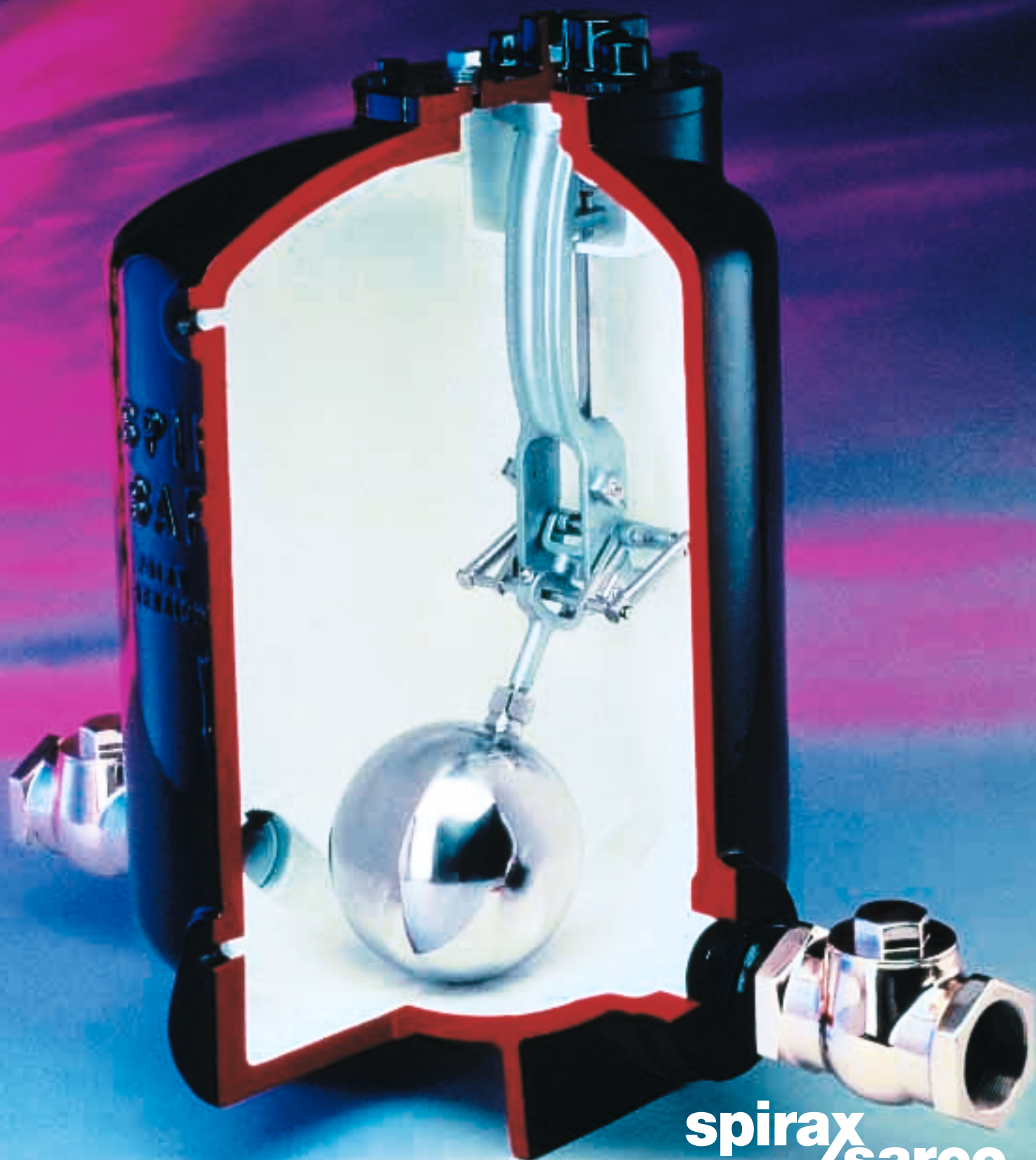


# Pressure Powered Pump™

for the effective removal of condensate  
from steam systems



**spirax**  
**/sarco**

# Effective condensate system management is an essential part of any steam-using plant

Efficient handling of condensate is essential if overall plant efficiency, energy conservation and product quality are to be maintained.

Spirax Sarco offers solutions for maintaining efficiency in all areas of condensate pumping systems by providing equipment in various materials of construction and technical assistance for proper installation.

## Condensate removal

Condensate removal is necessary on all temperature-controlled heat exchange and process equipment to provide stable operating conditions.

Efficient condensate removal prevents:

- Unstable product temperatures
- Product quality problems
- Excessive corrosion
- Equipment damage and noise caused by waterhammer

## Condensate management

When condensate leaves the steam trap, it contains approximately 20% of the heat energy transferred in the boiler to generate steam.

Total condensate management prevents:

- Excessive blowdown
- Loss of expensive heat energy
- Waste of water treatment chemicals
- High make-up water costs
- Added costs to preheat feedwater

All too often these problems are just accepted simply because no readily available solution exists.

## The total system solution

The Spirax Sarco Pressure Powered Pump™ is specifically designed to remove condensate under all operating conditions and provides the unique opportunity to solve all condensate handling problems.

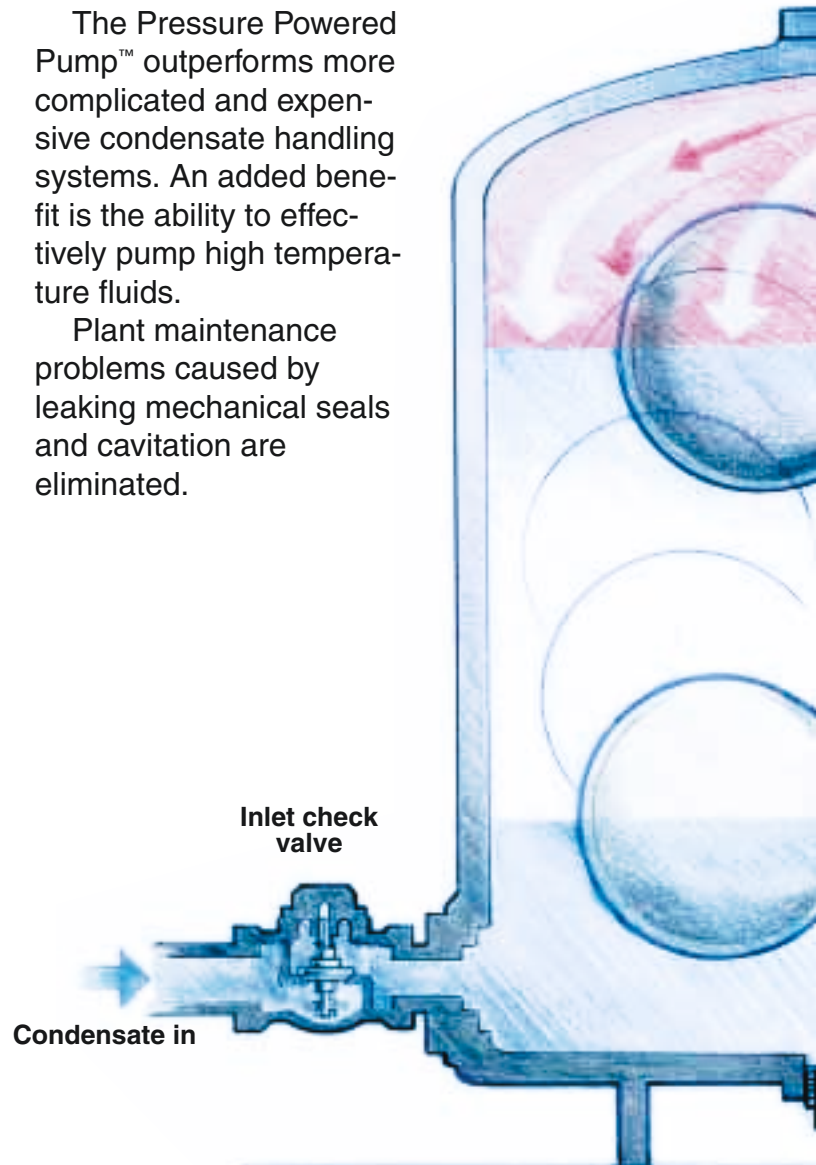
The pump is a self-contained unit using steam or other pressurized gas as its motive power.

There are no electric motors or level switches, simplifying installation and making it ideal for wet or hazardous areas.

One pump design covers all applications from vacuum systems to highly efficient heat exchangers, including general condensate return.

The Pressure Powered Pump™ outperforms more complicated and expensive condensate handling systems. An added benefit is the ability to effectively pump high temperature fluids.

Plant maintenance problems caused by leaking mechanical seals and cavitation are eliminated.



## How it works

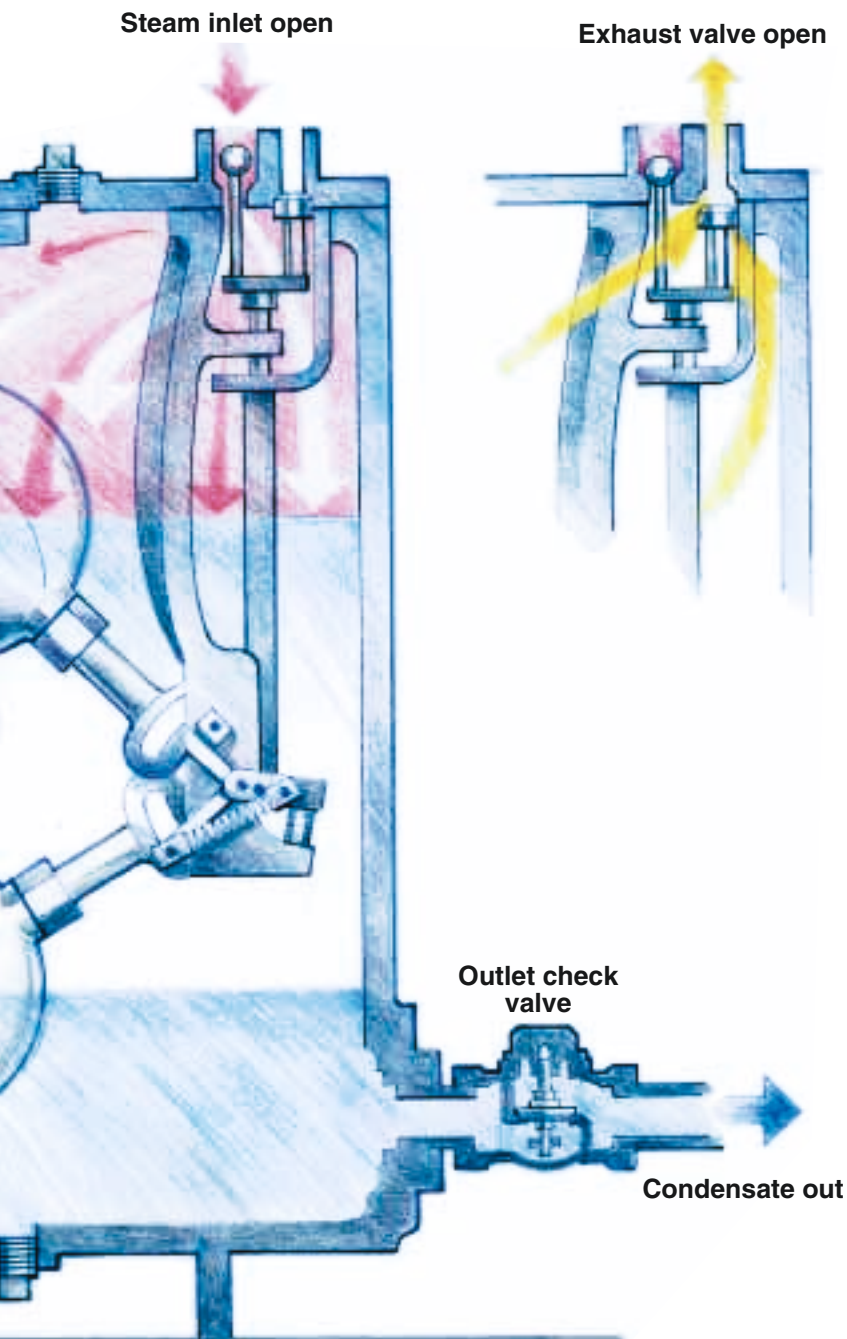
The Pressure Powered Pump™ operates on a pressure displacement principle.

Liquid enters the pump body through the inlet check valve causing the float to rise. As the chamber fills, the valve changeover linkage is engaged opening the steam inlet valve and closing the exhaust valve. This snap action linkage ensures a rapid change from filling to pumping stroke.

As pressure inside the pump increases above the total back pressure, condensate is forced out through the outlet check valve into the return system.

As the liquid level falls within the pump, the float re-engages the valve changeover linkage causing the steam inlet valve to close and the exhaust valve to open.

As the pressure inside the pump body falls, condensate re-enters through the inlet check valve and the cycle is repeated.



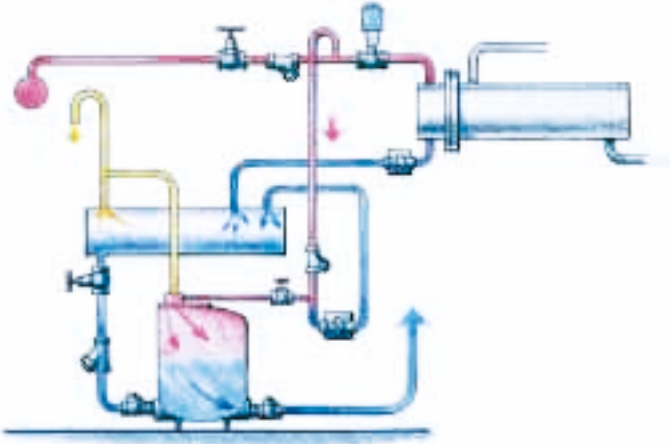
## User benefits

- Removes condensate under all load conditions, even vacuum, ensuring maximum process efficiency.
- No mechanical seals or packing glands to leak, reducing maintenance costs.
- Requires no electrical power. Single trade for installation and repair.
- Wide range of end connections, compatible with sanitary tubing and piping systems.
- Suitable for hazardous and demanding environments.
- Cavitation problems eliminated, reducing maintenance costs.
- Zero emissions. No motive steam loss when installed in a closed system, reducing operating costs.
- Modular maintenance for reduced plant downtime.
- Rugged design for a trouble-free, long life.
- Minimal steam consumption. 3 pounds of motive steam per 1,000 pounds of liquid pumped.
- Metering capability by addition of optional cycle counter for monitoring plant efficiency.
- Proven reliability. More than 30,000 pumps installed worldwide.
- Six-month payback or less. Call your local sales representative for payback analysis.

# Typical applications

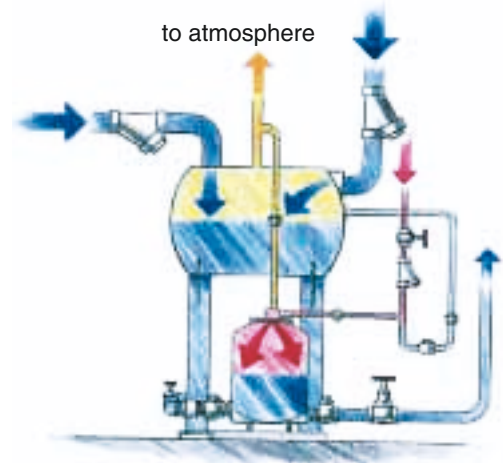
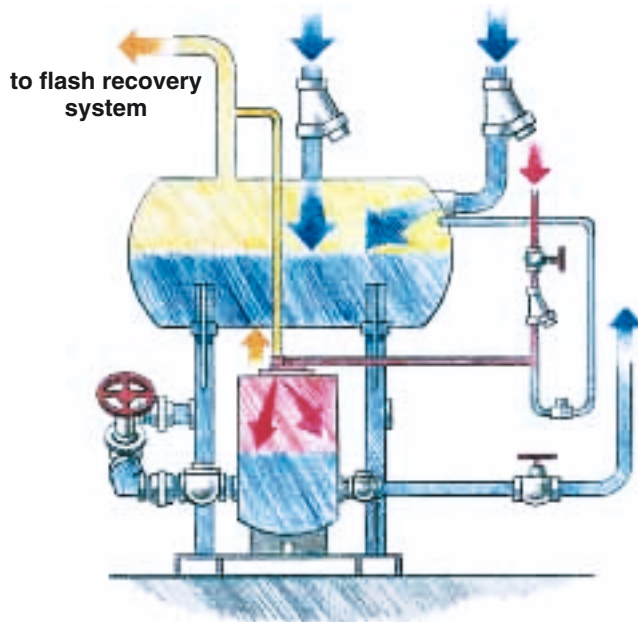
## Condensate removal from process vessels & heat exchangers (open system)

Fast, efficient condensate removal ensuring optimum process efficiency and heat energy recovery.



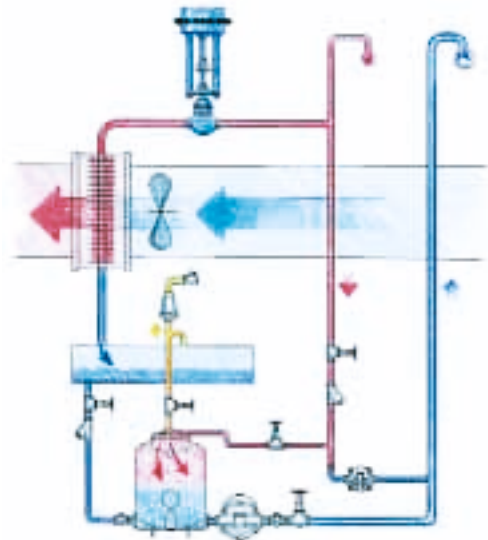
## Condensate recovery and flash steam recovery (closed system)

To reclaim high temperature condensate and recovery of the flash steam to supplement low pressure steam requirements.



## Condensate recovery (open system)

Pumping high temperature condensate without cavitation and no mechanical seals to create problems. Provides maximum heat energy recovery.



## Condensate removal from air heaters (closed system)

Removal of condensate under all pressure conditions ensures stable air temperatures. Also prevents bottom end tube corrosion and potential damage due to waterhammer and freezing.

Color code:

- = Condensate
- = Motive steam
- = Flash steam or exhaust

# Drainage of condensate from temperature controlled equipment

Temperature controls, by their operation, create in all heat exchange applications a “stall” condition where condensate cannot flow through the steam trap because of insufficient pressure differential.

Under the stall condition, partial or complete flooding may occur leading to:

- Unstable temperature control
- Leakage of heat transfer equipment due to corrosion
- Damage to equipment caused by waterhammer

The use of the “stall” chart allows the point at which flooding occurs to be determined by plotting the information below:

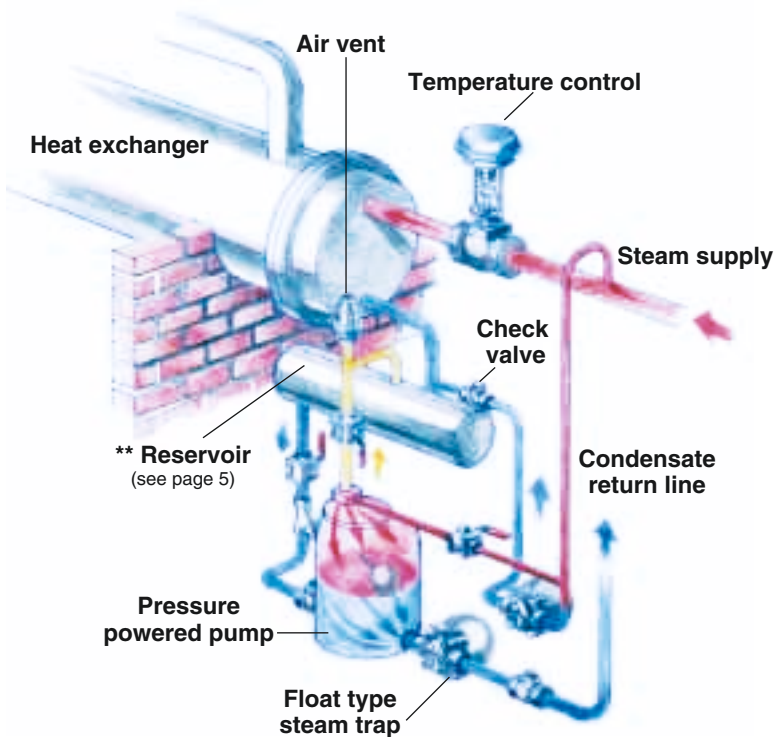
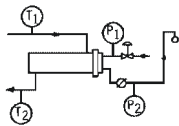
$T_1$  = Inlet product temperature (°F)

$T_2$  = Outlet product temperature (°F)

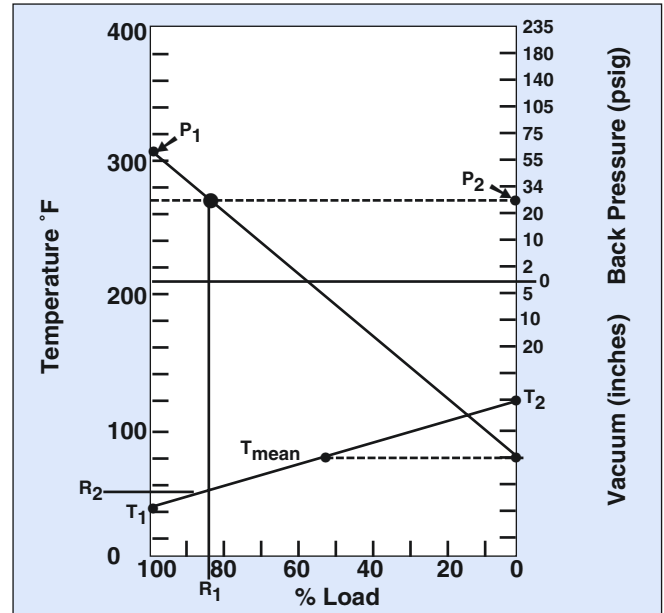
$P_1$  = Design steam pressure from the control valve (psig)

$P_2$  = System back pressure on steam trap (psig)

$$T_{\text{mean}} = \frac{T_1 + T_2}{2} \text{ (°F)}$$



Stall Chart



## Plotting the points

1. Plot  $T_1$  on left side of chart. Plot  $T_2$  on right side of chart. Draw line connecting these two points.
2. Plot  $P_2$  on right side of chart. Draw horizontal line across chart.
3. Mark  $P_1$  on left side of chart.
4. Plot  $T_{\text{mean}}$  on line  $T_1 T_2$ . Draw a horizontal dotted line to right side of chart.
5. Connect  $P_1$  and  $T_{\text{mean}}$  with the diagonal line.
6. At the intersection of line  $P_1 T_{\text{mean}}$  and  $P_2$ , draw line  $R_1$  down to bottom of chart (% load).
7. At the intersection of  $R_1$  and line  $T_1 T_2$ , draw line horizontally to left and label  $R_2$ .

## How to read chart points

1. Line  $R_1$  intersects the % load axis at the “stall” condensate load. The % load to the right of  $R_1$  must be pumped, the % load to the left of  $R_1$  will be removed by the trap.
2. Line  $R_2$  intersects the temperature axis at the inlet product temperature that will cause stall to occur.

## The Solution

The Spirax Sarco Pressure Powered Pump™/Steam Trap Combination provides the total solution to the stall condition by removing condensate under all pressure conditions.

When steam space pressure is sufficient to overcome back pressure, the trap operates normally.

When pressure falls and before flooding occurs, the Pressure Powered Pump™ operates and removes all the condensate by pumping through the steam trap, preventing all the problems associated with the stall condition.

## Pressure Powered Pump™/Steam Trap Combinations

When selecting a steam trap for this application on temperature controlled equipment, the Spirax Sarco Float and Thermostatic Steam Trap is recommended. Sizing should be based on the stall load at 1/4 psi differential pressure. Trap selection should also take into account the maximum differential pressure and capacity under normal operating conditions.

# Pressure Powered Pump™ sizing and selection

From the inlet pressure, back pressure and filling head conditions given below, select the pump size and check valve package which meets the capacity requirement of the application.

- Specify pump body, type PPEC, PPC, PPF, or other model. Select optional extras as required.
- For GPM, multiply the capacities below by 0.002.
- For kg/h, multiply the capacities below by 0.454.
- For liquid specific gravities from 0.9 to 0.65, consult Spirax Sarco.
- \* Back pressure is the lift height (H) in feet x 0.433 plus psig in return line, plus downstream piping friction pressure drop in psi calculated based on the maximum instantaneous discharge rate of the respective pump selected, see TI sheets.

**Note:** To achieve rated capacity, pump must be installed with check valves supplied by Spirax Sarco. Use of a substitute check valve may affect the performance of the pump.

## Example:

Condensate Load	7,000 lb/h
Steam pressure available for operating pump	75 psig
Vertical lift from pump to the return piping	30 feet
Pressure in the return piping (piping friction negligible)	25 psig
Filling head on the pump available	12 inches

## Solution:

1. Calculate "H", the total lift or back pressure, against which the condensate must be pumped.  
 $H = (30 \times 0.433) + 25 = 38 \text{ psig}$
2. From capacity table (shown on page 7), with 75 psig inlet pressure and 40 psig back pressure, choose a 2" x 2" pump with stainless steel check valves, which has a capacity of 7,200 lb/h.

## Notes from capacity multiplying factor charts (shown below):

- A. Pump capacity if filling head is 24 in.:  
 $1.2 \times 7,200 = 8,640 \text{ lb/h}$
- B. Pump capacity using compressed air:  
 $1.12 \times 7,200 = 8,064 \text{ lb/h}$   
 (% back pressure is  $38 \div 75 = 50\%$ ).

## Capacity Multiplying Factors for Motive Gas Supplies (other than steam)

1" PPEC									
10%	20%	30%	40%	50%	60%	70%	80%	90%	% Backpressure Vs. Motive Pressure (BP/MP)
1.10	1.13	1.16	1.20	1.25	1.30	1.35	1.40	1.45	Capacity Multiplying Factors
1-1/2" PPEC									
10%	20%	30%	40%	50%	60%	70%	80%	90%	% Backpressure Vs. Motive Pressure (BP/MP)
1.00	1.00	1.03	1.09	1.18	1.20	1.33	1.45	1.50	Capacity Multiplying Factors
1" thru 3"x2" PPC/PPF									
10%	20%	30%	40%	50%	60%	70%	80%	90%	% Backpressure Vs. Motive Pressure (BP/MP)
1.04	1.06	1.08	1.10	1.12	1.15	1.18	1.23	1.28	Capacity Multiplying Factors
4" PPF-P No change in capacity									
3"x2" PPF-HP									
10%	20%	30%	40%	50%	60%	70%	80%	90%	% Backpressure Vs. Motive Pressure (BP/MP)
1.26	1.35	1.45	1.55	1.70	1.79	1.90	2.00	2.10	Capacity Multiplying Factors

## Capacity Multiplying Factors for other Filling Heads

Filling Head		Check valve and piping size, pump type				
Inches	mm	1"&1-1/2" PPEC	1"-2" PPC/PPF	3"x2" PPC/PPF	3"x2" PPF-HP	4" PPF-P
0	0	0.7			0.80	
6	152	1.0	0.7	0.84	0.92	
12	305	1.1	1.0	1.0	1.0	
18	457	1.2	1.1	1.04	1.05	0.8
24	610	1.3	1.2	1.08	1.10	1.0
36	914	1.5	1.35	1.2	1.15	1.1
48	1219				1.20	1.15
60	1524				1.30	1.2

Note: For PPF-TOP, consult factory.

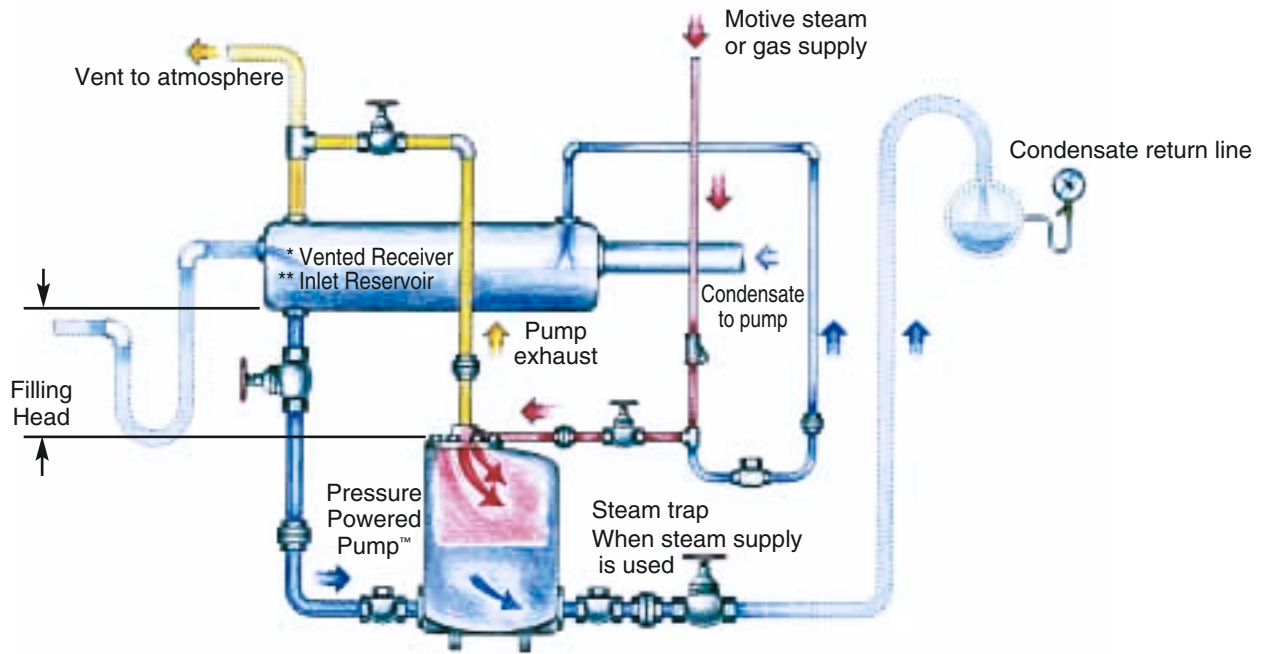
# Pressure Powered Pump™ capacities

When installed with recommended filling head above top of pump.

Capacities lb/h		Filling head 6"		Filling Head 6"		Filling head 12"		Filling head 12"		Filling Head 12"		Filling head 24"			
		Liquid Specific gravity 0.9 to 1		Liquid Specific Gravity 0.9 to 1.0		Liquid Specific gravity 0.9 to 1		Liquid Specific gravity 0.9 to 1		Liquid Specific gravity 0.88 to 1		Liquid Specific gravity 0.9 to 1			
		Single pump Iron PPEC		Single Pump PPEC Stl or Stn Stl.		Single pump 2" x 2"		Single pump 3" x 2"		PPF-HP High Pressure Pump		Duplex Package Unit		High Capacity PPF-P	
Operating Inlet Pressure psig	Total Lift Back Pressure psig	Check Valve Size 1" 1-1/2"		Check Valve Size 1" 1-1/2"		Check Valve Size 2"		Check Valve Size 3" in, 2" out		Check Valve Size 3" x 2" S.S. Maximum allowable back pressure - 150 psig		Check Valve Size 3" in, 2" out		Check Valve Size 4"	
		Bronze	Bronze	Stn. Stl.	Stn. Stl.	Bronze	Stn. Stl.	Bronze	Stn. Stl.	Bronze	Stn. Stl.	Bronze	Stn. Stl.	Bronze	Stn. Stl.
300	20									25,500					
300	40									20,300					
300	60									16,000					
300	80									13,600					
300	100									12,200					
300	120									11,200					
300	150									9,800					
250	20									24,000					
250	40									20,000					
250	60									16,000					
250	80									13,300					
250	100									12,000					
250	120									10,700					
250	150									8,700					
200	15									22,900					
200	40									17,800					
200	60									13,000					
200	80									12,300					
200	100									10,900					
200	120									9,800					
200	150									7,100					
150	15									22,900			48,100		
150	40									15,000			43,800		
150	60	Consult Factory		Consult Factory		Consult Factory		Consult Factory		11,400	Consult Factory		39,500		
150	80									9,400			34,800		
150	100									7,700			29,600		
150	120									7,400			22,200		
125	15	2,100	3,400	2,600	5,100	7,700	11,100	9,400	14,800	19,200	18,800	29,600	47,800		
125	40	1,900	2,900	2,400	4,500	6,800	9,200	8,100	12,200	13,700	16,200	24,400	43,200		
125	60	1,700	2,500	2,200	4,050	6,100	7,800	7,100	10,400	9,600	14,200	20,800	38,100		
125	80	1,500	2,100	1,900	3,100	5,400	6,000	6,100	8,000	7,300	12,200	16,000	32,500		
125	100	1,300	1,600	1,700	2,650	4,700	4,700	5,000	6,300	6,400	10,000	12,600	25,800		
125	115	1,200	1,350	1,350	1,900	4,100	3,800	4,300	5,100	5,100	8,600	10,200			
100	15	2,100	3,400	2,550	4,950	7,600	10,500	9,100	14,000	17,800	18,200	28,000	47,100		
100	40	1,800	2,800	2,300	4,000	6,500	8,200	7,600	10,900	11,700	15,200	21,800	41,700		
100	60	1,600	2,400	2,200	3,250	5,800	6,100	6,700	8,200	8,900	13,400	16,400	35,400		
100	80	1,400	1,800	1,750	2,500	5,000	5,000	5,600	6,700	6,500	11,200	13,400	27,700		
75	15	2,100	3,300	2,500	4,800	7,300	10,300	8,700	13,900	17,100	17,400	27,800	46,300		
75	40	1,700	2,500	2,200	3,300	5,900	7,200	6,800	9,600	9,600	13,600	19,200	39,100		
75	60	1,300	2,000	2,000	2,450	4,900	4,300	5,500	6,200	6,800	11,000	12,400			
50	10	2,000	3,300	2,400	4,400	7,300	9,600	8,700	12,800	15,500	17,400	25,600	46,100		
50	25	1,700	2,700	2,150	3,350	5,900	7,400	6,800	9,800	10,000	13,600	19,600	39,700		
50	40	1,400	2,000	1,650	2,100	4,600	4,100	5,100	5,500	5,600	10,200	11,000			
25	5	2,000	3,400	2,700	5,000	7,600	9,700	9,200	12,900	15,000	18,400	25,800	45,300		
25	10	1,700	3,000	2,350	3,800	6,600	7,800	7,700	10,400	9,400	15,400	20,800	39,900		
25	15	1,400	2,600	1,800	3,300	5,400	6,000	6,100	8,000	7,600	12,200	16,000			
10	2	1,900	3,000	2,200	3,000	7,300	8,100	8,700	10,800	10,900	17,400	21,600			
10	5	1,600	2,600	1,900	2,600	5,700	5,300	6,600	7,000	7,900	13,200	14,000			
5	2	1,500	2,400	1,700	2,400	4,300	4,300	5,400	5,700	7,400	10,800	11,400			

\* For Capacity Multiplying Factors for Motive Gas Supplies and Other Filling Heads see charts on page 6.

# Typical installation



## Vented Receiver\*

To drain condensate from a single or multiple source “open” system, a vented receiver should be installed in a horizontal plane above and ahead of the pump. Sufficient receiver volume is needed above the filling head level to accept the condensate reaching the receiver during the pump discharge stroke. More important, the receiver must be sized to allow sufficient area for complete flash steam separation from the condensate. The chart below shows proper vented receiver sizing (per criteria set forth in the A.S.H.R.A.E. Handbook) based on the amount of flash steam present. If the receiver is sized as shown below, there will be sufficient volume for condensate storage and sufficient area for flash steam separation. The receiver can be a length of large diameter pipe or a tank.

## Inlet Reservoir Piping\*\*

To drain condensate from a single piece of equipment in a “closed” system, a reservoir should be installed in a horizontal plane above and ahead of the pump. Sufficient reservoir volume is needed above the filling head level to accept the condensate reaching the reservoir during the pump discharge stroke. The chart below shows minimum reservoir sizing, based on condensate load, needed to prevent equipment flooding during the pump discharge stroke. The reservoir can be a length of large diameter pipe or a tank. A Float and Thermostatic steam trap may be required in a closed system (details shown on page 5).

### Pump Size - up to 3" x 2"

Flash Steam up to –	Pipe Size		Vent Line Diameter
	Diameter	Length	
75 lb/h	4"	36"	1-1/2"
150 lb/h	6"	36"	2"
300 lb/h	8"	36"	3"
600 lb/h	10"	36"	4"
900 lb/h	12"	36"	6"
1200 lb/h	16"	36"	6"
2000 lb/h	20"	36"	8"

### Pump Size - 4" PPF-P

Flash Steam up to –	Pipe Size		Vent Line Diameter
	Diameter	Length	
1000 lb/h	16"	60"	6"
2000 lb/h	20"	60"	8"
3000 lb/h	24"	60"	8"
4000 lb/h	26"	60"	10"
5000 lb/h	28"	60"	10"
6000 lb/h	30"	72"	12"
7000 lb/h	32"	72"	12"
8000 lb/h	36"	72"	14"

### Pump Size-up to 3" x 2"

Cond. Load lb/h	Reservoir Pipe Diameter				
	3"	4"	6"	8"	10"
500 or less	1'				
1000	2'				
1500	3'	2'			
2000	3.5'	2'	1'		
3000		3'	2'		
4000		4'	2'	1'	
5000		6'	3'	2'	
6000			3'	2'	
7000			3'	2'	
8000			4'	2'	
9000			4.5'	3'	2'
10,000			5'	3'	2'
11,000			5'	3'	2'

### Pump Size-4" PPF-P

Cond. Load lb/h	Reservoir Pipe Diameter *			
	12"	16"	20"	24"
10,000	5'	3'	2'	
20,000	10'	7'	4'	
30,000		9'	6'	4'
40,000		12'	7.5'	6'
50,000			9'	6'

\* When BP/MP is less than 50%, these reservoir lengths can be reduced by 1/2.



# Standard/Optional Equipment

Pressure Powered Pumps™								Tank Packages		
Body Materials	PPEC	PPC	PPF-TOP	PPF	PPF-200	PPF-HP	PPF-P	PPEC	PPC	PPF
Ductile Iron A395 Body (Cast Iron Cover)	—	✓	—	—	—	—	—	—	✓	—
Cast Iron (Body/Cover)	✓	—	—	—	—	—	—	✓	—	—
Cast Steel (Body/Cover)	✓	—	—	—	—	—	—	✓	—	—
Cast 316 SS (Body/Cover)	✓	—	—	—	—	—	—	✓	—	—
Carbon Steel ASME Coded (Body/Cover)	—	—	✓	✓	✓	✓	✓	—	—	✓
<b>Check Valves</b>										
Bronze	✓	○	—	—	—	—	—	✓	—	—
Stainless Steel	○	✓	✓	✓	✓	✓	✓	○	✓	✓
<b>Connections</b>										
NPT	✓	✓	✓	✓	✓	✓	—	✓	✓	✓
BSP	○	○	—	—	—	—	—	—	—	—
Socket Weld	○	○	○	○	✓	✓	✓	○	○	✓
ANSI 150 RF	—	—	—	○	○	—	✓	—	—	○
ANSI 300 RF	—	—	—	○	○	○	○	—	—	○
<b>Accessories</b>										
Insulation Covers	○	○	○	○	○	○	○	○	○	○
Cycle Counter (Vented Systems Only)	○	○	○	○	○	○	○	○	○	○
Gauge Glass	○	○	—	○	○	○	○	○	○	○
					(Reflex Type)					

✓ = Denotes standard equipment

○ = Denotes optional equipment

— = Denotes optional equipment not available

## PPEC

The PPEC provides a low profile pump for low to medium condensate loads. Available in cast iron, cast steel, or 316 stainless steel construction with bronze or stainless steel check valves in 1" and 1-1/2" NPT connections. The PPEC will handle capacities up to 5,100 lb/h. For additional information, please see TIS 5.218.

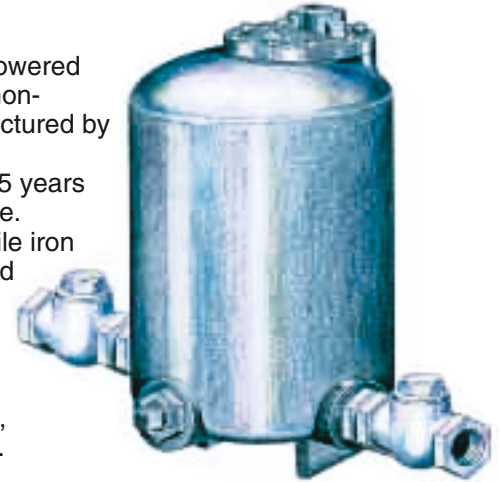


### PPEC

Size	1", 1-1/2"
Pump body	Cast iron - ASTM A126 Class B Cast Steel - ASTM A216 WCB Cast 316 SS - ASTM A351 CF8M
Mechanism yoke	Cast stainless steel
Check valve	Bronze: Bronze body, lift type/bronze disc Stainless Steel: Stainless steel body and disc
Valve trim and mechanism linkage	300 series stainless steel and 400 series hardened stainless steel
Cover gasket	Graphite

## PPC

The PPC Pressure Powered Pump is the original non-electric pump manufactured by Spirax Sarco and has provided more than 25 years of proven performance. Manufactured of ductile iron and available in 2" and 3" x 2", this versatile pump can handle condensate loads up to 14,800 lb/h. For additional information, please see TIS 5.200.



### PPC

Size	2" and 3" x 2"
Pump body	Ductile iron - ASTM A395
Cover	Cast iron - ASTM A126 Class B
Mechanism yoke	Cast iron - ASTM A126 Class B
Check valve	Bronze: Bronze body, lift type/bronze disc Stainless Steel: Stainless steel body and disc
Valve trim and mechanism linkage	300 series stainless steel and 400 series hardened stainless steel
Cover gasket	Graphite

## PPF, PPF-TOP, PPF-200, PPF-HTF



The PPF provides the proven operating performance of the PPC in a pump which is manufactured of an ASME code stamped fabricated body. For additional information, please see TIS 5.200.

The PPF-TOP provides identical performance to the standard PPF except offers the inlet and outlet to be a single point of connection located on the top of the pump body. This unique design feature adds to the versatility of the PPF. For additional information, please see TIS 5.206.

The PPF-200 is based on the original PPF design. Here the fabricated steel body is ASME 200 psi code stamped. Although the maximum operating pressure is still 125 psi, the 200 psi code stamped body provides a safeguard against upstream component failure which may cause a high pressure to reach the pump body. For additional information, please see TIS 5.207.

The PPF-HTF pump has been specially designed for use on two phase heat transfer fluids in a closed loop system. The self contained pump uses the pressurized heat transfer fluid vapor to transport condensed HTF's. The pump will have minor differences in appearance from the photo shown. For additional information, please see TIS 5.208.

### PPF

### PPF-Top

### PPF-200

### PPF-HTF

Size	2" and 3" x 2"	3"	2" x 2", 3" x 2"	3" x 2"
Pump body	Fabricated steel ASME Code stamped 125 psig		Fabricated steel ASME Code stamped 200 psig	Fabricated steel ASME Code stamped 150 psig
Cover	Cast Steel - ASTM A216 WCB			
Mechanism yoke	Cast iron - ASTM A126 Class B			Cast steel ASTM SA216 WCB
Check valve	Stainless Steel: Stainless steel body with stainless steel disc			See TIS 5.208
Valve trim and mechanism linkage	300 series stainless steel and 400 series hardened stainless steel			
Cover gasket	Graphite			Spiral wound flexitallic type "LS"

# red Pump™ range

## 4" PPF-P

The 4" PPF-P is the largest of the non-electric pumps. With operating pressures up to 150 psig, this model pump can handle capacities up to 48,100 lb/h. For additional information, please see TIS 5.220.

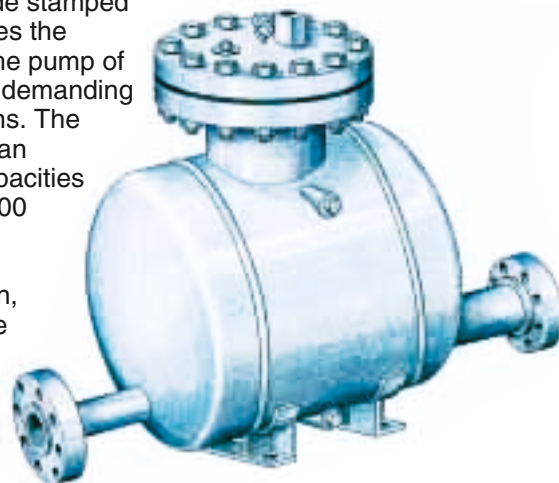


**4" PPF-P**

Size	4"
Pump body	Fabricated steel ASME code stamped 150 psig
Cover	Steel SA 516 Gr 70
Mechanism yoke	Cast steel ASTM A216 Gr WCB
Check valve Inlet:	Steel body - ASTM A216 Gr WCB Trim - 11-13 Chromium steel
Outlet:	Body - Stainless steel ASTM A351 CF3M Trim - 316 Stainless steel
Valve trim and mechanism linkage	300 series stainless steel and 400 series hardened stainless steel
Cover gasket	Graphite

## PPF-HP

The PPF-HP pump opens the door for use of non-electric pump technology on applications with high motive force pressures. This pump will operate on motives up to 300 psig and against back pressures of 150 psig. The 300 psi ASME code stamped body makes the PPF-HP the pump of choice for demanding applications. The PPF-HP can handle capacities up to 25,500 lb/h. For additional information, please see TIS 5.209.



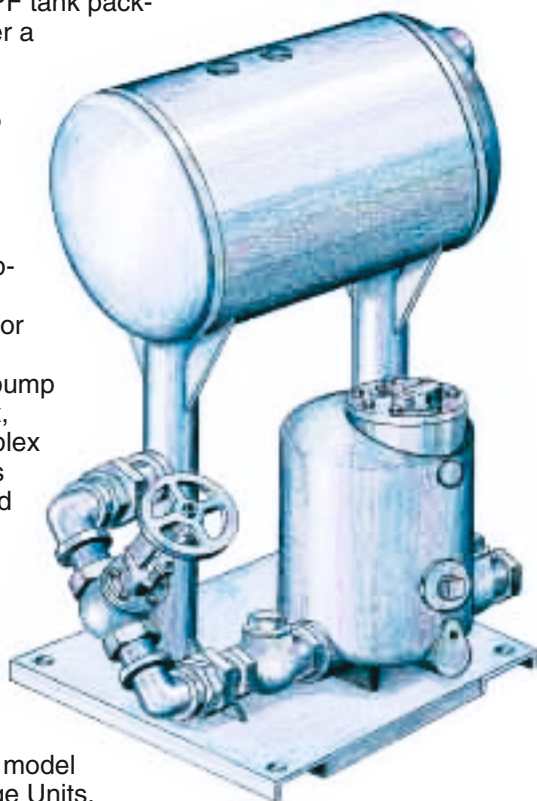
**PPF-HP**

Size	3" x 2"
Pump body	Fabricated steel 300 psi ASME stamped
Cover	Cast steel ASTM A216 WCB
Mechanism yoke	Stainless steel ASTM A743 CF8
Check valve	Stainless steel body A351 CF8M Stainless steel disc
Valve trim and mechanism linkage	300 series stainless steel and 400 series hardened stainless steel
Cover gasket	Spiral wound SS and graphite

## PPC and PPF Pump Tank Packages

Type PPC and PPF tank packages offer the user a prepped tank designed to provide a reservoir to hold condensate during the pumping stroke as well as provide adequate area for separation of flash steam. Available for use with the PPC, PPEC, and PPF pump models in simplex, duplex, and multiplex pump applications to provide required capacity or back-up pump performance.

For additional information, please see TIS 5.203 for model PPC and PPEC and TIS 5.205 for model PPF Tank Package Units.

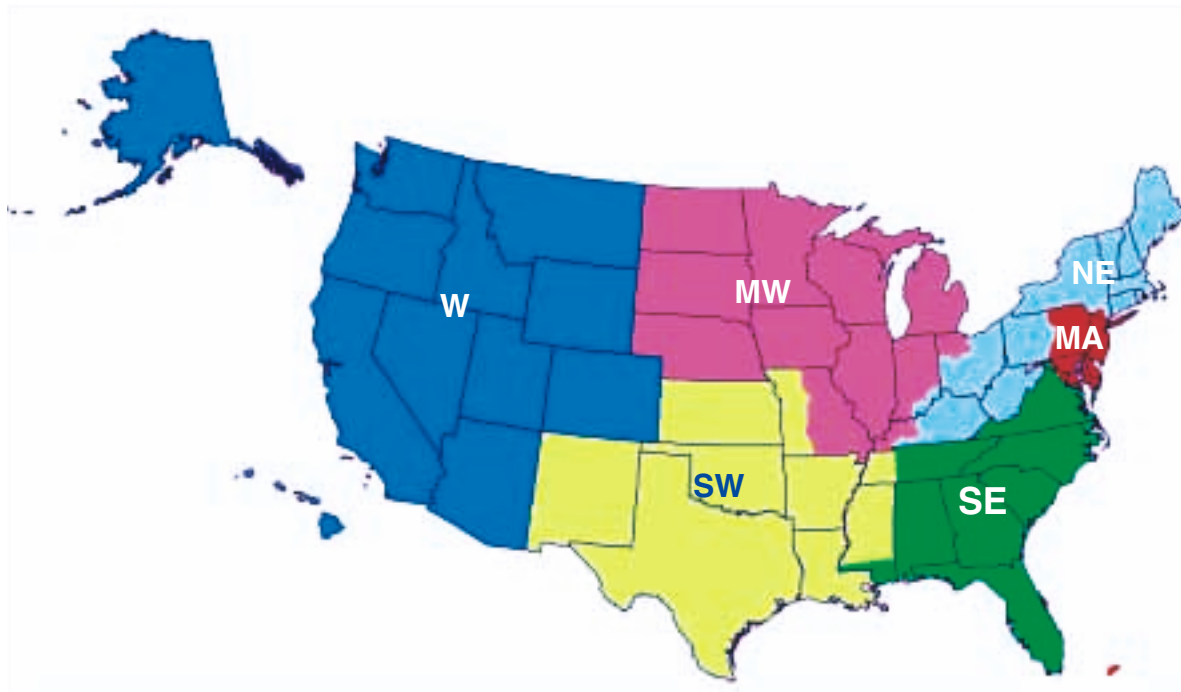


### PPC (PPEC) Pump Tank Package

Tank size	Simplex (24 gal.)	Duplex (63 gal.)
Size	1", 1-1/2", 2", 3"x2"	3"x2"
PMO	Pump: 125 psig	Tank: 0 psig (vented to atmos.)
Connection	NPT	
Construction	Fabricated steel tank. Ductile Iron (PPC), Cast iron (PPEC) pump w/SS internals Bronze or SS check valves	
Options	Standby pump on simplex units; additional condensate inlet connections; oversized receiver tanks; oversized atmospheric vent connection; triplex & quadruplex packaged units	

### PPF Pump Tank Package

Tank size	Simplex (58 gal.)	Duplex (85 gal.)
Size	2" and 3"x2"	3"x2"
PMO	125 psig	
Connection	NPT/Socketweld	
Construction	ASME Code stamped steel tank and pump; stainless steel pump internals; stainless steel check valves	
Options	200 psig ASME stamped unit; standby pump on simplex units; oversized atmospheric vent connections (if required); triplex and quadruplex units	



**For more information on Spirax Sarco, contact your Regional Hub Office below, or call 1-800-883-4411 and you will be connected to the location nearest you.**

## REGIONAL OFFICES

### Northeast

Spirax Sarco, Inc.  
7760 Olentangy River Road  
Suite 120  
Columbus, OH 43235  
Phone: (614) 436-8055  
Fax: (614) 436-8479

Spirax Sarco, Inc.  
209 W. Central Street  
Suite 228  
Natick, MA 01760  
Phone: (508) 651-3200  
Fax: (508) 655-9434

### Mid-Atlantic

Spirax Sarco, Inc.  
4647 Saucon Creek Road  
Suite 102  
Center Valley, PA 18034  
Phone: (610) 432-4557  
Fax: (610) 432-2595

### Southeast

Spirax Sarco, Inc.  
200 Centre Port Drive  
Suite 170  
Greensboro, NC 27409  
Phone: (336) 605-0221  
Fax: (336) 605-1719

### Midwest

Spirax Sarco, Inc.  
2806 Centre Circle Drive  
Downers Grove, IL 60515  
Phone: (630) 268-0330  
Fax: (630) 268-0336

### Southwest

Spirax Sarco, Inc.  
203 Georgia Avenue  
Deer Park, TX 77536  
Phone: (281) 478-4002  
Fax: (281) 478-4615

### West

Spirax Sarco, Inc.  
1930 East Carson Street  
Suite 102  
Long Beach, CA 90810  
Phone: (310) 549-9962  
Fax: (310) 549-7909

**spirax  
sarco®**

1150 Northpint Blvd. • Blythewood, SC 29016  
Phone: (803) 714-2000 • Fax: (803) 714-2200  
[www.spiraxsarco.com/us](http://www.spiraxsarco.com/us)