CONDENSATE RECOVERY PAYBACK ANALYSIS

Customer _____ Date _____

Fill out the information below to determine annual savings and payback period for returning condensate with a Spirax Sarco Pressure Powered Pump™. Steam and total water costs will vary from plant to plant. If these costs are not known exactly, the values shown in the example can be used to calculate approximate annual savings.

A CONDENSATE LOAD TO BE RETURNED

→ _____ lb/hr

B ANNUAL OPERATING HOURS

→ _____ hr/yr

C TOTAL WATER COST (**C1** + **C2** + **C3**)

C1. Untreated Makeup Water $_____ per gal.
C2. Sewage + $_____ per gal.
C3. Chemical Treatment + $_____ per gal.

→ $ _____ per gal.

D MAKEUP WATER PREHEATING REQUIRED

(Condensate Return Temperature -Untreated Makeup Water Temperature) x Specific Heat of Water

(_____ °F - _____ °F) x 1.0 BTU/lb/°F =

→ _____ BTU/lb

E STEAM COST

(per 1,000 lbs)

→ $ _____

F SAVINGS OF TOTAL WATER COSTS

$$\frac{\mathbf{A} \times \mathbf{B} \times \mathbf{C}}{8.34 \text{ lbs/gal}}$$

→ $ _____ /yr

G SAVINGS OF STEAM FOR PREHEATING MAKEUP WATER

* (BTU/lb from Direct Injection)

$$\frac{\mathbf{A} \times \mathbf{B}}{1{,}000} \times \mathbf{D} \times \frac{\mathbf{E}}{1{,}000}$$

→ $ _____ /yr

H COST OF STEAM TO PUMP CONDENSATE - PRESSURE POWERED PUMP™

Steam consumption is approximately 3 lb per 1,000 lb pumped in a vented atmospheric system. In a closed system, steam cost is negligible.

$$\frac{3 \times \mathbf{A} \times \mathbf{B}}{1{,}000} \times \frac{\mathbf{E}}{1{,}000}$$

→ $ _____ /yr

I TOTAL ANNUAL SAVINGS

(**F** + **G** - **H**)

F. Savings of Total Water Costs $_____
G. Savings of Steam for Preheating Makeup Water + $_____
H. Cost of Steam to Pump Condensate - $_____

→ $ _____ /yr

J PAYBACK PERIOD

Cost of Pressure Powered Pump™/Total Annual Savings = Payback in Years

→ _____ yrs

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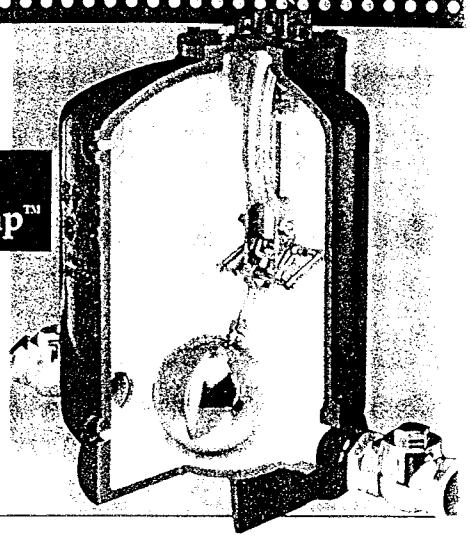
ECONOMIC RESOURCE MANAGEMENT

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

Condensate return reduces water, sewage, and makeup water treatment chemicals usage in the boiler plant while lowering operating costs. Also, the boiler blowdown requirements and steam usage to preheat cold makeup water are reduced. Increasing condensate return provides savings where environmental regulations prohibit the dumping of hot condensate into the sewage system without first reducing the temperature and secondly without chemical treatment.

The Spirax Sarco Pressure Powered Pump™ provides the perfect solution for safe, cost effective condensate return.

Pressure Powered Pump™



THE TOTAL SOLUTION TO CONDENSATE RECOVERY

CONDENSATE RECOVERY PAYBACK ANALYSIS

Customer Date

Fill out the information below to determine annual savings and payback period for returning condensate with a Spirax Sarco Pressure Powered Pump™. Steam and total water costs will vary from plant to plant. If these costs are not known exactly, the values shown in the example can be used to calculate approximate annual savings

A CONDENSATE LOAD TO BE RETURNED → 5000 lb/hr

B ANNUAL OPERATING HOURS → 4000 hr/yr

C TOTAL WATER COST (C1 + C2 + C3)
C1. Untreated Makeup Water $.002 per gal.
C2 Sewage + $.001 per gal.
C3. Chemical Treatment + $.002 per gal.
→ $.005 per gal.

D MAKEUP WATER PREHEATING REQUIRED
(Condensate Return Temperature - Untreated Makeup Water Temperature) x Specific Heat of Water
(190 °F - 60 °F) x 1.0 BTU/lb/°F =
→ 130 BTU/lb

E STEAM COST (per 1,000 lbs) → $ 5.00

F SAVINGS OF TOTAL WATER COSTS

$$\frac{A\ 5000 \times B\ 4000 \times C\ .005}{8.34\ \text{lbs/gal}}$$

→ $ 11,990.00/yr

G SAVINGS OF STEAM FOR PREHEATING MAKEUP WATER
* (BTU/lb from Direct Injection)

$$\frac{A\ 5000 \times B\ 4000 \times D\ 130}{1{,}000} \times \frac{E\ 5.00}{1{,}000}$$

→ $ 13,000.00/yr

H COST OF STEAM TO PUMP CONDENSATE - PRESSURE POWERED PUMP™
Steam consumption is approximately 3 lb per 1,000 lb pumped in a vented atmospheric system. In a closed system, steam cost is negligible.

$$3 \times \frac{A\ 5000 \times B\ 4000}{1{,}000} \times \frac{E\ 5.00}{1{,}000}$$

→ $ 300.00 /yr

I TOTAL ANNUAL SAVINGS
(F + G - H)
F. Savings of Total Water Costs $11,990.00
G. Savings of Steam for Preheating Makeup Water + $13,000.00
H. Cost of Steam to Pump Condensate - $ 300.00
→ $ 24,690.00/yr

J PAYBACK PERIOD
Cost of Pressure Powered Pump™/Total Annual Savings = Payback in Years → .18 yrs

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The Spirax Sarco Pressure Powered Pump™ is specifically designed to remove condensate under all operating conditions and provides a solution for all of your condensate handling problems.

The pump is a self-contained unit using steam or compressed air as its motive power. There are no electric motors or level switches. This simplifies installation and makes it ideal for hazardous areas. A single pump design covers all applications from vacuum systems to highly efficient heat exchangers and even 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 without the typical plant maintenance problem of leaking mechanical seals caused by cavitation.

The total savings for increasing condensate return is calculated by determining the cost of water, sewage, makeup water treatment chemicals, and the steam required for preheating the makeup water; minus the cost of steam used to pump the condensate. The payback period is derived by dividing the cost of the Pressure Powered Pump™ by the total annual savings.

spirax sarco

[redacted]

Fax

To:	Centro, Inc.	**From:**	
Fax:	901-357-1379	**Pages:**	
Phone:	800-344-3286	**Date:**	
Re:		**CC:**	

Please fill out this specification form and fax to one of the three locations:

Memphis: 901-357-1379

Little Rock: 501-835-2277

Nashville: 615-255-2212