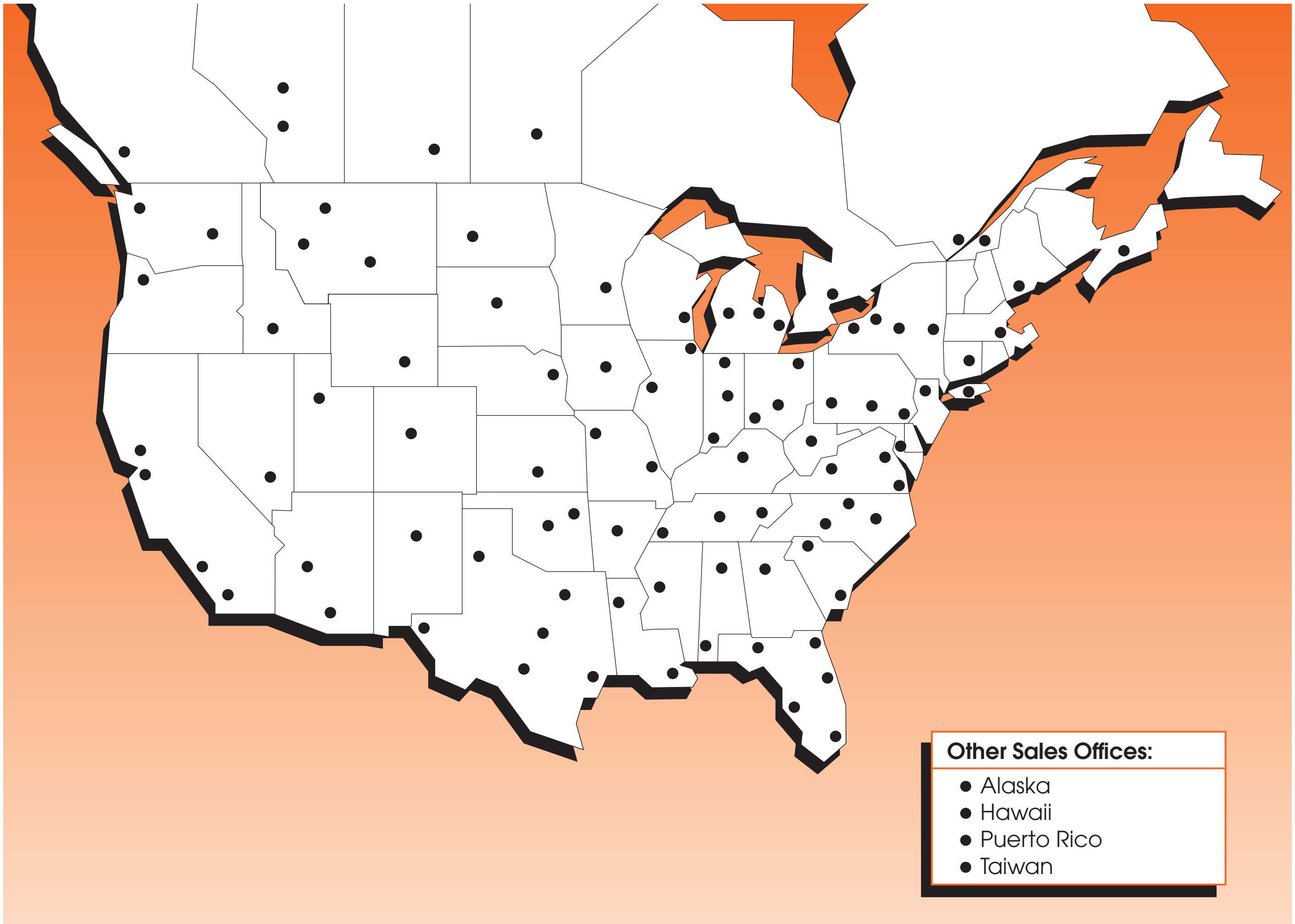
**Required Fields*

*****Consider vertical distance (V), horizontal distance (H), and existing back pressure in condensate return line (P).***

Materials & Accessories

Tank Material:	☐ Ductile Iron	☐ Carbon Steel	☐ Stainless Steel	
Tank Style/Size:	☐ V25CCP	☐ V18CCP	☐ H22CCP	☐ H240CCP
Mechanism:	☐ Piston	☐ Spring		
Number of Pumps:	☐ One	☐ Two	☐ Three	☐ Four
Check Valve:	☐ Stainless Steel			
Options:	☐ Cycle Counter	☐ Insulation Jacket	☐ Skid Mount Package	

Sales Offices



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P.O. BOX 55 CHESWICK, PENNSYLVANIA 15024
Phone: (724) 274-5430 FAX (724) 274-5448
www.cemline.com