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Brief Introduction 簡介



競銘公司成立於1997年3月
Commend Machinery Co., Ltd. was founded in March 1997

主要營業項目:

電路板、五金類、汽機車零件之電鍍暨表面處理機械設備規劃、設計、製造、服務

Main business items:

Planning, design, manufacturing and technical service of electroplating and surface treatment for PCB, hardware and auto parts.



A: PCB軟硬板類

1. 黑氧化處理設備
2. 除膠渣及化學銅處理設備
3. 一次銅電鍍設備
4. 二次銅電鍍設備
5. 化學鍍金電鍍設備
6. 鍍金電鍍設備
7. VCP垂直連續電鍍銅設備

A: Flexible and rigid PCB

1. Black oxide treatment
2. Desmear and PTH treatment equipment
3. Panel plating equipment
4. Pattern plating equipment
5. Nickel & gold plating equipment
6. ENIG treatment equipment
7. Vertical Continuous Plating equipment



B: 汽、機車、五金類

- I. ABS電鍍設備
- II. 五金電鍍設備
- III. 汽、機車零件電鍍設備

B: Automobile, motorcycle and hardware

- I. ABS electroplating equipment
- II. Hardware electroplating equipment
- III. Automobile and motorcycle parts electroplating equipment





垂直連續電鍍機基本製程能力簡介

VERTICAL CONTINUOUS PLATING MACHINE Brief introduction of process capability

1. 鍍銅均勻性

Deviation of copper electroplating

R值可保證0.3

The R value of 0.3MIL can be guaranteed

2. 通孔能力 Through hole Power

目前量產實測最小孔0.15MM

AR= 1:7.8 (貫孔率85%)

以上需搭配藥水性能

Presently the actual min. hole size measured in mass production is 0.15MM.

AR= 1:7.8 (TH: 85%)

The above-mentioned capability depends on the effect of chemical performance

3. 盲埋孔 Blind hole

最小孔3.75MIL

Min. hole size 3.75 MIL

AR: 1:1

AR: 1:1

孔銅及面銅比: 90%

Hole copper and surface copper ratio: 90%

需搭配藥水性能

Depends on the effect of chemical performance

4. 板厚範圍 Range of board thickness

1.最大: 3.0MM

1.MAX: 3.0MM

2.最小: 0.1MM

2.MIN: 0.1MM

(含框架最小可達0.06MMC以下)

(Can reach min. 0.06MM below including flexible rack)

新型專利:M325707號

New Utility Model Patent No.: M325707

ADVANTAGES OF THE EQUIPMENT

設備優點

1. 生產環境整潔、乾淨、保障生產品質、與勞工作業環境。
2. 連續式生產：板件行經環境一致，其片與片間/批與批間均勻性差異小，可提升品質穩定性。
3. 板件以垂直方式移載：可解決水平設備之上板面水池效應/滾輪遮蔽現象下板面盲孔氣泡排除問題。

1. Neat and clean production environment can ensure good production quality and working environment of workers.
2. Continuous type production: all the boards plating in the same environment. The difference of homogeneity between boards and batches can be minimized, and the stability of quality can be enhanced.
3. The board work piece is moved in vertical manner: can eliminate the problem of pudding effect on the board top surface/wheel shield effect/air bulb in the blind hole on the bottom board surface of horizontal equipment.

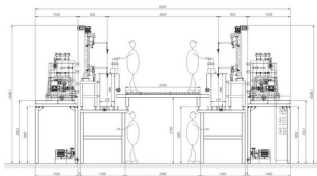


人性化裝置/搬運台車
Humanized equipment/Moving cart





新型專利:M325707號
 New Utility Model Patent No.: M325707

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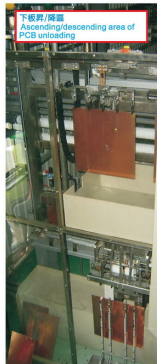
上.下層式分區作業與管理

UPPER.LOWER LAYER DIVISIONAL TYPE WORKING AND ADMINISTRATION



新型專利:M325707號

New Utility Model Patent No.: M325707





手動上板作業區

上板區：設置於設備下層（地面）便於人工上板作業或搭配自動上板機自動化作業。

MANUAL LOADING WORKING AREA

Loading area is arranged on the lower deck (ground floor) of the equipment for the convenience of loading of operators or worked by automatic loader.



前處理槽區 (上層)

1. 清潔劑槽

槽內配件:

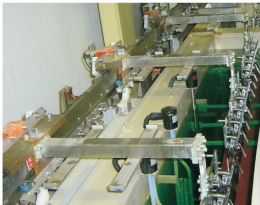
- 1) 加熱器:
- 2) 過濾機:
- 3) 槽內防彎曲檔板

PRETREATMENT TANK AREA (Upper deck)

1. Cleaner tank

Accessories in the tank:

- 1) Heater
- 2) Filter
- 3) Bending preventive plate inside the tank





2. 雙水洗槽

節能設計，
採逆流式流程，
配置流量計監管



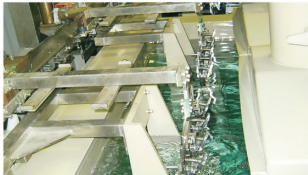
2. DOUBLE WATER RINSING TANK

Energy saving design, adopts counter flow process equipped with flow meter for monitoring.

3. 酸浸槽

槽內配件:

- 1) 噴管
- 2) PUMP
- 3) 槽中防板彎曲機構



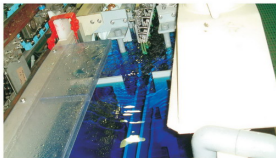
3. ACID DIPPING TANK

Accessories in the tank:

- 1)Eductor system
- 2)Pump
- 3)Bend-proof mechanism inside the tank

電鍍銅區

設於設備上層區，
便於巡視管理作業



COPPER ELECTROPLATING AREA

Arranged on the upper deck for the convenience of inspection and administration.

鍍銅槽-12段

鍍銅槽段，設置於設備
上層便於作業管理

槽內配件：

- 1)導板
- 2)整流器
- 3)過濾機
- 4)噴流泵浦、噴管
- 5)陽極下端遮蔽自動機構
- 6)水中陽極(鈦包銅)、鈦籃



COPPER PLATING TANK-12 Sec.

The copper plating section is on the upper deck of the equipment for the convenience of working administration.

Accessories in the tank:

- 1)Guide plate
- 2) Rectifier
- 3)Filter
- 4)Eductor pump
- 5)Automatic mechanism for lower anode shield
- 6)Immersion type anode(titanium clad copper) 、 Titanium baskets.

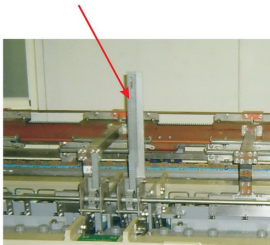


陽極下遮蔽板裝置

陽極下遮板自動調整裝置，依電鍍板深度自動修正，並有鋼尺標誌可確認目前遮板位置。

ANODE SHIELD PLATE DEVICE

Anode lower shield plate automatic adjusting device. Automatic adjustment shall be made according to the depth of plating board which is indicated by steel rule for determining the position of the shading plate.



銅槽噴流管及導軌

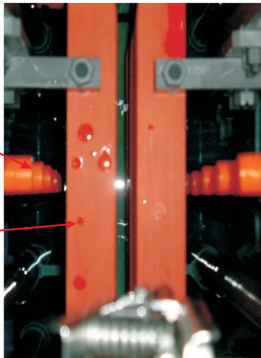
COPPER TANK EDUCTOR PIPE AND GUIDE RAIL

設備作業時僅使用噴流系統(無air)
每支噴管有噴流專用噴嘴，具有加
大噴量與通孔之效果。

During working condition only EDUCTOR pipe system (non air) is in operation. All the spray pipes are equipped with special eductor-nozzles which can increase spray capability and through hole penetrating effect.

導軌當PC板在移動時，導軌可以幫助固定
板下方由其在薄板或軟板時，可避免板下
方因噴流造成的飄動。

Rail: When PC board is in movement the rail can help retaining the board from the bottom side. Especially for the thin board or flexible board the rail can prevent the board from drift due to spray on the bottom side of the board.

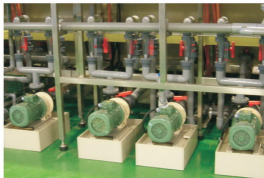




噴流系統流量計 FLOW METER OF EDUCTOR SYSTEM

噴流系統每段使用一台噴流pump，並有流量計可查看並使用凡而調整pump的流量。

Each Eductor section has a spray pump and a flow meter for monitoring the flow rate. The flow rate can be adjusted by valve.



此處裝置凡而客戶可自行調整流量

Valve can be installed here for the clients to adjust the flow rate by themselves.

剝掛區 RACK STRIP AREA

剝掛區段設置於設備下層，便於安全管理

槽內配件: 1. 循環PUMP

2. 硝酸或硫酸雙氧水副槽

3. 配有儲存管理槽裝置

RACK STRIP area is arranged on the lower deck for the convenience of safety administration.

Accessories in the tank:

1 Circulating pump

2 Supplementary tank for nitric acid, or sulfuric acid or hydrogen peroxide.

3 Equipped with storage and administration tank





鍍銅副槽

SUPPLEMENTARY TANK FOR COPPER PLATING

自動控制，操作溫度與添加液濃度，確保生產條件一致性。

槽內配件: 1. 冷卻管 2. 循環泵浦 3. 自動添加

Automatic control of operating temperature and concentration of liquid additive to ensure the identicalness of production condition

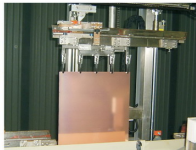
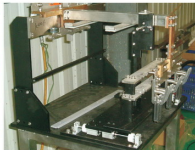
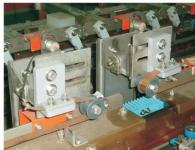
Accessories in the tank:

1. Cooling pipe 2. Circulating pump 3. Automatic dosing chemical



掛架 HANGING ON RACK

1. 治具為5個夾點其中三點固定最左及最右夾點可隨板子寬度伸縮
 2. 夾點材質為SUS304+VITON披覆
 3. 夾點可隨板尺寸自動調整
 4. 掛架突起異常檢知
 5. 專屬掛架校正台. 定時定量校正確保品質
1. The jig has 5 clamp points among which three clamp points are fixed, and the leftest and rightest clamp point are movable clamp points which can be adjusted according to the width of board.
 2. The material of clamp point is SUS304 + VITON coating
 3. Clamp points can be automatically adjusted according to the width of board.
 4. Sensor for detecting the abnormal protrusion on rack .
 - 5 Special hanging rack calibration station for regular setting time and quantity to adjust to ensure quality.





整流器

1. 整流器為台強SWITCHING POWER
2. 電流設定範圍為10-30ASF
3. 作業室溫30° 以下

RECTIFIER

1. The rectifier is made by Tai Chiang, SWITCHING POWER
2. The setting range of current is 10~30 ASF
3. Temperature of working room is below 30°

循環過濾

1. 過濾機可指定濾袋式或濾芯式
2. 噴流PUMP為每站1台可用凡而手動調整流量

CIRCULATING FILTRATION

1. The filter can be selected to use bag or cartridge type.
2. Each working station shall have a filter pump (can be equipped with manual operating valve for adjusting the flow rate)



掛架傳動系統 HANGING RACK DRIVING SYSTEM

掛架傳動，鉸鍊式輸送帶採用塑鋼齒條式

The hanging rack system employs the hinge type conveyor which is driven by plastic steel gear rack mechanism.



掛架傳動系統位於槽外側上方防止污染槽液

The rack driving system is located on the outer upper side of the tank that can prevent the liquid in the tank from pollution





抽風系統 AIR EXTRACTION SYSTEM

槽側抽風，美觀大方

Air is extracted from the side wall of the tank that presents an elegant appearance pleasing to eye.



槽測抽風，操作簡便

Air is extracted from the side wall of the tank for convenient operating



自動上料 (選配功能)

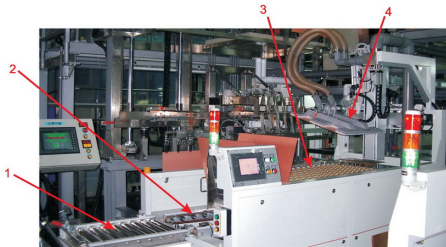
AUTOMATIC WORK PIECE LOADING (Selecting and matching)

機械手臂式機型

動作流程: 1) 油壓升降滾輪式手推車→2) 水平翻轉放板機→3) 輸送機→4. 自吸式機械手→掛架

AUTO LOADING

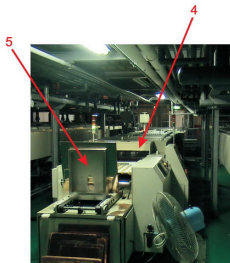
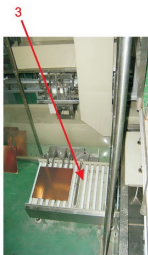
Movement process: 1) Hydraulic lifting roller of hand cart→2)Horizontal overturning board setting machine→3)Conveyor→4.Self-suction type robot arm→Hanging rack





自動下料 (選配) AUTOMATIC UNLOADING (Selecting and matching)

動作流程: 1) 掛架 → 2) 機械手臂 → 3) 滾輪輸送機 → 4) 後處理烘乾機 → 5) 收板機 → 油壓升降滾輪式手推車
Movement process: 1) Hanging rack → 2) Robot arm → 3) Roller conveyor → 4) Post-treatment dryer → 5) Stacker → Hydraulic lifting roller of hand cart



垂直連續電鍍銅設備(單層型)
VERTICAL CONTINUOUS PLATING EQUIPMENT
(Single Layer Type)

