

*This bulletin offers comparative examples of relative cost of the two leading tank agitation systems for solutions used in printed circuit and electronic plating.*

### ESTIMATED THERMAL LOSSES USING AIR AGITATION (BTU) IN TYPICAL PRINTED CIRCUIT PLATING SYSTEMS

Tank capacity (Gal.)	400	800	1,200	2,000
Typical tank size	6' x 3' x 3.5'	8' x 4' x 4'	10' x 4' x 4.5'	15' x 4' x 5'
<b>PROCESS / TEMP. (BTU's per hour lost by air agitation)</b>				
Copper Fluoroborate @ 140° F	66,000	110,000	146,700	192,500
Copper Pyrophosphate @ 130° F	42,000	70,000	93,300	122,500
High Speed Gold (Acid) @ 120° F	34,200	57,000	76,000	165,300
Electroless Copper @ 160° F	74,400	124,000	99,800	217,000

### AIR AGITATION SYSTEM (Consists of low pressure blower and distribution piping)

Blower Model	DR505AS72	DR523K72	DR606CK72	DR606CK72
SCFM	28.8	48.0	64.0	84.0
Blower pressure (PSI)	2.3	2.6	2.8	3.1
Blower H.P.	2.0	3.0	4.0	4.0
Air system cost	\$1,600.00	\$2,736.00	\$2,267.00	\$2,394.00

See *SERFILCO* Bulletins K-201 and A-213.

### SER-DUCTOR® AGITATION SYSTEM (Consists of pump, distribution piping and eductors)

Pump Model	ECKL1½ 4SC-D1.0	ECKL1½ 5SC-D1.5	EH1½ 1SC-D1.5	EH1½ 2SC-D2.0
GPM Agitation	210	360	480	630
No. of 3/8" eductors	6	8	10	12
Pump GPM	42	72	96	126
Pump H. P.	1.0	1.5	1.5	2.0
Ser-Ductor Sys. price	\$1,007.00	\$1,040.00	\$1,393.00	\$1,562.00

NOTE: All tanks have 6" solution freeboard. See *SERFILCO* Bulletins A-407, P-304 & P-301.

### Cost savings of Ser-Ductor system over air agitation system

\$ 593.00	\$ 1696.00	\$ 874.00	\$ 832.00
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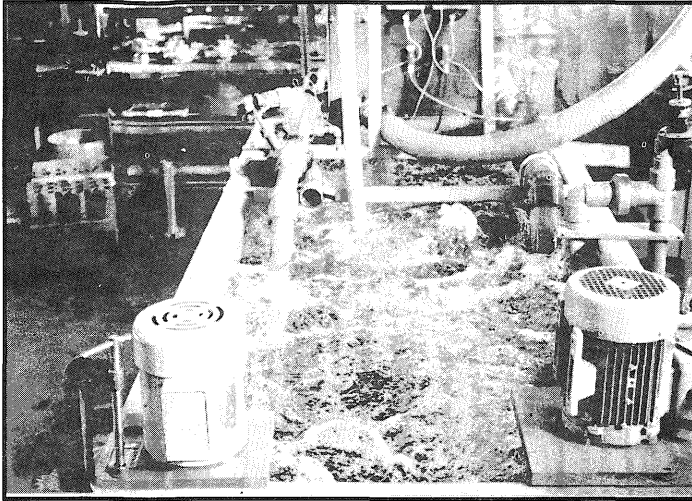
### SER-DUCTOR ADVANTAGES

- Reduces energy costs with heated baths
- Lower initial equipment investment
- Lower ventilation system demand
- Reduced contamination introduced into bath

The above is intended only as a guide to show potential savings when using eductive agitation instead of air. Variables such as part racking design, current density requirements and other factors peculiar to a specific proprietary process may change agitation requirements. These design considerations are a good starting point. You may add or delete eductors or reposition them to suit your needs.

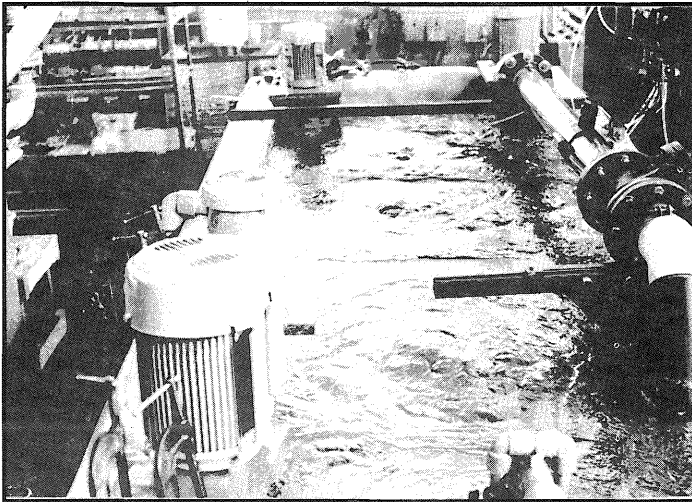
Prices shown are a guide only and subject to change. Consult **SERFILCO** for current prices.

See reverse for typical diagram of *SERFILCO* Ser-Ductor system.



**AIR AGITATED SOLUTION** with bubbles exploding at the surface, often creating an unwanted mist, as typically found in plating, cleaning and/or waste treatment.

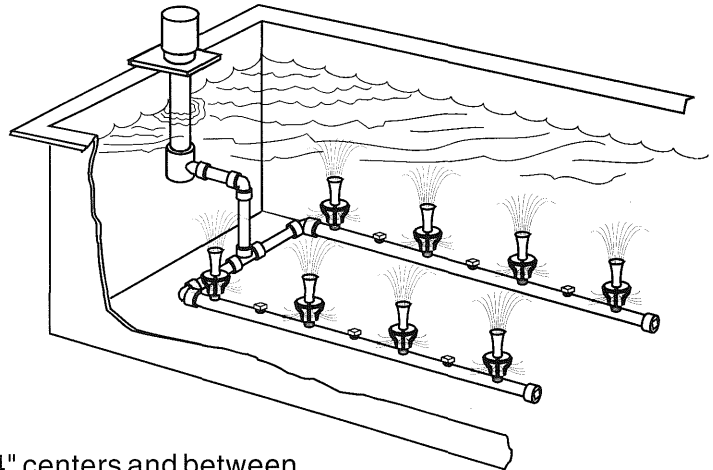
**VS.**



**SER-DUCTOR® SOLUTION MOVEMENT** as offered by **SERFILCO** - illustrates the use of a vertical intank pump along with a sparger system with eductors strategically placed, which create mounds on the surface indicating a tremendous solution movement within the tank.

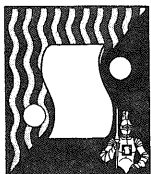
**TYPICAL SER-DUCTOR® LAYOUT**

- Tank size:**
  - 800 gallons
  - 8' x 4' x 4'
  - 8 eductors
- Pump:**
  - 1½ H. P., Series EC



Note that eductors are on 24" centers and between them are threaded, plugged holes. If a more thorough pattern of agitation is desired, remove plugs and replace with eductors. Eductors can be rotated 360° to change direction of solution flow.

F.O.B. Northbrook, Illinois



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