

CCP Series



Non-Electric Steam or Air Powered Condensate Pump

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



CEMLINE CORPORATION

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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:

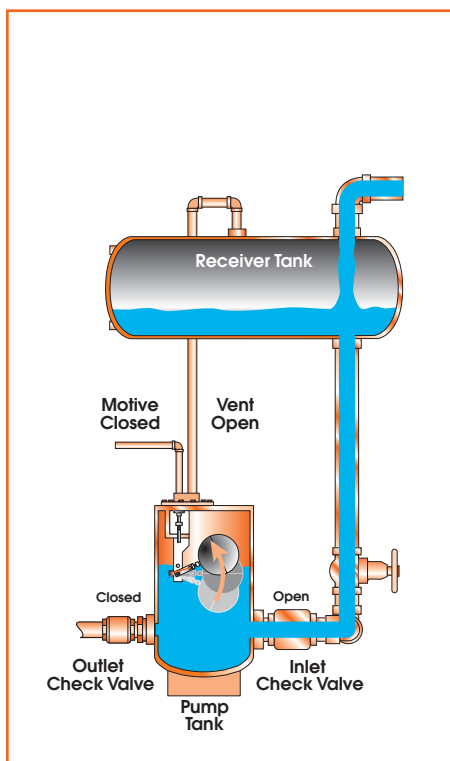
Typical installations would be remote locations, hazardous environments or any application where electric pumps fail rapidly.



Description of the Spring Mechanism 3 step process:

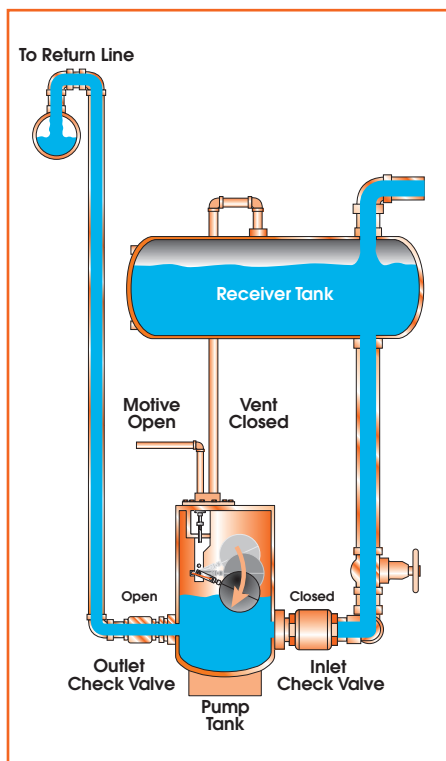
The below illustrations demonstrate how non-electrical condensate pumps work during the traditional three step process of moving condensate with a spring mechanism.

1. Fill Stage:



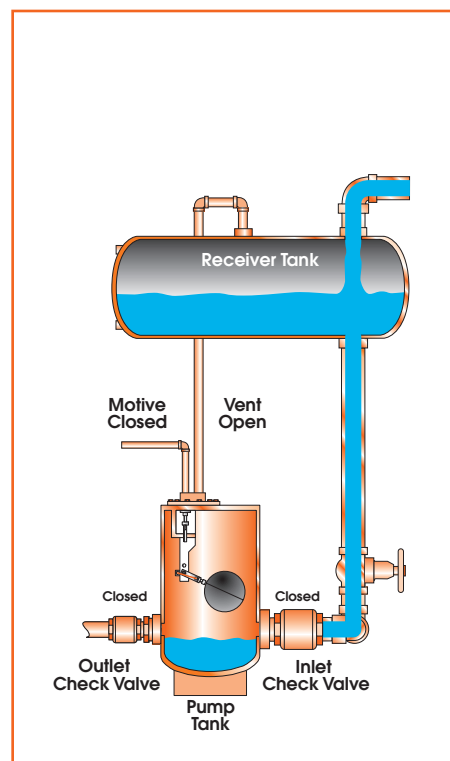
Gravity causes condensate flow from receiver tank through the inlet check valve into the pump tank. At the point the outlet check valve and motive force valve are closed. The vent valve is open allowing for equalization of pressure between the receiver and the pump tank.

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.

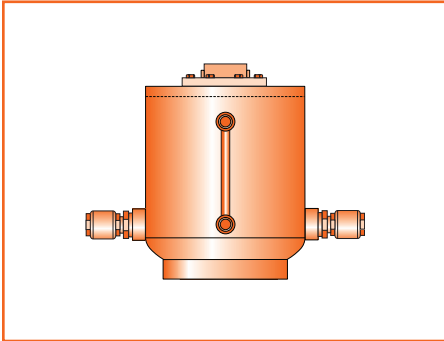
3. Equalization Stage:



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.

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.

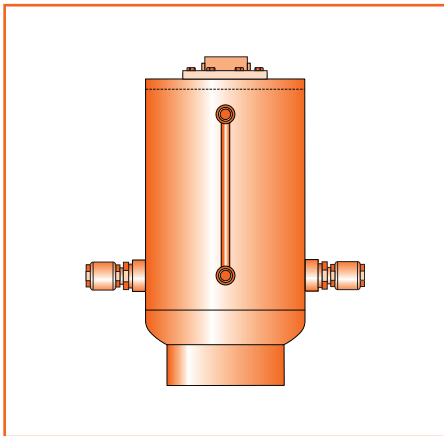


Vessel

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.



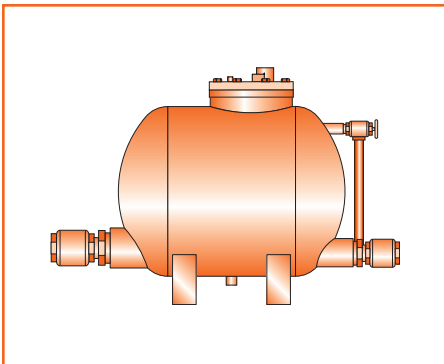
Mechanism

The stainless steel mechanism is made from 316 stainless steel.

Snap Action Spring - The spring is not under tension in either the up or down position allowing a long service life. *The mechanism is warranted 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 troubleshooting of the condensate pump when required.



316 stainless steel check valves

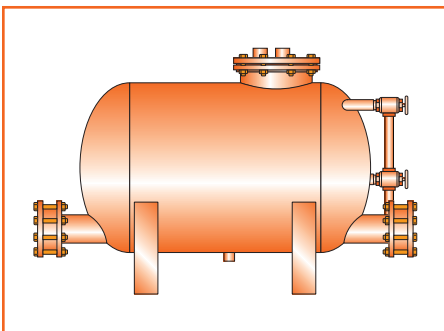
The 316 stainless steel check valves are corrosive resistant and have low cracking pressures for easy opening during the pumping cycle.

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.

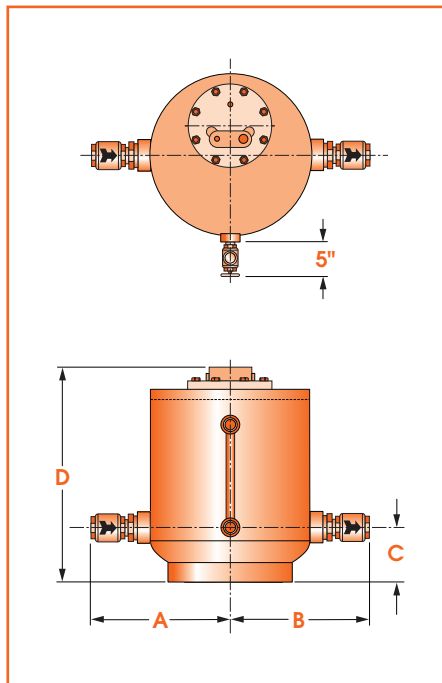


Non-Electric Steam or Air Powered Condensate Pump

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*	Wt.
1" x 1"	29½	8¼	2¾	23¾	200
1½" x 1½"	32⅞	8¼	2¾	23¾	210

Ducile Iron Vessel

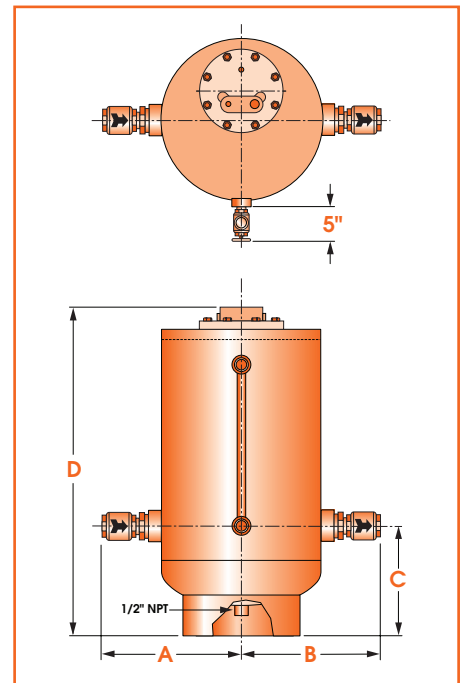
DIMENSIONS (inches)					
SIZE (Inlet x Outlet)	A	B	C	D*	Wt.
1" x 1"	29½	8¼	2¾	23¾	200
1½" x 1½"	32⅞	8¼	2¾	23¾	210

*Allow additional 18" clearance for maintenance.

V18CCP-Operating Characteristics

Pump Discharge per cycle: 4.2 - 5.1 gallons
 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" NPT
 Motive Inlet: 1/2" NPT
 Mechanism: Spring
 Maximum operating pressure: 150psi @ 400°F max.

V25CCP



ASME Carbon Steel Vessel

DIMENSIONS (inches)					
SIZE (Inlet x Outlet)	A	B	C	D*	Wt.
1" x 1"	15¼	15¼	9 ¹⁵ / ₁₆	29 ¹⁵ / ₁₆	215
1½" x 1½"	16⅞	16⅞	9 ¹⁵ / ₁₆	29 ¹⁵ / ₁₆	215
2" x 2"	16⅞	16⅞	9 ¹⁵ / ₁₆	29 ¹⁵ / ₁₆	235
3" x 2"	18¼	17	9 ¹⁵ / ₁₆	29 ¹⁵ / ₁₆	240

Ducile Iron Vessel

DIMENSIONS (inches)					
SIZE (Inlet x Outlet)	A	B	C	D*	Wt.
1" x 1"	14¾	14¾	4 ¹³ / ₁₆	24¾	360
1½" x 1½"	15⅝	15⅝	4 ¹³ / ₁₆	24¾	370
2" x 2"	16⅜	16⅜	4 ¹³ / ₁₆	24¾	385
3" x 2"	18¼	17	4 ¹³ / ₁₆	24¾	390

*Allow additional 18" clearance for maintenance.

V25CCP-Operating Characteristics

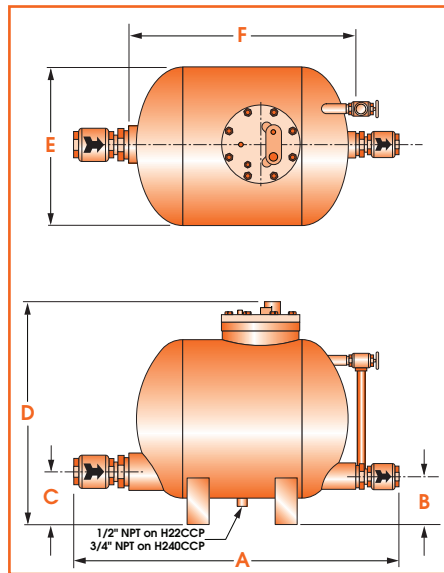
Pump Discharge per cycle: 7.8 - 8.6 gallons
 Steam consumption: ~3 lbs per 1000 lbs of liquid pumped
 Air consumption: ~100 SCF per 1000 lbs of liquid pumped
 Recommended fill head: 12"
 Exhaust Outlet: 1" NPT
 Motive Inlet: 1/2" NPT
 Mechanism: Spring
 Maximum operating pressure: 200psi @ 400°F max.

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"	34 $\frac{1}{4}$	5 $\frac{1}{2}$	6	25 $\frac{1}{4}$	18	25	198
1 $\frac{1}{2}$ " x 1 $\frac{1}{2}$ "	36 $\frac{3}{4}$	5 $\frac{1}{2}$	6	25 $\frac{1}{4}$	18	25	202
2" x 2"	37 $\frac{1}{8}$	5 $\frac{1}{2}$	6	25 $\frac{1}{4}$	18	25	207
3" x 2"	38 $\frac{1}{4}$	5 $\frac{1}{2}$	6	25 $\frac{1}{4}$	18	25	214

*Allow additional 18" clearance for maintenance.

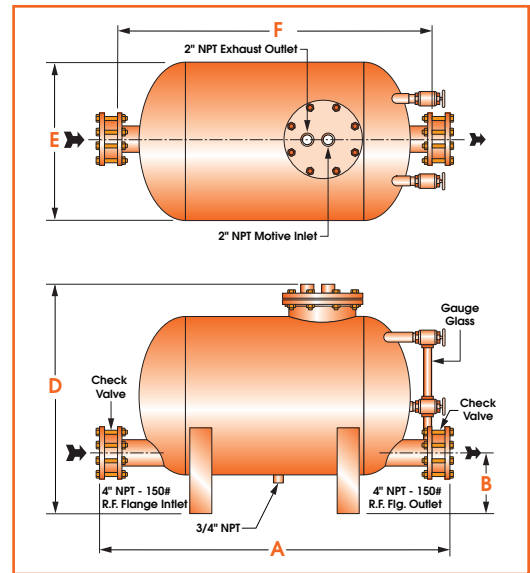
H22CCP

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" NPT
 Motive Inlet: 1/2" NPT
 Mechanism: Spring

H240CCP



H240CCP DIMENSIONS (inches)							
SIZE (Inlet x Outlet)	A	B	C	D*	E	F	Wt.
4" flg. x 4" flg.	68 $\frac{1}{2}$	9	9	49 $\frac{3}{8}$	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 psig 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. $(15 \text{ ft} \times 0.433) + 10 \text{ psig} = 17 \text{ psig}$
2. Select the pump from Table A (page 8) 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 2" x 2" 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 9) 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, $(4500 \text{ lb/hr} \times 0.113) = 509 \text{ lb/hr}$ flash steam. Use the flash steam lb/hr to select the receiver size from Table E (page 9). 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 9). Divide the condensate load 4500 lb/hr by capacity correction factor of 0.70 from Table C. $(4500 \text{ lb/hr}) \div 0.70 = 6429 \text{ lb/hr}$. The adjusted capacity of the load for a 6" fill head is 6429 lb/hr. 6429 lb/hr is less than 4649 lb/hr capacity of the V25CCP 2" x 2" so the V25CCP with 2" x 2" can be selected from Table A (page 8) 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 $(20 \text{ ft} \times 0.433) + 10 \text{ psig} = 19 \text{ psig}$
2. Determine the correction factor for air as a motive source.
 - A. Divide total back pressure by the air pressure available $(19 \text{ psig} / 125 \text{ psig}) = 15 \%$
 - B. Use the 15 % to select the correction factors for motive gas other than steam 15 % would be 1.06 from Table B (page 8).
 - C. Divide the condensate load by the correction factor $(6000 \text{ lb/hr} / 1.06) = 5660 \text{ lb/hr}$
3. Select the pump from Table A (page 8) 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 9). 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"
200	160	-	2700	4300	5700	-	-	-
200	140	-	3400	5400	7200	-	-	-
200	100	-	4650	7350	9800	-	-	-
200	80	-	5250	8300	11100	-	-	-
200	40	-	7550	11950	15950	-	-	-
200	15	-	9350	14800	19700	-	-	-
175	140	-	2900	4650	6200	-	-	-
175	120	-	3400	5400	7200	-	-	-
175	100	-	4000	6300	8400	-	-	-
175	60	-	5400	8550	11400	-	-	-
175	40	-	6900	10950	14600	-	-	-
175	15	-	8350	13200	17600	-	-	-
150	120	1749	2940	4200	5690	1590	2058	21600
150	100	1804	3490	5350	7000	1640	2443	29000
150	80	2046	4230	6770	9100	1860	2961	34500
150	60	2288	5000	8240	11120	2080	3500	40300
150	40	2530	5870	9780	13220	2300	4109	44700
150	15	2772	6820	11680	15500	2520	4774	49500
125	115	1573	2640	4050	4960	1430	1848	19500
125	100	1694	3330	5130	6390	1540	2331	25300
125	80	1936	4100	6670	8540	1760	2870	32200
125	60	2178	4850	8160	10530	1980	3395	38500
125	40	2420	5950	9590	12500	2200	4165	44000
125	15	2662	6660	11420	15100	2420	4662	49200
100	80	1815	3060	5150	6860	1650	2142	27200
100	60	2057	4000	6870	9100	1870	2800	35100
100	40	2299	5210	8500	11270	2090	3647	42100
100	15	2662	6010	10800	14330	2420	4207	48000
75	60	1694	2660	4440	6340	1540	1862	32900
75	40	2178	4190	7320	9870	1980	2933	39400
75	15	2662	5700	10600	14330	2420	3990	47200
50	40	1815	2530	4170	5670	1650	1771	33300
50	25	2178	4500	8440	11550	1980	3150	40100
50	10	2530	5240	9850	13440	2300	3668	47000
25	15	1815	3480	6170	8230	1650	2436	33200
25	10	2178	3990	8100	10780	1980	2793	40300
25	5	2530	5200	9850	13350	2300	3640	46200
10	5	2057	2450	5380	7210	1870	1715	19000
10	2	2420	3370	8500	11110	2200	2359	22600
5	2	1936	1920	3540	5000	1760	1344	16600

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

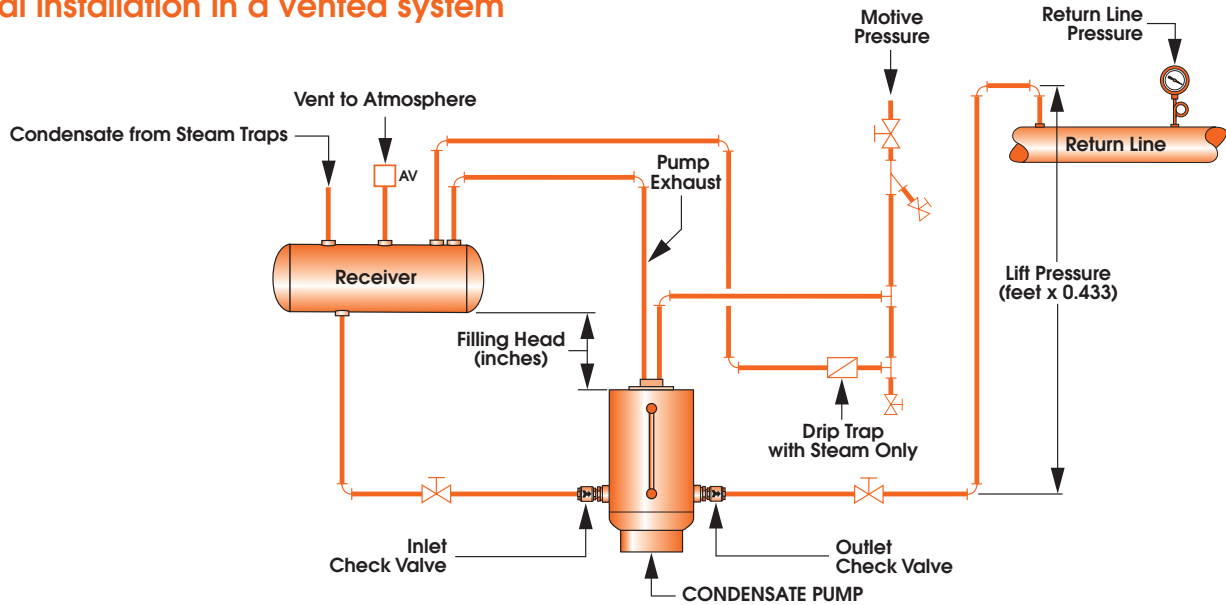
Liquid (lb/hr)	Pipe Length Size in Inches				
	3" Dia	4" Dia	6" Dia	8" Dia	10" Dia
>500	24	-	-	-	-
1000	24	-	-	-	-
1500	36	24	-	-	-
2000	42	24	12	-	-
3000	-	36	24	-	-
4000	-	48	24	12	-
5000	-	72	36	24	-
6000	-	-	36	24	-
7000	-	-	36	24	-
8000	-	-	48	24	-
9000	-	-	54	36	24
10,000	-	-	60	36	24
11,000	-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

Cemline Condensate Pumps

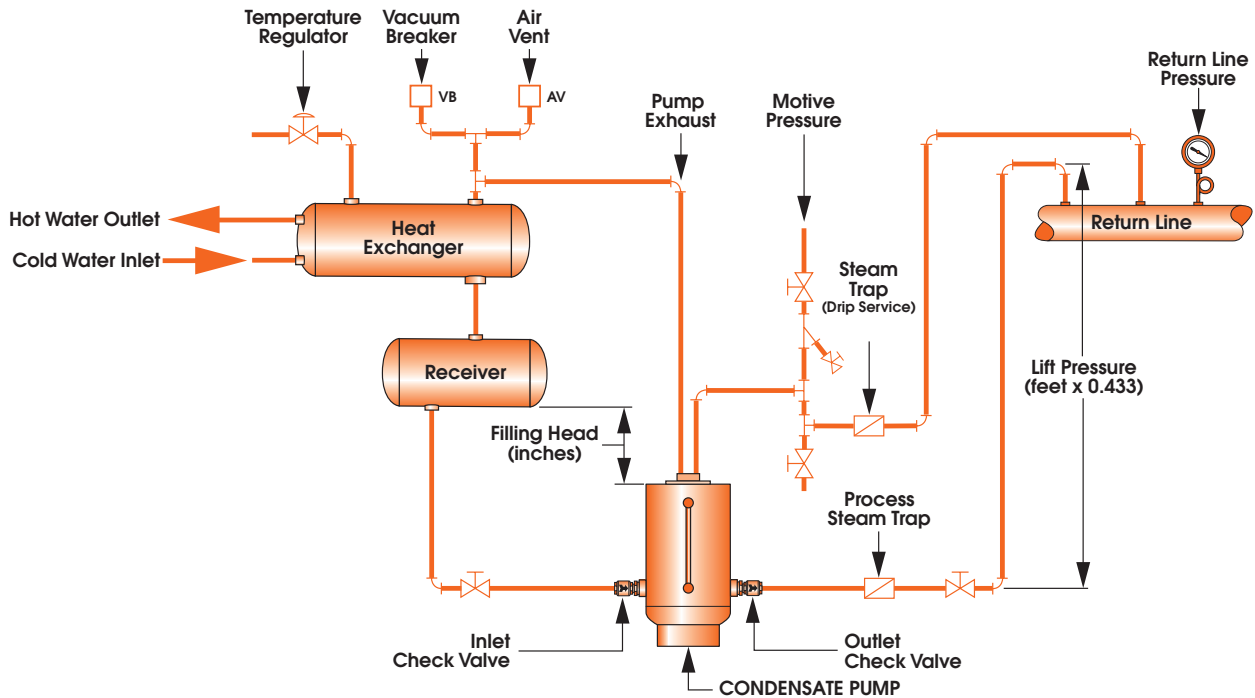
Typical Installations

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

Typical installation in a vented system



Typical installation in a closed system

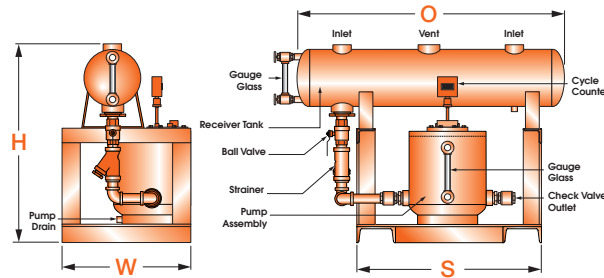


Skid Mounted Condensate Systems

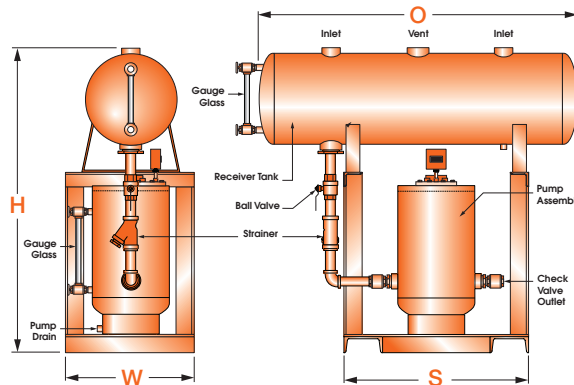
Dimensional Data — Simplex Units V18CCP, V25CCP

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 packages



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



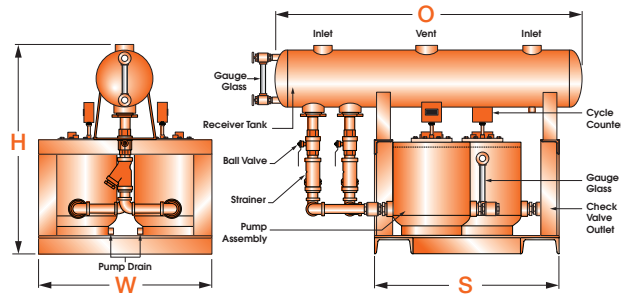
Dimensions (inches)							
Model Number	Check Valve Size (inches)	Receiver Size (gallons)	H	W	O	S	Wt. Lbs.
V25CCP-2x2-S-25	2" x 2"	25	61 $\frac{1}{8}$ "	30	54	39	920
V25CCP-2x2-S-65	2" x 2"	65	66 $\frac{3}{8}$ "	30	64	39	1134
V25CCP-3x2-S-25	3" x 2"	25	61 $\frac{1}{8}$ "	30	54	39	920
V25CCP-3x2-S-65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

Skid Mounted Condensate Systems

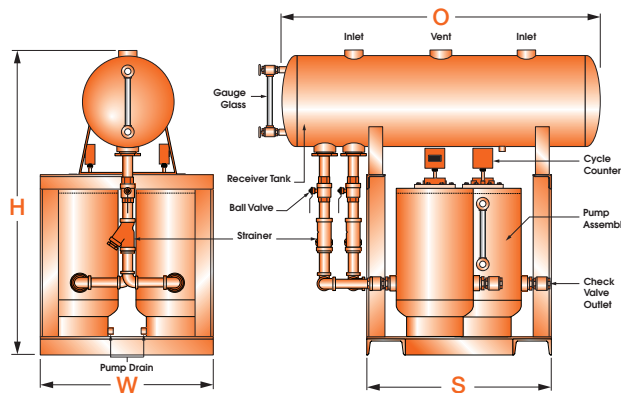
Dimensional Data — Duplex Units V18CCP, V25CCP

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 packages



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 ⁵ / ₈	36	54	39	950



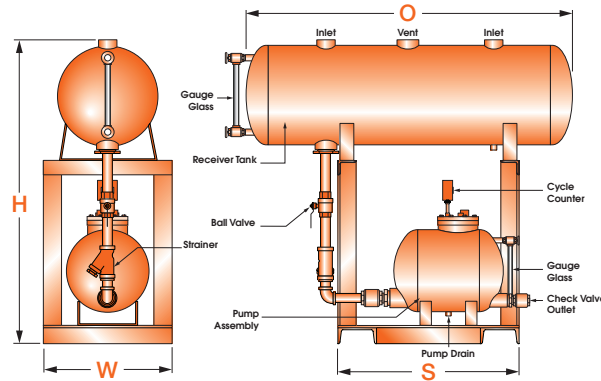
DIMENSIONS (inches)							
Model Number	Check Valve Size (inches)	Receiver Size (gallons)	H	W	O	S	Wt. Lbs.
V25CCP-3x2-D-65	3" x 2"	65	66 ⁷ / ₆	36	66	48 ¹ / ₂	1220
V25CCP-3x2-D-80	3" x 2"	80	68 ⁷ / ₆	36	66	48 ¹ / ₂	1771

Skid Mounted Condensate Systems

Dimensional Data — Simplex and Duplex Units H22CCP

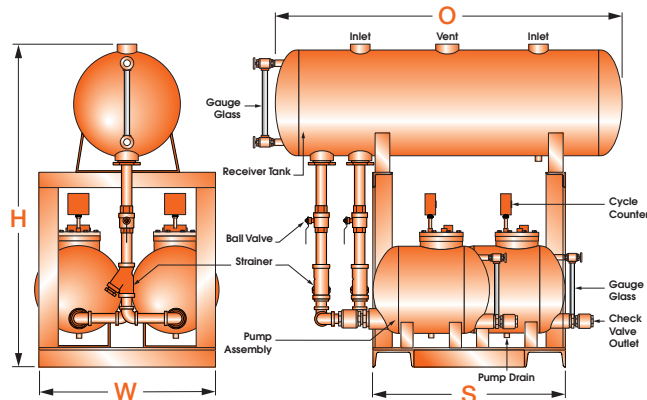
Cemline can supply a skid mounted prepackaged unit with an A.S.M.E. rated receiver tank. Packages available are for duplex condensate pumps. The packaged systems include a receiver tank gauge glass, shut off valves, and a skid.

Typical skid mounted Simplex condensate package



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

Typical skid mounted Duplex condensate package



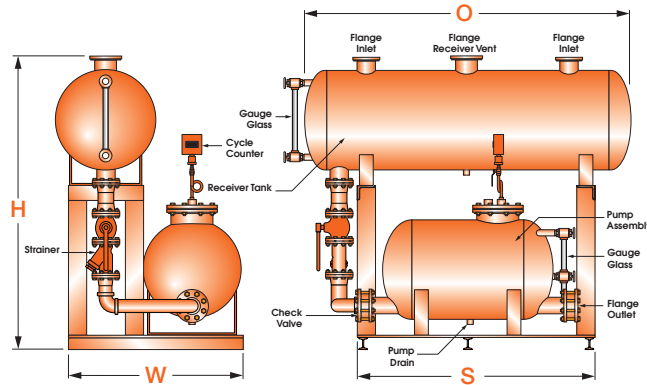
DIMENSIONS (inches)							
Model Number	Check Valve Size (inches)	Receiver Size (gallons)	H	W	O	S	Wt. Lbs.
H22CCP-3x2-D-25	3" x 2"	65	66 $\frac{7}{16}$	36	66	48 $\frac{1}{2}$	1743
H22CCP-3x2-D-65	3" x 2"	80	68 $\frac{7}{16}$	36	66	48 $\frac{1}{2}$	1791

Skid Mounted Condensate Systems

Dimensional Data — Simplex and Duplex Units H240CCP

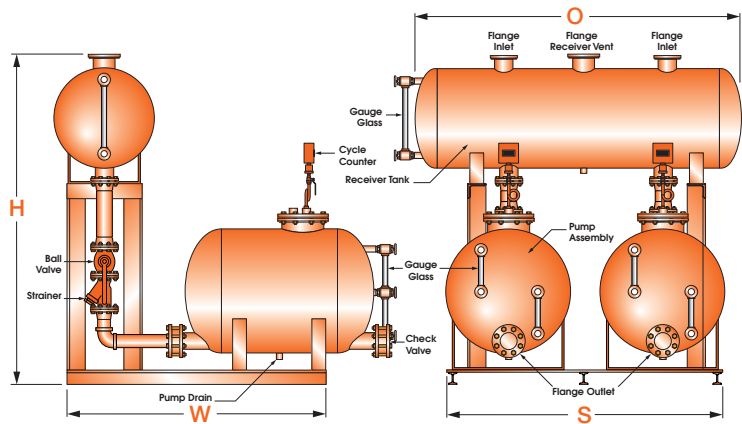
Cemline can supply a skid mounted prepackaged unit with an A.S.M.E. rated receiver tank. Packages available are a simplex, or duplex condensate pumps. The packaged systems include receiver tank gauge glass, shut off valves, and a skid.

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	87 ³ / ₄	50	96	70 ¹ / ₂	1900
H240CCP-4x4-S-250	4" x 4"	250	87 ³ / ₄	50	96	70 ¹ / ₂	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	97 ³ / ₄	76	92	80	3050

Checklist

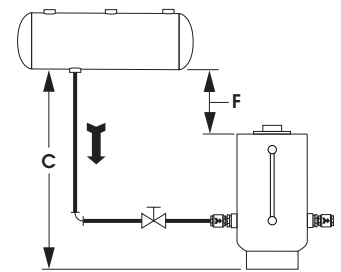


Name _____			Company _____	
Address _____			Job Name _____	
City _____	State _____	Zip _____	TAG _____	

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

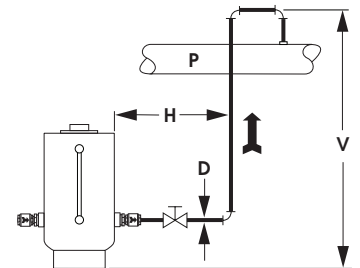
Downstream pipe size (D) _____ inches

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



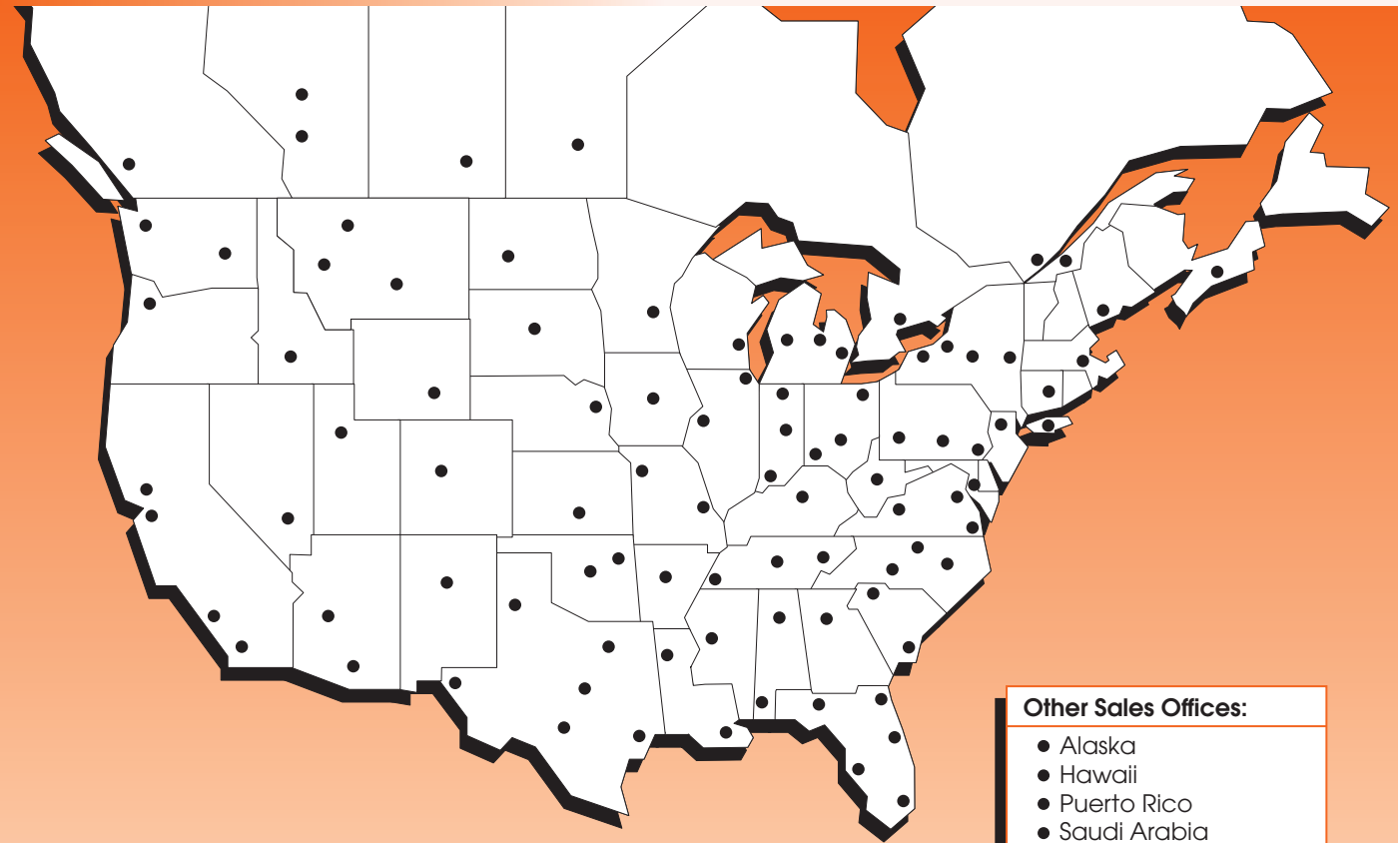
*Required Fields

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

Materials & Accessories

- | | | | |
|------------------|--|--|--|
| Tank Material: | <input type="checkbox"/> Ductile Iron | <input type="checkbox"/> Carbon Steel | <input type="checkbox"/> Stainless Steel |
| Tank Style/Size: | <input type="checkbox"/> V25CCP | <input type="checkbox"/> V18CCP | <input type="checkbox"/> H22CCP <input type="checkbox"/> H240CCP |
| Mechanism: | <input type="checkbox"/> Spring | | |
| Number of Pumps: | <input type="checkbox"/> One | <input type="checkbox"/> Two | <input type="checkbox"/> Three <input type="checkbox"/> Four |
| Check Valve: | <input type="checkbox"/> Stainless Steel | | |
| Options: | <input type="checkbox"/> Gauge Glass | <input type="checkbox"/> Cycle Counter | <input type="checkbox"/> Insulation Jacket <input type="checkbox"/> Skid Mount Package |

Sales Offices



Other Sales Offices:

- Alaska
- Hawaii
- Puerto Rico
- Saudi Arabia
- Taiwan
- U.A.E.

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*Cemline is represented in all major cities.
Please contact your local representative or call Cemline Corporation.*

