

Automatic Plating Line



Manufactured by:

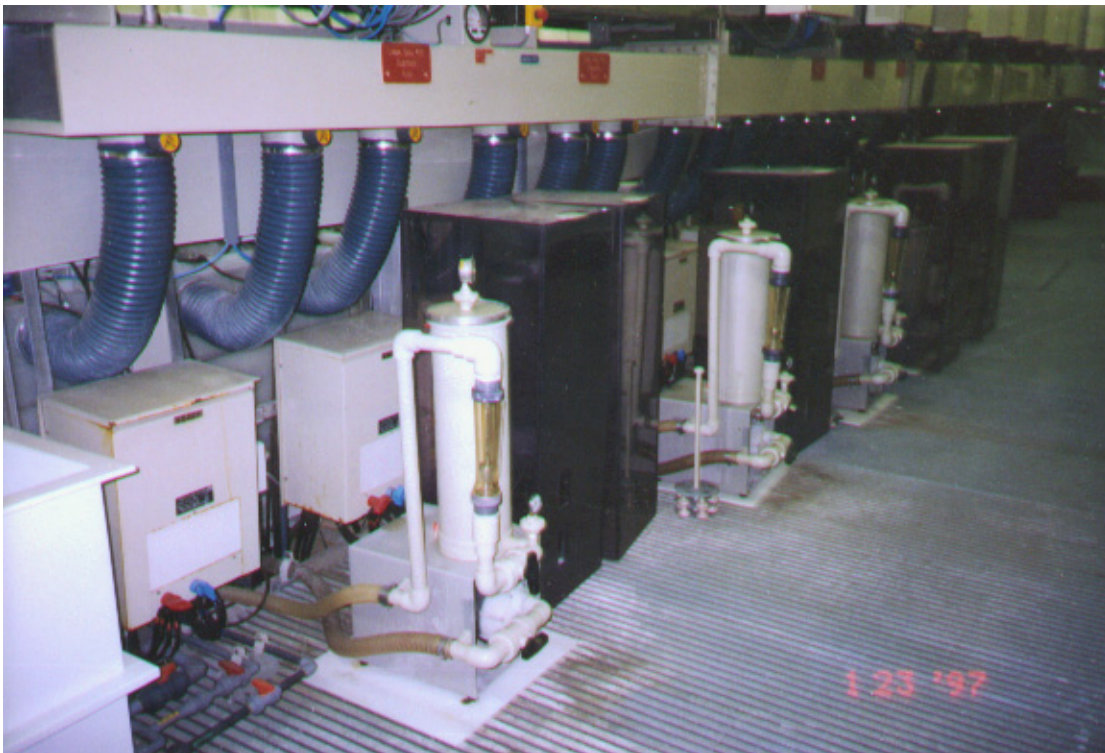
**Le Surface Treatment Systems (STS)
Mont-sur-Lausanne, Switzerland**

This line was originally designed to plate tin/lead on lead frames. With minimum modifications, this line can be used for other applications requiring high output production.

In today's market, an installed and operational fully automated plating line of this quality would cost in excess of \$2,500,000 new!

General Description:

The STS system is a completely self-contained plating unit consisting of a freestanding stainless steel structure, chemical and rinse tanks with associated equipment, three (3) automated hoists and computer control system, six (6) filter systems, eight (8) 200 amp 6 volt rectifiers. Its modular design allows rapid installation.



Rear View Showing Filter Systems

Control of the hoists consists of an automatic, semiautomatic and manual selector switch and carrier direction operating switch. Manual carrier operation is controlled by console mounted push buttons. The carrier motion corresponds with the push-button pressed.



End View Showing 3 Hoists

Program Control:

The computer control is designed for ease of understanding and maximum flexibility, simplicity and safety. The flexibility of the control system enables easy expansion or change as necessitated by present or future requirements.

Programmable functions include lift speed and dwell time in and above the process station. The controller is capable of monitoring process variables: the temperature of process tanks, liquid level DI water make-up, and DI spray duration.



Note: Computer System Not Shown

Process Description:

The equipment is totally enclosed creating a positive airflow environment around the equipment.

Sta. No	Process Description	Inside Dimensions (L-R x F-B x Deep)	Tank Overall Dimensions (L-R x F-B x High)
1	Load/Unload		
2	Load Unload		
3	Load/Unload		
4	Load/Unload		
5	Load/Unload		
6	Load/Unload		
7	Load/Unload		
8	Load/Unload		
9	Load/Unload		126" x 48" x 39"
10	Air Dryer		
11	Air Dryer	26-3/4" x 44-1/2" x 36"	38-1/2" x 57" x 36"
12	Hot Water Rinse	13-1/4" x 45" x 35"	19-1/2" x 52-3/4" x 35 1/4"
13	DCF Rinse	13-1/4" x 45" x 35"	
14	DCF Rinse	13-1/4" x 45" x 35"	34-1/4" x 52-3/4" x 36"
15	Alkaline Clean	13-1/4" x 45" x 35"	19-3/4" x 52-1/2" x 36"
16	Alkaline Clean	13-1/4" x 45" x 35"	19-3/4" x 52-1/2" x 36"
17	DCF Rinse	13-1/4" x 45" x 35"	
18	DCF Rinse	13-1/4" x 45" x 35"	34-1/4" x 52-3/4" x 36"
19	Acid Dip	13-1/4" x 45" x 35"	19-1/2" x 52-3/4" x 36"
20	DCF Rinse	13-1/4" x 45" x 35"	
21	DCF Rinse	13-1/4" x 45" x 35"	34-1/4" x 52-3/4" x 36"
22	Acid Dip	13-1/4" x 45" x 35"	19-1/2" x 52-3/4" x 36"
23	DCF Rinse	13-1/4" x 45" x 35"	
24	DCF Rinse	13-1/4" x 45" x 35"	34-1/4" x 52-3/4" x 36"
25	Acid Dip	10" x 45" x 35"	16-1/4" x 52-3/4" x 36"
26	DCF Rinse	13-1/4" x 45" x 35"	
27	DCF Rinse	13-1/4" x 45" x 35"	34-1/4" x 52-3/4" x 36"
28	Plating Tank	26-3/4" x 45" x 35"	33" x 53" x 36"
29	Plating Tank	26-3/4" x 45" x 35"	33" x 53" x 36"
30	Plating Tank	26-3/4" x 45" x 35"	
31	Plating Tank	26-3/4" x 45" x 35"	59-1/4" x 52" x 36"
32	Plating Tank	26-3/4" x 45" x 35"	
33	Plating Tank	26-3/4" x 45" x 35"	59-1/4" x 52" x 36"
34	Plating Tank	26-3/4" x 45" x 35"	
35	Plating Tank	26-3/4" x 45" x 35"	59-1/4" x 52" x 36"
36	Anode Clean Area	48" x 34" x 36"	

Individual Station Description:

No.	Description	Size (L/R x F/B x D)
1-9	Load/Unload	
	1. Stainless Steel Frame	
	2. Eighteen (18) polypropylene saddles	126" x 48" x 39"
10, 11	Air Dryer	38-1/2" x 57" x 36"
	1. The station is constructed of 316 stainless steel	
	2. Computer-controlled temperature control of heaters	
	3. Four (4) Polypropylene saddles	
12	Hot Water Rinse	13-1/4" x 45" x 35"
	1. The tank is constructed of fusion welded, stress relieved natural polypropylene	
	2. Bottom drain	
	3. DI Water fill line	
	4. Air agitation spargers	
	5. Left and Right spray bars with eleven (11) spray nozzles on each side	
	6. Liquid low level switch	
	7. Three (3) Process Technology stainless steel heaters 4 kW each	
	8. Computer controlled temperature control of heaters	
	9. Two (2) polypropylene saddles	
	10. Lateral exhaust arms	
13, 14	Double Counterflow Rinse	13-1/4" x 45" x 35"
	1. The tank is constructed of fusion welded, stress relieved natural polypropylene	
	2. Bottom drain	
	3. DI Water fill line	
	4. Air agitation spargers	
	5. Four (4) polypropylene saddles	
15, 16	Alkaline Clean	13-1/2" x 45" x 35"
	1. The tanks are constructed of 304 stainless steel material	
	2. Both tanks connected to a 20" long filter chamber with pump.	
	Each tank with:	
	1. Four (4) Process Technology stainless steel heaters, 4 kW each	
	2. Air agitation spargers	
	3. Liquid agitation spargers	
	4. DI water fill line	
	5. Low liquid level switch	
	6. Bottom drain	
	7. Two (2) polypropylene saddles	
	8. Computer controlled temperature control of heaters	
	9. Lateral exhaust arms	

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|--------|---|---------------------|
| 17, 18 | Double Counterflow Rinse | 13-1/4" x 45" x 35" |
| | <ol style="list-style-type: none"> 1. The tank is constructed of fusion welded, stress relieved natural polypropylene 2. Bottom drain 3. DI Water fill line 4. Air agitation spargers 5. Four (4) polypropylene saddles | |
| 19 | Acid Dip | 13-1/2"x45"x35" |
| | <ol style="list-style-type: none"> 1. The tank is fabricated of PVC material for chemical resistance 2. Bottom drain 3. Water fill line 4. Air agitation spargers 5. Cooling coil 6. Computer-controlled temperature of the bath 7. Two (2) polypropylene saddles 8. Lateral exhaust arms | |
| 20, 21 | Double Counterflow Rinse | 13-1/4" x 45" x 35" |
| | <ol style="list-style-type: none"> 1. The tank is constructed of fusion welded, stress relieved natural polypropylene 2. Bottom drain 3. DI Water fill line 4. Air agitation spargers 5. Four (4) polypropylene saddles | |
| 22 | Acid Dip | 13-1/2" x 45" x 35" |
| | <ol style="list-style-type: none"> 1. The tank is fabricated of PVC material for chemical resistance 2. Bottom drain 3. Water fill line 4. Air agitation spargers 5. Cooling coil 6. Computer-controlled temperature of the bath 7. Two (2) polypropylene saddles 8. Lateral exhaust arms | |
| 23, 24 | Double Counterflow Rinse | 13-1/4" x 45" x 35" |
| | <ol style="list-style-type: none"> 1. The tank is constructed of fusion welded, stress relieved natural polypropylene 2. Bottom drain 3. DI Water fill line 4. Air agitation spargers 5. Four (4) polypropylene saddles | |

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|--------|--------------------------|---------------------|---|
| 25 | Acid Dip | 10" x 45" x 35" | <ol style="list-style-type: none"> 1. The tank is constructed of PVC material for chemical resistance 2. Bottom drain 3. DI Water fill line 4. Air agitation spargers 5. Two (2) polypropylene saddles 6. Lateral exhaust arms |
| 26, 27 | Double Counterflow Rinse | 13-1/4" x 45" x 35" | <ol style="list-style-type: none"> 1. The tank is constructed of fusion welded, stress relieved natural polypropylene 2. Bottom drain 3. DI Water fill line 4. Air agitation spargers 5. Four (4) polypropylene saddles |
| 28, 29 | Process Tank | 33" x 53" x 36" | <ol style="list-style-type: none"> 1. The tanks are constructed of fusion welded, stress relieved natural polypropylene 2. Two (2) Anode bars 3. Bottom drain 4. Two (2) polypropylene cooling coils 5. Computer-controlled temperature of the bath 6. One (1) filter chamber with one (1) 10" long cartridge 7. Bottom mounted liquid spargers 8. Lateral exhaust arms 9. Two (2) bronze saddles 10. One (1) Kraft DC power supply, type SWITCH-Kraft, 200A 6 VDC output 11. DI water fill line |
| 30, 31 | Process Tank | 33" x 53" x 36" | <ol style="list-style-type: none"> 1. The tank is constructed of fusion welded, stress relieved natural polypropylene 2. Four (4) Anode bars 3. Bottom drain 4. Two (2) polypropylene cooling coils 5. One (1) filter chamber with one (1) 20" long cartridge 6. Bottom mounted liquid spargers 7. Lateral exhaust arms 8. Four (4) bronze saddles 9. Two (2) Kraft DC power supplies, type SWITCH-Kraft, 200A 6 VDC output 10. DI water fill line |

- 32, 33 Process Tank 33" x 53" x 36"
1. The tank is constructed of fusion welded, stress relieved natural polypropylene
 2. Four (4) Anode bars
 3. Bottom drain
 4. Two (2) polypropylene cooling coils
 5. One (1) filter chamber with one (1) 20" long cartridge
 6. Bottom mounted liquid spargers
 7. Lateral exhaust arms
 8. Four (4) bronze saddles
 9. Two (2) Kraft DC power supplies, type SWITCH-Kraft, 200A 6 VDC output
 10. DI water fill line
- 34, 35 Process Tank 33" x 53" x 36"
1. The tank is constructed of fusion welded, stress relieved natural polypropylene
 2. Four (4) Anode bars
 3. Bottom drain
 4. Two (2) polypropylene cooling coils
 5. Computer-controlled temperature of the bath
 6. One (1) filter chamber with one (1) 20" long cartridge
 7. Bottom mounted liquid spargers
 8. Lateral exhaust arms
 9. Four (4) bronze saddles
 10. Two (2) Kraft DC power supplies, type SWITCH-Kraft, 200A 6 VDC output
 11. DI water fill line
- 36 Anode Clean Area 48" x 34" x 36"

Items included:

1. Single plenum PVC tank ventilation system located in the rear
2. Computer-controlled temperature control of heaters
3. Liquid level sensors on all heated tanks
4. Three (3) complete programmable hoist with manual, automatic and semiautomatic operational capabilities and independent usage at any time
5. Drip shields between the stations.
6. All plumbing, filtration systems are serviceable from the front and rear of the line complete stainless steel enclosure of equipment around all stations.
7. A main control panel is included that allows programming of the hoist system for automatic, semiautomatic and manual operation, as well as automatic or manual controls for the rectifiers.
8. One (1) CPU CPS .35 cabinet
9. One (1) PC Computer
10. Twenty-two (22) flight bars
11. Plating Racks
12. Fiber-optic cables between the line and control panels
13. All tanks requiring ventilation are sized for at least 100 CFM.
 - a. Ventilation is located next to the longest side of the tank.
14. Mechanical agitation