



粉體稱料系統
Powder Weighing System



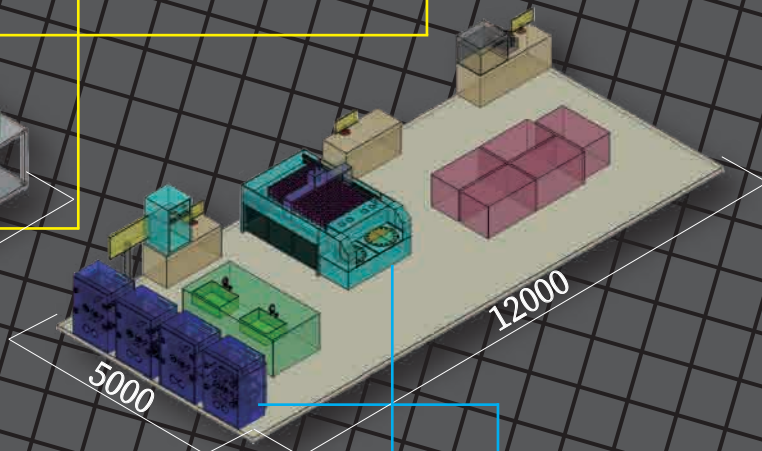
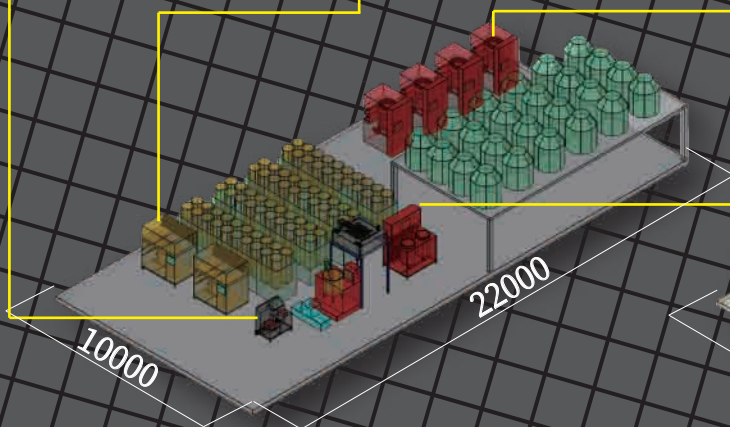
母液自動輸送系統
Mother Solution Automatic
Dispensing & Transporting System



染料溶解輸送系統
Dyestuff Dissolving
& Transporting System



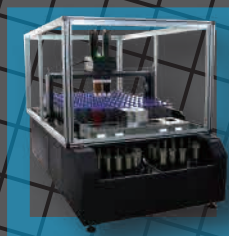
助劑輸送系統
Automatic Auxiliary
Dispensing & Transporting System



色彩綜合訓練系統
Color Training System



分光儀測配色系統
Color Matching System



140杯自動滴液系統
140 bottles Dispenser



32杯四溫控打色機
32 cups Dyeing Machine

印染智能化專家 - 專注化驗室及車間計量系統20年

Intelligent Dyeing Factory Project

上海千立自動化設備有限公司
SHANGHAI CHAIN-LIH AUTOMATION EQUIPMENT CO.,LTD.



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染助劑自動化輸送的評估要點

Evaluation points of automatic transportation of dyes and auxiliaries

染助劑自動化輸送系統國外已發展近30年，但目前國內使用率不足10%，失敗案例屢見不鮮，分析停用原因後，列出以下考量評估的要素：

效率是否能應付峰值產能

Efficiency for peak capacity

自動化系統通常會比傳統作業速度慢。在峰值產能時，自動化系統無法快速響應供料，仍須人工以傳統工藝支援，才能滿足峰值需求，兩套工料生產方式造成更多管理問題。

快速反應及定製化服務

Quick response and customized service

每家工廠加工類型及管理方式存有差異，因此廠家對軟硬體配合調整的速度，與對最重要的資訊系統ERP/MES銜接的配合度，都是導入成敗的關鍵要素。

故障保養及維護成本

Breakdown maintenance and maintenance cost

自動化的機械設計會直接影響妥善率，應避免高度複雜的機械動作，以降低故障點，及日後自行維護的難度，重要的零部件及耗材取得方式及成本也需要先詳加確認。

投入產出比

Return on investment evaluation

由於工藝及面料持續進步且環境變化快速，如何維持相對先進的製程更是重要，決策者應考慮設備性價比及回收年限，以更靈活應對市場變化。

上海千立，從化驗室到車間，專注印染計量控制系統20年

CHAIN-LIH have been focusing on automatic dyestuff related weighing control systems in laboratories and workshops for 20 years.



為何要選用染料母液系統？

Why choose the dye mother liquid system

滿足峰值產能的速度

High Efficiency for peak capacity

預先化母液存放，可省去稱料、化料、及機械動作時間。三十台染機在合理規劃下，兩個小時內可以全部輸送完成。



可針對性調整的計量精度

Measurement accuracy can be adjusted

透過母液濃度對應大缸深色、小缸敏感色兩種需求。1g天平計量1%母液即可達到0.01g粉劑的計量精度。



降低機械複雜度

Reduce mechanical complexity

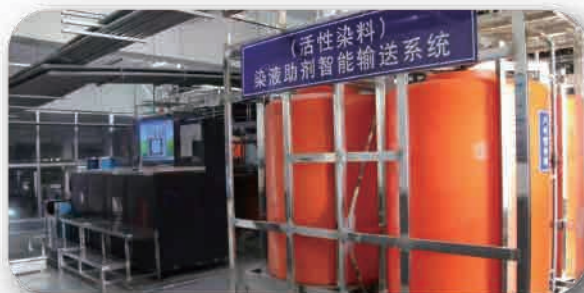
伺服定位系統及氣缸機械動作雖然華麗，但會大幅提升日後維護的困難度，且一個部件異常，整個供料系統可能就會停擺癱瘓。

染色一次成功率提升，建立配方技術中心

Improve the first-time success rate of dyeing and establish a recipe technology center

實驗室直接取用車間均勻的母液，以車間條件進行複樣，化驗室開料通常使用3g以下染料，因受染料本身均勻度限制，複樣有時反而不準確。

* 各類型染料，母液化後的保存期限問題，請諮詢技術銷售人員。



母液自動計量輸送系統

Mother Solution Automatic Dispensing & Transporting System

24路輸送

一對一閥門
免去管路切換時間，
輸送速度快
多台主機，
即實現多路同時輸送

Transport to 24 destinations

Patented switcher use
one valve targeting one
destination to eliminate
switching time of mechanical
movement with excellent
transporting speed.

Multiple transporting
machines could deliver
multiple destinations
at the same time.



40路計量閥

滿足多種母液
計量使用需求

40 dispensing valves

Sufficient dispensing
positions could contain
various kinds of
mother solutions.

17吋工業電腦

大屏幕清晰好操作

17" industrial computer

It's easy to operate
on large screen.

計量與分配器一體化，氣閥切換無移管動作，節省大量時間

Dispensing is combined on distributor to diminish a lot of time on mechanical moves

150kg染液，接到指令後15分鐘內可完成計量、輸送、清洗

The full circle time of a weighing and transporting 150kg dye liquid could be only 15 minutes.

雙精度計量閥設計

計量初始，雙閥門皆開，接近目標重時
單獨用小閥計量，兼顧速度與精度



Double precision valves

Turn on twice valves at the beginning to ensure the
flow velocity and then dispense the rest volume by
small valve to rise the dispensing accuracy.

天平重量法計量

桶底配重量傳感器，精準監控計量過程
不採流量計，確實經天平稱量



Weighing on balance

Instead of using flowmeter, weighing sensor is installed
on the bottom of the barrel to ensure the whole
weighing process is under monitoring.

循環式計量 攪拌正常才能計量

配無軸封磁力驅動循環泵，錐形桶底可防止死角沉積。如有調整需求可靈活調換母液桶



Liquid circulates during dispensing

Use magnetic pump to circulate dye liquid. The bottle of barrel is cone-shaped to eliminate dead space. The total storage barrel could be replaced easily.

防串色汙染接盤

計量口配有接盤，計量啓動移開，完成移回，可防止計量後管路殘留滴入桶內



Leakage-free plate

A plate is placed under the dispensing valve and only move away during dispensing process to prevent from potential leaking risk.

分散式主機設計 -- 每10台染缸可規劃一台計量主機

深色或大缸的計量以速度為主，而淺色或小缸則犧牲速度，以精度調整相應參數。多產線設計可提升速度，並分散故障風險。

Distributed system - One dispensing machine works for each ten dyeing vats.

Transporting speed is the key for dyeing deep color or production in large vat. Weighing accuracy would be more important in dyeing light color or production small vat. Multiple dispensing machines could support for different dispensing needs and eliminate breakdown risk.

結構簡單 維護成本低

零部件多為國內通用標準件，容易自行維護

Simple structure and low maintenance cost

There's no complex mechanical structure and components design so it's easy to maintain and repair.

配有取料口 便於取用母液

化驗室使用現場大貨染液，確保染液一致

Convenient device for taking mother solution

Ensure production in workshop and laboratory use the same dye liquid.



母液自動計量輸送系統 Mother solution automatic dispensing & transporting system

尺寸 Size: 160×110×192cm

天平精度 Balance Accuracy: 300kg/1g

計量精度 Dispensing Accuracy: ±2g

電源 Power: 220V 21.5KW/H (40支母液)

水源 Water: 1吋 1²DN25; 冷、熱水 Hot water 50-60°C; 水壓 Pressure < 6.3MPa

輸送管路 Transporting pipe: DN25; Target capacity 200L up; Descending slope of pipeline 3%

計量支數 Dispensing Qty.: 40 kinds

輸送目的 Transporting Qty.: 24 Targets

氣源 Air: 8*5氣管; 壓力5-7kg/間

* 可根據客戶需求訂製特殊規格 Specifications can be customized according to customer requirements.

染料溶解輸送系統 (雙桶)

Dyestuff Dissolving & Transporting System (two tanks)



300kg /1g 稱料天平
滿足大缸稱料精度需求

300kg balance (Accuracy 1g)
Meet weighing accuracy for normal dyeing machine.

* 小缸建議搭配
半自動粉體稱料系統使用
Semi-automatic powder weighing system is recommended to use on small dyeing machines.

17吋工業電腦
大屏幕清晰好操作
17" industrial computer
It's easy to operate on large screen.

二個不鏽鋼雙化料桶
滿足日常化料輸送需求
Two dissolving tank
It's sufficient for usual dissolving requirement.

將稱化送集中在一設備完成，集中管理防止異常

A revolutionary solution to make weighing, dissolving and transporting dyestuff in one system

溶解與分配器一體化設計，不僅縮短作業時間，更能防止容器汙染
Dissolving device is combined on distributor to shorten lead time and eliminate pollution risk.

300L+100L大小桶設計

小桶適用日常母液泡製，大桶適用於特大用量的母液或現場大缸直化直送需求



300L+100L two dissolving tank
Small tank suitable for solution dissolving.
Big tank suitable for dissolve & transport to dyeing machine directly.

人性化可升降天平

放上染料箱，天平可升到桶口水平高度
規範整箱染料確實過磅，減輕勞動強度



User-friendly balance
Balance would rise up to the height of dissolving tank when the dyestuff box is placed on the balance.
Workers could weigh the dyestuff easily to reduce labor Intensity.

兩種輸送裝置可選 應對不同數量的輸送目的需求

Two transporting device are optional for different application requirements



40路 氣閥切換型

一對一輸送氣閥，管路切換無須一秒鐘
專利結構設計，管路能無死角穩壓沖洗

40 Pneumatic valve

Every single valve targets one destination to eliminate switching time. Patented structure has no dead place to ensure cleanness of tubes.

OR



100路 輸送架型

採機械手移動管路切換，滿足多輸送目的的需求，適用於母液計量系統化料輸送

Transporting system for 100 destinations

Use robotic hand to switch to different destinations, which is sufficient for large number of destinations, such as mother solution dispensing system.

染料溶解輸送器 (單桶)

Dyestuff Dissolving System (one tank)



300L 大容量化料桶

適用於大用量化料需求

300L capacity of dissolving tank

Suitable for large amount of dye transport needs.

專用攪拌器

配有葉片攪拌裝置
快速打散大量染料

Stirring device

Stirring fan made for breaking up dyestuff in a short time.



染料溶解輸送系統 Dyestuff dissolving & transporting system

尺寸 Size: 170×110×191cm (雙桶 2tanks) ; 140×120×183cm (單桶 1tank)

天平精度 Balance Accuracy: 300kg/1g

流量計加水精度 Flowmeter Accuracy: 0.5%

電源 Power: 220V 4.5KW/H

氣源 Air: 8*5氣管 ; 壓力5-7kg間

水源 Water: 1吋 1¹DN25 ; 冷、熱水 Hot water 50-60°C ; 水壓 Pressure < 6.3MPa

輸送管路 Transporting pipe: DN25 ; Target capacity 200L up ; Descending slope of pipeline 3%

助劑自動輸送系統

Automatic Auxiliary Dispensing & Transporting System



一年可節省20%助劑浪費

防止人員超量取用助劑，購機成本可快速回收

Saving 20% of unnecessary waste on auxiliary.

Prevent from workers' overuse of auxiliary.
Machine cost could be returned in a short time.

採天平重量法計量

每種助劑的黏稠度、密度不同，流量計無法精確校準，使用上會有較多問題

Weighing on balance

The difference of stickness and density on each auxiliary would affect measuring accuracy when using flowmeter on dispensing.

1-24路計量閥門

根據助劑支數，可訂製1-24路計量閥
滿足多種助劑計量需求



1-24 Dispensing valve

According to the number of auxiliaries, 1-24 metering valves can be customized. Meet the needs of various auxiliary measurement.

1-16路獨立輸送閥門

一秒內完成輸送管路切換，無需等待
輸送速度快



1-16 independent transporting destinations

Valve switching could be completed within one second with outstanding transportation efficiency.

助劑自動輸送系統 Automatic Auxiliary dispensing & transporting system

尺寸 Size: 140×110×180cm

天平精度 Balance Accuracy: 300kg/1g

計量精度 Dispensing Accuracy: ±20g

電源 Power: 220V 1.5KW/H

水源 Water: 1吋 1¹/2 DN25；冷、熱水 Hot water 50-60°C；水壓 Pressure < 6.3MPa

輸送管路 Transporting pipe: DN25；Target capacity 200L up；Descending slope of pipeline 3%

計量支數 Dispensing Qty.: 1-24 kinds

輸送目的 Transporting Qty.: 1-16 Targets

氣源 Air: 8*5氣管；壓力 5-7kg/cm²

半自動助劑系統

Semi-Automatic Auxiliary Dispensing System



投入成本低 解決浪費問題

計量後由人工搬運；便於統計每日/月用量

Low-cost option.

Workers need to carry the containers manually after auxiliary dispensing. Operation process should be regulated to ensure using effect.

雙天平 雙計量位

配有2台300公斤，精度1g天平

Two balances for two dispensing positions

Equipped two balances of 300kg/1g accuracy.

助劑系統環境需求

Environmental requirements of auxiliary system

助劑原料桶及補料裝置

自備或向我司選購 (1000L or 400L)，料桶容量建議至少滿足三日用量，避免頻繁補料。



Auxiliary barrel & Supplementary device

Clients could prepare auxiliary barrels or purchase additional barrels from Chain-lih. Barrels capacity should meet minimum consumption of three days to avoid frequent supplement.

供料場地建構

建議搭建高台擺放料桶，使助劑自然流下可降低日後隔膜泵維護及耗材成本。如環境無法滿足，則安裝隔膜泵抽取計量



Platform construction for system

It's highly recommended to construct a platform to place auxiliary barrels. Maintenance and consumable cost will be lower when the dispensing is made on gravity flow. Need to purchase diaphragm pump for dispensing when the platform is not available.

半自動助劑系統 Semi-automatic auxiliary dispensing system

尺寸 Size: 100×90.5×173cm
計量支數 Dispensing Qty.: 1-20 kinds
電源 Power: 220V 0.5KW/H

天平精度 Balance Accuracy: 300kg/1g *2台
計量精度 Dispensing Accuracy: ±20g
氣源 Air: 8*5氣管；壓力5-7kg間

半自動粉體稱料系統

Semi-Automatic Powder Weighing System



精度 0.1g、0.01g、0.001g

根據配方重自動選擇合理精度的天平稱量
應對淺色小量需求，設有0.001g精度天平

Balance accuracy 0.1g & 0.01g & 0.001g

System will switch measuring process on appropriate balance based on formula to ensure better accuracy.

17吋 工業電腦

17吋電阻觸控 無風扇 工業電腦，大屏幕
好操作，可應對現場惡劣的粉塵環境

Industrial Computer

We use industrial computer with separated fan and 17" touch screen on machine for smooth user experience and prevent failure caused by humidity and dust.

燈號指示系統 (選配)

可選購燈號指示裝置，
引導人員取料，八個燈一模組



Lamp Indication System (optional)

Light could indicate workers to collect correct dyestuff.
8 lamps includes in a set.

開單系統 Billing System

染色工藝單			
單號	色號 abc	顏色 我紅	2016/4/26 14:57:45
客戶 拜利克新	機台號 12345	訂單號 14456788	打色員
規格 八股絨	針數 200	水量 4000	浴比 20 缸號 4
染料名稱	配方	實際量 g	備註
偶氮染料 H-GN			
偶氮染料 K-GN			
偶氮染料 N-G2RC			
偶氮染料 D-REN			
偶氮染料 C-C			
偶氮染料 N-G2RC			
染工代號 3333	調色工代號 22222	染工代號 11111	
助劑名稱	配方	實際量 KG	備註
方明粉 0.2 0.8	平平粉 0.12 0.48	助劑名稱 配方 實際量 KG	
方明粉 0.2 0.8	尼凡丁 0.12 0.48	備註 1.4	
平平粉 0.2 0.8			
藍色 9080 0.2 0.8	尼凡丁 0.12 0.48	尼明粉 1.4	
單號人 001 審核人 1111 第一缸染料總數 單位:克 4193.74			

可與化驗室電腦配色系統、滴液系統、現場粉體稱料系統及母液系統連線使用，串聯多系統間的資訊傳遞

Billing system could connect to computer color system, dyestuff dispensing system in laboratory, powder weighing system and mother solution dispensing system in workshop to integrate the information in product life cycle.

半自動粉體稱料系統 Semi-automatic powder weighing system

尺寸 Size: 110×85×133cm

天平精度 Balance Accuracy: 300g/0.001g*1台；3kg/0.01g *1台；30kg/0.1g *1台

電源 Power: 220V 0.5KW/H

中型計量輸送系統

Medium Automatic Dispensing & Transporting System

針對1~30kg小缸量身打造的中型滴液輸送系統 計量精度達0.2g

筒紗、絞紗、成衣、散織、染布均適用，集泡藥、滴液、輸送一體，占地面積小
母液濃度0.1% 即為0.0002g粉劑精度

The system focus on automatic dyeing solution and auxiliary dispensing & transporting to dyeing vats with low capacity (1kg~30kg). Dispensing accuracy is up to +/-0.2g

It's reliable on different kinds of fiber dyeing, such as cone dyeing, hank dyeing, cloth dyeing, and fabric dyeing. Operators could complete making solution, dispensing and transporting within one machine in a small space. The weighing accuracy could be equal to 0.0002g of dyestuff when dispensing solution in 0.1 concentration.



母液模組

25L化料桶*1 葉片攪拌
25L母液桶*20個 PC桶
每桶配有攪拌泵
稱料天平 30KG/0.1g

Mother solution module

The module includes a 25L dissolving tank with stirring blade and 20 25L solution-tanks, which equipped circulating pump. Accuracy of balance is 30kg/0.1g.

計量模組

25L計量桶*2組
計量天平 30KG/0.1g
雙桶設計，一位計量完成時
移出輸送，另一位轉入計量

Dispensing module

The module includes 2 25L-dispensing tanks. Weighing accuracy is 30kg/0.1g. The tanks works in turns to ensure dispensing and transporting efficiency.

輸送模組

19路分配器
(含1路排液位；共20路)
*不搭配輸送模組
計量模組可改半自動手提式

Transporting module

The distributor transports solution to 19 targets and another one for discharging.

*The module could be replaced by hand-carry module.

中型計量輸送系統 Medium Automatic Dispensing & Transporting System

尺寸 Size: 母液模組(20桶) 191 × 124 × 173 cm

計量模組 120 × 145 × 174 cm

輸送模組 172 × 50 × 116cm

天平精度 Balance Accuracy: 30g/0.1g*2台

電源 Power: 220V 25KW/H (滿配40桶母液)

YP色彩綜合訓練系統

YP Comprehensive Color Training System



10分鐘檢測色盲色弱

30分鐘可知配色人員修色能力
一周相當於化驗室一年配色經驗

Take 10 minutes to realize the eye function of newcomers for pre-employment test.

Take 30 minutes to realize testers' color matching talents or ability.

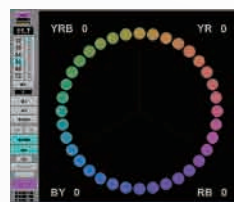
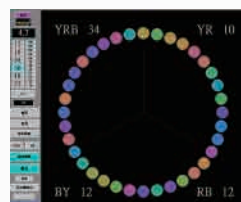
Spending a week time to train color matching on software is equal to work on a lab for one year.

視覺鑒別-色盲檢測及辨色能力檢測

Eye inspection: Color blindness and color distinguishing test

色相環排列檢測

Hue ring circle test



全色域彩度及濃度變化辨識能力檢定

Color sensitivity test on chroma and depth



色彩認知訓練 – 色彩分布認知與描述訓練

Color recognition training- Color distribution and describing training

色彩分布與調整基礎認知培訓

Color distribution and basic color fixing training

色光方向/互補色認知培訓

Color location and complementary color training

色光差距辨識培訓

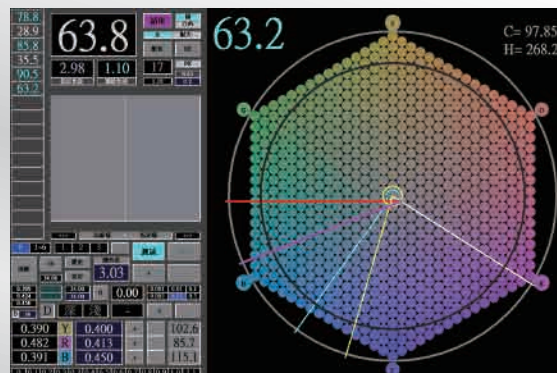
Distance sense training - in the same depth field

濃度差距辨識培訓

Distance sense training - in the same hue and chroma

新手基礎配色訓練 – 透過描述 色差及色光方向的初階配色訓練

Rookie class: Color fixing and matching training by describing color distance and direction.



進階擬真配色訓練 – 完全仿照 化驗室實際配色的機上修色訓練

Advanced Simulative color matching training – Simulating color matching process in lab.



迷你分光儀 YP Color Lite

Mini Spectrophotometer - YP Color Lite

色差儀也是分光測色儀

It's not only a colorimeter
but also a spectrophotometer

通過測量物體表面反射光譜測量
L*a*b*，L*Ch，RGB等顏色數據

屏幕上可直接看到色差顯示
Pass 或 Fail，便於質檢

Measure light reflectance of target to
get L*a*b*, L*Ch, and RGB.

User could see the inspecting result, such as color deviation value or pass/fail on machine or mobile app.



多種測量指標 Multiple measurement indexes

白度、力度、色牢度、遮蓋力、同色異譜等20種測量指標，26種光源，使用靈活、應用廣泛

There are 20 kinds of measurement indexes, such as whiteness, strength, color fastness, opacity, and metamerism, and 26 light sources. It could be widely used in different places.



開機即用 操作便捷 隨身的海量色卡

Easily use with a large number of color cards.

自動校準，無須繁瑣的操作

1.14吋IPS顯示屏，可單機測量

連接手機App，可創建色彩數據庫
錄入印刷、塗料、紡織等顏色信息

並可雲分享色卡數據庫

多人共享資料，快速找到合適的顏色信息

The machine make calibration automatically and equipped an 1.14-inch IPS panel. User can operate it immediately or control via mobile APP. It's available for setting up multiple databases for printing, painting or dyeing and sharing on cloud for quickly search by multiple users.

測量結構 Structure	D/8, 包含鏡面反射光(SCI)	測量口徑 Calibration	8mm	波長範圍 Range of wavelength	400-700nm
照明光源 Illumination	LED(全波段均衡LED光源)	測量時間 Measured time	1Sec	波長間隔 Wavelength interval	10nm
測量穩定性 Stability	$\Delta E \leq 0.1$	視場角 Field of view	2°, 10°		
光源條件 Light source	A, B, C, D50, D55, D65, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, CWF, U30, DLF, NBF, TL83, TL84, U35				
電池容量 Battery capacity	4.2V/760mAh 單次充滿電可連續測量10000次				
體積 Dimension	直徑:31mm 高度:102mm 約90g				



App下載
App Download



操作說明下載
Manual Download

電腦測配色系統

Computer Color Matching System



配方預測/配方修正 Formula prediction/fixing

提供四種配色模式選擇。可任意挑選染料種類與數量，由電腦自動計算組合提供配方預測。以顏色吻合度排序，快速挑選合適的配方。

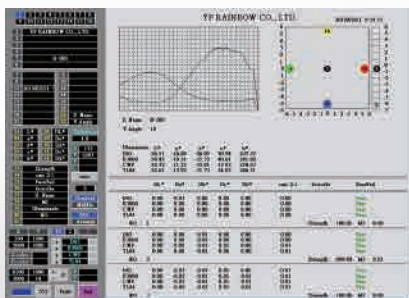
Software provides four kinds of formula prediction models. Users can choose the most appropriate one based on the types of dyestuffs or textiles. The results could be arranged by color distance or full cost of formula.



生產套色/追加預測 Color fixing for production

針對染缸大貨提供不對色時的套色及追加配方建議，並可直接預測追加後的染出結果(預測調整後色差)，可做為管理者決策參考依據。

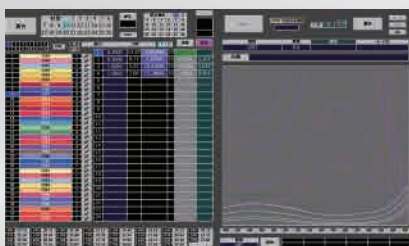
Software provides the fixing formula and expected fixing result for user when color deviation happened in dyeing process. Users can decide to fix or re-dye the textile.



品管分析/進料檢驗 QC/Incoming inspection

以數字溝通品質，解決人眼對色的溝通爭議。用於進料檢驗時可快速檢驗出胚布色差及染料力份變化，減少後端生產問題。

No only judge color by eyes but inspect colors by machine and deliver the result in numbers to reduce disputing during color checking process. And analyze the color difference of textile and dyestuff to prevent potential production issue.



色庫管理 Color library

無需翻找貼樣，由軟體自動建議最接近客戶來樣的歷史色配方，大幅減少化驗室的人員作業時間。

When you get a color sample from client, you don't have to spend time looking at your sample books but run CCM to find the most similar historical sample i n 10 seconds and get the fixing formula at the same time.

推薦分光儀 Spectrophotometer

產品型號	便攜式 M52	台式 X82
積分球	Φ40mm	Φ152mm
照明光源	LED, (全波段均衡Led光源)	脈衝氙燈和LED
感應器	256像元CMOS感應器	硅光二極管陣列
波長範圍	400 - 700 nm 包含UV/排除UV	360 - 780 nm 包含UV、400nm截止、420nm截止、460nm截止
觀測光源	A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,DLF,NBF,TL83,TL84	
測量間隔	約1秒	SCI或SCE模式<2秒，SCI+SCE同時測量<4秒
測量口徑	MAV:Φ8mm/Φ11mm MAV:Φ4mm/Φ6mm MINI:1*3mm	反射：XLAV Φ25.4mm/Φ30mm LAV Φ15mm/Φ18mm MAV Φ8mm/Φ11mm SAV Φ3mm/Φ6mm 透射：Φ17mm/Φ25mm
顏色空間	L*a*b,L*C*h,L*u*v,XYZ	L*a*b, L*C*h, Hunter Lab, Yxy, XYZ
色差公式	$\Delta E^*ab, \Delta E^*CH, \Delta E^*uv,$ $\Delta E^*cmc, \Delta E^*94, \Delta E^*00$	$\Delta E^*ab, \Delta E^*CH, \Delta E^*uv, \Delta E^*cmc, \Delta E^*94,$ $\Delta E^*00, \Delta Eab(\text{Hunter}), 555$ 色調分類
重複性	最大值: $\Delta E^*ab < 0.04$ 平均值: $\Delta E^*ab < 0.03$ 標準偏差值小於 $\Delta E^*ab < 0.02$	XLAV 色度值： 標準偏差 ΔE^*ab 0.015以內
台間差	ΔE^*ab 0.2以內	XLAV ΔE^*ab 0.15

軟體運行需求 Software features

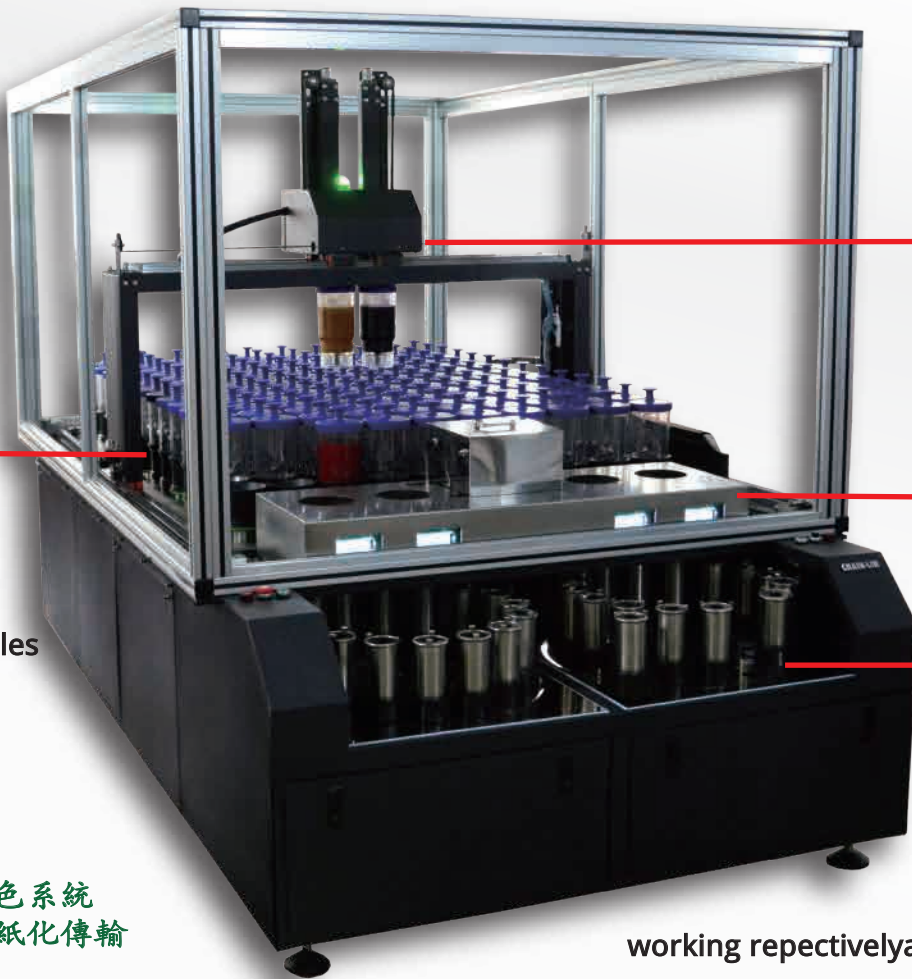
作業環境 Operating environment	Windows 10，安裝最新修補程式 Windows 10 with latest patches	
處理器 Processor	Intel or AMD, 2GHz以上 Intel、AMD processor. 2GHz or better	* 設備類，客戶自備電腦
螢幕分辨率 Screen resolution	1440×900 以上 1440×900 or better	同此配置外，主機上需有RS-232 端口 禁用轉接頭
記憶體 Memory RAM	4G 或更高 2GB or better	
硬碟空間 Disk	安裝於D槽，安裝需求至少200MB以上；後續作業至少500MB以上 200MB or more for installation；500MB for further operation	

140杯直通式無管路自動滴液系統

140 bottles Srtaight Tube-free Dispensing System

免攪拌磁石

No stirring magnet machine.



雙機械手臂
Robotic hand

天平×4組
Balance×4

30杯計量位
30 Cups
Measuring
Position

雙轉盤
同時各自計量
Two turntable
working repectivelyat the same time

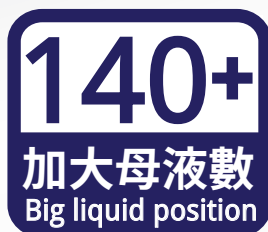
140杯母液
攪拌區
140 Solution Bottles
Stirring Area

可與我司電腦配色系統
連線實現配方無紙化傳輸

計量流程 - 集各式滴液機優點於一身

Technological Process - Gathering kinds of dispensing's advantage together





很多滴液機用戶因母液位不足，一支染料僅化兩濃度易導致滴液量太小，造成再現性不良。軟體支持140杯以外母液可以手動放杯方式加入計量。

由於滴液機計量精度為±0.02g，如滴液量為6g，產生最大計量誤差時：
 $(6.02-5.98) \div 6 \times 100\% = 0.66\%$ (尚不含滴液機天平本身精度±0.005誤差)
 為保持再現性，計量重應在6g以上，如無法滿足需增加低濃度母液

Due to insufficient mother bottle quantity on machine, many users do only make two concentration of solutions on machines, which will affect the dispensing volume and cause sampling deviation issue. We support 140 bottles on machine and manual operation model when you need more mother solutions. The measuring accuracy of dispenser precision is ± 0.02g, if dispense weight was 6g, the maximum measurement tolerance is $(6.02-5.98) \div 6 \times 100\% = 0.66\%$. It will be better to dispense more than 6g of solution on each formula to ensure the same color performance when making sampling and mass production.



雙轉盤同時計量共30個計量杯位+2個排液杯位。滴液機若杯位不足時除效率較低，還會有拿錯放錯等可能疏失。

Two turntable with 30 dispensing position and 2 drain position. Sufficient positions will improve the operation efficiency and avoid mistake in frequent taking in and taking out the dyeing cups.



天平自動校正功能:

當機台閒置或設定時間到時，機械手自動抓取校正杯，進行四天平校正。染廠對天平管理普遍不佳：天平說明書或校正砝碼遺失、無落實定期校正。

Automatic leveling on four balance:

System will implement automatic leveling on all balances regularly to ensure the accuracy of scaling based on your setting time.



母液減重式計量--防止蒸發影響準度

1.防止秤面或杯身的殘留水分蒸發影響準度

計量一配方假設需要10-20秒，
 當室溫30度時，蒸發量達0.02g/20秒。
 以計量6g為例，因蒸發所產生的最大誤差為：
 $(0.015 \div 6) \times 100\% = 0.3\%$ (蒸發主要影響濃度偏深)

2.軟體紀錄母液剩餘量，可知優先泡藥順序

3.計量時轉盤無須升降，速度更快，動能單純；計量時可投入面料



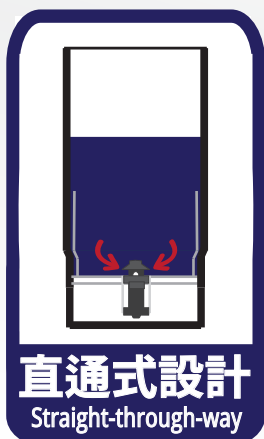
Loss-in-weight measuring method

-- Prevent evaporation affecting the dispensing accuracy

1. Prevent the residual water on balance surface or the cup body evaporation influence dispensing accuracy. For example: Dispensing a recipe usually need 10-20 second. When the room temperature 30 °C, the evaporate speed is 0.02g/20 s. If dispense 6g, use 15 second the maximum error caused by evaporation is $(0.015 / 6) * 100\% = 0.3\%$ (evaporation mainly affect the color chroma)
2. Software records the remaining amount of mother liquid when the bottle last dispensing, so the user can know the priorityof making mother liquid.
3. Without turntable lifting, the dispensing speed is faster, and the kinetic energy is simple. And can put the fabric into dyeing cup during dispensing process.

直通式母液瓶設計 --防止分散性染料滴液不穩

The straight through type solution bottle - Better choice for dispensing disperse dyes solution



原理 Concept:

自然水壓止漏，由天平上的電磁閥頂開滴液橡膠，母液透過小孔流下
Water pressure holds the valve down to prevent leakage. The electromagnetic valve on balances will knock the bottle valve to dispense and weigh the solution.

優勢 advantage:

1. 垂直管路設計，防止染料堆積於管路中 (特別是分散染料)
 2. 無須每瓶配備電磁閥，免去維護保養點徒手就能拆卸清洗
 3. 採用PC材質，不易摔壞，降低耗材成本
1. Solution liquid could be dispensed onto mixing cups straightly without flowing through additional pipe to prevent precipitation.
 2. No electromagnetic valve installed on each bottle to cause potential leakage problem. It's easy to maintain and clean.
 3. Bottles are made by PC against crashing.



免攪拌軸、攪拌磁石設計--母液瓶直接正反轉動

攪拌軸/磁石的壞處:

1. 泡藥時就投入，會影響天平準度
2. 磨損母液瓶底，使母液瓶變成耗材
3. 如果漏放，用到該瓶配方都不對色。100個磁石即100個疏失機會
4. 高濃度時，磁石或攪拌軸成污染源

No stirring magnet or rod -- turn the solution bottle positively and negatively

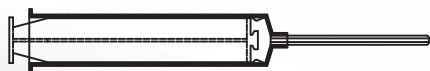
Why it's bad to use stirring magnet / rod :

1. Put the magnet during solution making process will affect the accuracy of balances.
2. Bottom of solution bottle would be damaged.
3. Adding anything onto the bottle during mixing process is adding potential risk for management.
4. Put-in and take-out the stirring magnet/rod will cause potential pollution, especially when the concentration of solution is high.



注射筒式(速度慢)

Injector type (slower)



- 1、玻璃母液瓶與針筒均是耗材。
- 2、止漏材質遇染料助劑易膨脹，若不更換則影響精度。
- 3、滴液速度較重量法慢許多，一次僅能滴液一支染液，為速度最慢的機型

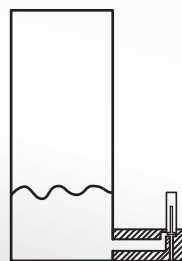
- 1、Both Glass liquid bottle and Injector are consumables.
- 2、The leakage free material in injector may expanded in contact with some auxiliaries and lead to accuracy issue.
- 3、Dispensing speed is slower than weight method. It can only dispense single dye solution at a time. It is the slowest type of dispenser.



非直通式(分散性染料效果不佳)

Not Straight type

Not good effect for disperse dye



- 1、分散染料不溶於水，磁石一旋轉，染料進入橫躺部位容易產生沉積，造成配色不穩。
- 2、電磁閥及母液瓶未分離，成本高且維護保養不易。
- 3、需特殊工具才能清洗，不容易查看是否清洗乾淨

1. Disperse dyes is in insoluble in water. Dyestuff precipitation will appear on extending pipe after stirring and cause dispensing mistake.
2. Electromagnetic valve is installed on solution bottle, which is difficult to maintain. And the bottle cost will be higher.
3. It's difficult to clean the expending pipe and verify the cleanness.

雙天平母液泡製機

Solution Maker

0.001
小數點3位
Accuracy 0.001g

若使用小數點兩位稱料，務必取5g以上化料
Use accuracy 0.01g balance, must keep weigh 5g up.

2位天平3g化料最大誤差: $(5.004-4.995)/3g \times 100\% = 0.3\%$
3位天平3g化料最大誤差: $(5.0004-4.9995)/3g \times 100\% = 0.03\%$

Use accuracy 0.01g balance to weigh 3g, the max error by balance is 0.3%. Use accuracy 0.001g balance to weigh 3g, the max error by balance is 0.03%

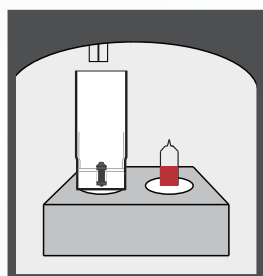

雙天平監控
2 balance monitoring

軟體偵測小數點3位天平減少的染料重與小數點2位天平增加的重量相符才可完成化料，避免在灑料的情況下完成泡藥

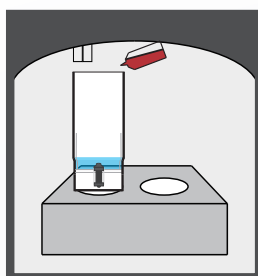
Software monitors the reducing weigh on 0.001g balance and increasing weigh on 0.01g balance. The dissolving will be passed when the volume is balance during weighing process. It can prevent operator spreading out the powder and cause accuracy issue.



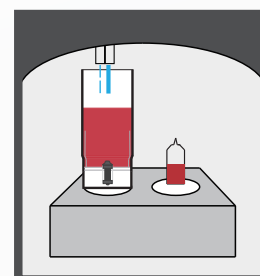
◎ 雙天平泡藥流程示意圖 Two balance to making solution operation process



1. 紀錄母液瓶及染料重量
Software record empty solution bottles and dye tank weight



2. 加底水後提示應加染料重
System adds water for dissolving automatically and notice the dyestuff powder volume to operator.



3. 增減重吻合, 加水完成泡藥
System monitors the whole weighing process and ensure balance.

泡藥機配備一台攪拌機，20個攪拌杯

Solution makers is equipped with a mixer & 20 solution bottles.

免攪拌磁石，八杯位正反轉高速攪拌

NO stirring magnet. 8 stirring position.

攪拌機

Mixer



攪拌機 Mixer

尺寸 Size: 76×32×34cm
電源 Power: 220V 80W/H

滴液機 Dispenser

尺寸 Size: 160×270×190cm
精度 Accuracy: $\pm 0.02g$
速度 Speed: 30cups/30-40min
電源 Power: 220V 4KW/H
水源 Water: 4分 1/2²

泡藥機 Solution Maker

尺寸 Size: 60×60×95cm
精度 Accuracy: Water $\pm 0.02g$
Dyestuff $\pm 0.002g$
電源 Power: 220V 2.5KW/H
水源 Water: 4分 1/2²

四溫控打色機

Four Independent Temperature-Control Dyeing Machine

一台等於四台 四組獨立溫控

4 individual temperature control works in one machine to provide higher efficiency than normal machines.



32 cups
加大產能
Huge productivity

32杯加大產能打樣機

由24杯提升至32杯420ml的大產能
可同時運行四組不同升溫工藝

The dyeing machine could run 32 cups of sample with 4 kinds of different temperature processes at the same time, which is the highest productivity dyeing machine in market.

x4
4TEMP.

每個轉桶八杯，獨立溫控
少量打樣時，僅需啟動一轉桶

Only settle 8 cups on one drum.
When the sampling volume is small, operators can only turn on one or two drums to save energy.

轉桶直徑小
Small diameter

杯位離轉軸較近，離心力較小，杯內液體可
快速脈衝流動，有效對付易色花布種/組合
轉速可達一分鐘80轉

Dyeing cup position is near to the axis, so the centrifugal force is small. And the solution in the cup would flow pulses well. Can run 80 revolutions per minute.

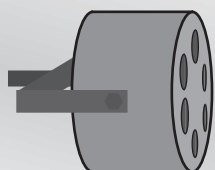


可調角度
Angle adjustable

轉筒角度可調 - 適應面料的各種變化

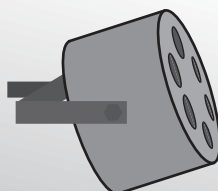
可模擬各種打色機旋轉方式轉速、正反轉距皆可調整，藉由調整
各項參數調整出與現場染機一致的染色效果

Drums' rotating angle, speed and reverse rate could be adjusted to simulate to the performance of different sampling machines and dyeing machines in workshop.



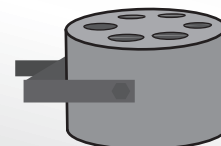
平轉式:
低浴比適用
染出較平整

Horizontal rotation
Works on dyeing low liquor-ratio products to ensure flatness of fabric.



斜躺式:
15-25度
通用設置

Oblique rotation
Rotate on 15-25 degree, which is general setting for most of products.



摔打式:
90度角
不易色花
染出較皺

Shaking rotation
Adjust the drum to 90 degree. Dyestuff could be absorbed better but wrinkle may happen on fabric.



內加熱式
Internal heating

整塊鋁合金加工，電熱棒中心加熱，溫度均勻性佳

熱源於中心，由內向外加熱，加熱更均勻、更快；採精密數控車床加工整塊鋁合金，非翻砂、鋁型材拼接工藝，較原先的紅外線機種溫度均勻

Heating by heating rod inside the aluminum barrel. Heat the aluminum on the central of barrel to ensure even and stable heating up process. Discard traditional sand casting but process the aluminum alloy Container by CNC to ensure accuracy of dimension. Temperature conduction and uniformity will be better.



風扇冷卻
Internal heating

強力高速直流風機降溫 效能提升50%

2020改用新高速直流風機，轉速較舊款提升一倍，降溫速度提升50%

Increase cooling efficiency of powerful turbine fan by 50%
Upgrade to high-speed turbofan to improve 50% efficiency on cooling process.



節能環保
Energy saving

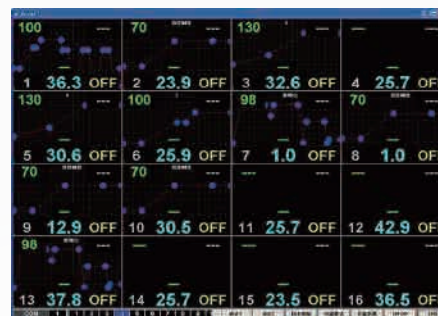
一轉桶升溫僅需1600瓦，實際生產滿缸率低，八杯一組少杯量設計可節省更多能源，甘油機入2杯就必須整機升溫，耗電8000瓦。風扇降溫無須冷卻水。排除甘油難聞氣味與甘油汽化後污染工作環境問題，可改善打樣人員工作環境

Only settle 8 cups on one rotating drum, which consumption is 1600 watts. When the sampling volume is small, operators can only turn on one or two drums to save energy. Use fan to lower the temperature of container. No glycerin pollution issue during sampling so the environment will be more friendly to operators.



中央監控
PC monitoring

採電腦中央監控每個轉桶升溫曲線機台異常時能夠即時察覺，一台電腦可同時監控28個轉桶。人性化軟體，簡易快速切換升溫曲線，並可設置警報點提醒中途加料，具有歷史紀錄功能，能以此規範作業流程



Use computer to monitor the temperature of each rotating drum.
A computer can monitor 28 rotating drum. Humanization software: easy to change heating curve. And with record function, that can standard operation process.

**420ml，一轉桶8杯； 200ml，一轉桶10杯； 500ml，一轉桶6杯
一台機台四顆轉桶，可混搭不同規格轉桶**

Capacity of drum: 6pcs of 500ml cups, 8 pcs of 420ml cups and 10 pcs of 200ml cups.
Client could arrange different kind of drums in one machine.

四溫控打色機 Four Independent Temperature-Control Dyeing Machine

尺寸 Size: 91×71×169cm

電源 Power: 220V 6.8KW/H

控溫範圍 Temperature: 室溫~140°C

控溫精度 Accuracy: ±0.5°C

鋼杯容量數量 Cup Qty. & Capacity: 32cups,420ml； 40cups,200ml； 24cups,500ml



32/64/96杯針管式滴液機

適合染料單純的工廠及染料商
吹氣設計可用於高濃度原液計量

母液瓶數: 32個 500ml玻璃母液瓶
計量杯位: 12位
計量天平量程精度: 3000g/0.01g
或 1000g/0.001g (可選)
加水天平量程精度: 3000g/0.01g
計量方式: 針管抽取至天平秤重
攪拌方式: 磁石
電源: 220V 3KW/h 氣源: 0.6mpa
外形尺寸: 129 × 140 × 183 cm
重量: 350kg

32杯 化料滴液機 (有管)

泡藥、滴液一體，占地不到一平方米
管路式雙天平計量，計量速度快

母液瓶數: 32個 500ml玻璃母液瓶
計量杯位: 8位
天平量程精度: 3000g/0.01g *3台
計量方式: 電磁閥控制管路開閉計量
攪拌方式: 磁石+水泵循環
電源: 220V 2.5KW/h 氣源: 0.6mpa
外形尺寸: 144 × 66 × 220 cm
重量: 150kg



微量粉體計量系統

適用於化驗室小量1-20g粉劑自動計量

粉劑盒: 2個 容量約500ml (可同時計量兩種粉劑)
計量杯位: 16位
天平量程精度: 3000g/0.01g
計量方式: 粉劑盒電磁閥控制計量
操作介面: 工業電腦
電源: 220V 0.8KW/h
外形尺寸: 86 × 57 × 91 cm
重量: 90kg

★另有單粉劑盒觸控屏簡易版

企業定製色卡

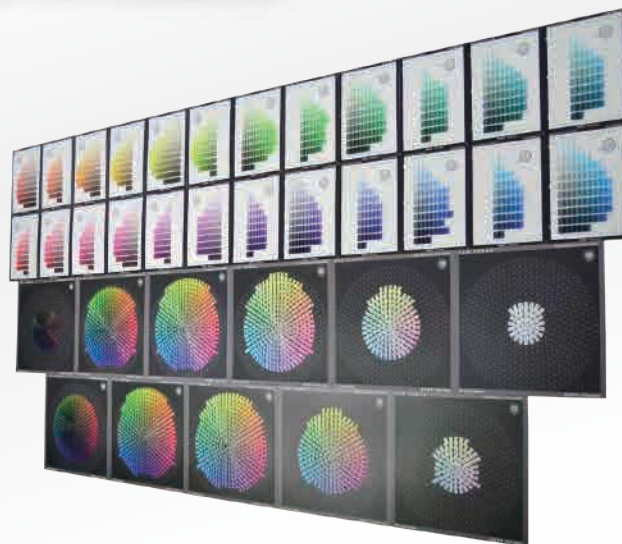
Customized Color Card For Enterprises.

用生產導向，賦能色卡新生命

結合學校色彩科學、染助劑廠家、自動化設備公司，三方合作生產的實用色卡當原物料工藝發生變化，也能重新定位

所見即所得，免去打樣時間

根據色座標調出配方，客戶快速指定顏色，如材質不同能根據吸收率調整配方解決跨材質色彩數字溝通的困局，直接用眼睛確認



快速定製，科學系統化排列

破解色彩DNA，能在60天內按指定的面料、色料、做出3000+色均勻色空間色卡按濃度、彩度、色相角度等距漸變排列

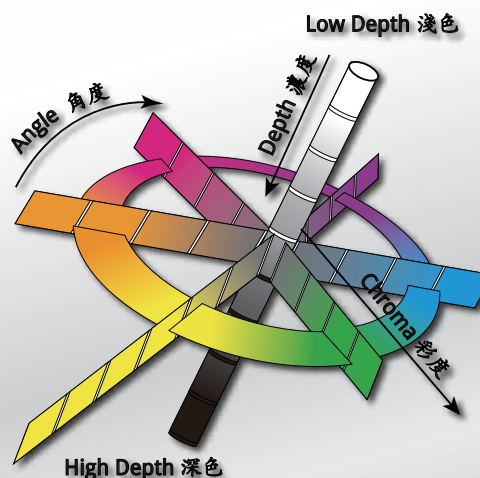
數學公式計算，不經人工調整可反向校正色差公式

目前國際使用的色差公式，存在與視覺不同步現象，導致紡織品顏色質量紛爭難以解決。一個均勻與視覺同步的色彩空間，可以做為驗證色差公式的基準量尺，校驗/研發色差公式

不僅是色卡，還能提升電腦配色系統的色庫數據

實際生產出的色樣，可直接測色錄入電腦配色的顏色資料庫，色庫可以大幅提升電腦配色首缸的預測的精準度

均勻的色立體是色彩科學的相當基礎理論正確，所有問題都可迎刃而解





鋼杯200ml、420ml、500ml可選

紅外線小樣機

杯數: 12/24個打色鋼杯 (現貨規格為420ml)

最高染色溫度: 135°C

浴比: 1:5—1:100

加熱功率: 4(6) × 1.2kw, 吹燈電機功率25W

加色介質: 油浴傳熱

驅動電機功率: 370W

轉籠轉速變頻調速: 0—60 r/min

風冷電機功率: 200W

電源: 380V 50Hz 8KW/h

外形尺寸: 12杯670X670X770/24杯860 × 680 × 780mm

重量: 120kg



常溫震盪機

杯數: 12/24個; 250cc玻璃三角燒杯

染色溫度範圍: 室溫—99°C

浴比: 1:10—1:100

加熱功率: 4kw 自動調節

加熱介質: 水

驅動電機功率: 60w

震幅: 30mm

震動頻率: 0—150

電源: 220V 50Hz 4KW/h

外形尺寸: 12杯900X520X520/24杯1000 × 520 × 520mm

重量: 35kg / 49kg



R3定型機

試樣尺寸: 400*500mm (有效尺寸: 10*10至300*350)

溫度範圍: 20—250°C

加熱方式: 熱風循環控制, 上下風量可調

溫控精度 ±2°C

加熱功率: 6kw

保溫控時: 1—99s

風機功率: 180w

針板: 雙向拉伸針板布架*2組

電源: 380V 50Hz 6KW/h

外形尺寸: 1350 X 680 X 835 mm

重量: 120kg



立式/臥式小軋車

軋輓幅寬: 420mm
 軋輓直徑: \varnothing 130mm
 軋輓壓力: 0.1~0.5Mpa
 硬度: 邵氏70°
 最大軋染餘率: 35~85%
 車速: 可編程變頻器無極調速, 速度0~10米/分內
 壓縮空氣: 0.6Mpa
 電源: 220V 50Hz 0.5KW/h
 外形尺寸: 710 X 800 X 1150 mm (臥式)
 710 X 600 X 1340 mm (立式)
 重量: 120kg



電熱鼓風乾燥箱

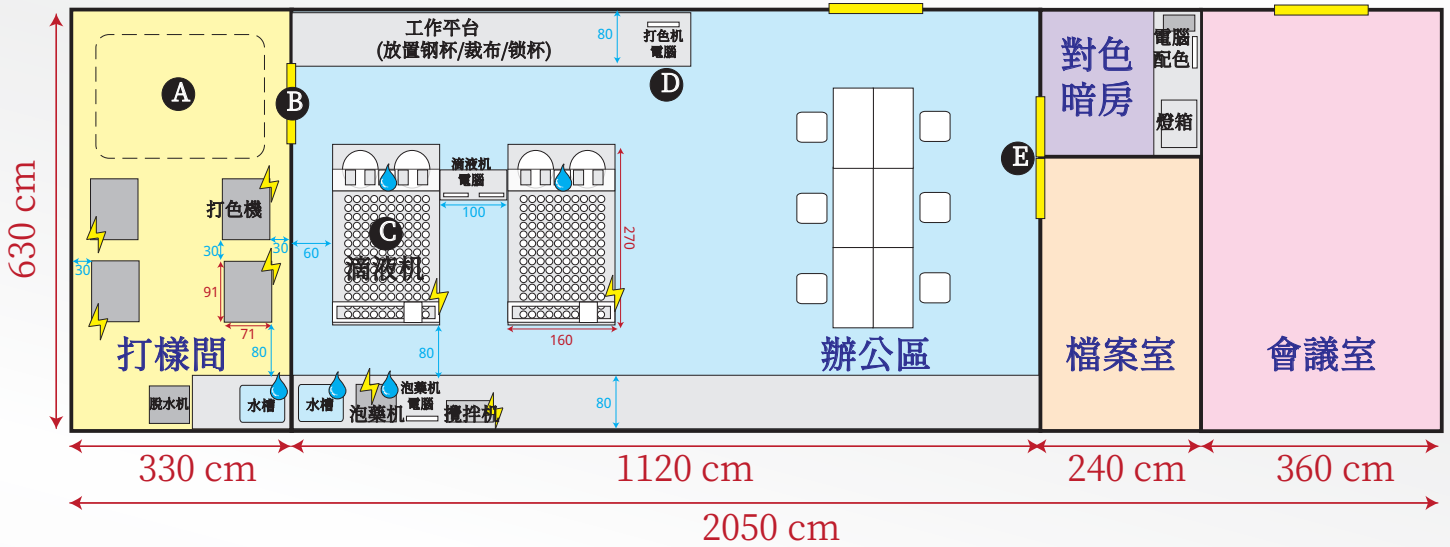
型號: 101-2
 材質: 機殼鐵; 內膽鍍鋅
 工作室尺寸: 高550 X 寬550 X 深450 mm
 工作溫度: 50-300°C
 控溫精度: \pm 1%
 電源: 220V 50Hz 2.4KW/h
 外形尺寸: 790 X 870 X 590 mm
 重量: 100kg



標準光源燈箱

型號: 國產六光源 P60(6)
 配置: D65 國際標準人工日光 * PHILIPS TLD 18W/965
 TL84 歐洲日本中國商店燈光 * PHILIPS TLD 18W/840
 F 家庭酒店光源 * 3NH 40W
 UV 紫外燈光源 * PHILIP 18W/BLB
 CWF 美國冷白商店光源 * PHILIPS TLD 18W/33
 U30 美國暖白商店光源 * PHILIPS TLD 18W/830
 外形尺寸: 710 X 530 X 570 mm
 重量: 35kg

化驗室布局參考



图注: A:打色間保留區 可規劃定型機或未來增加打色機 B:可裝設隔簾方便進出
 C:滴液機位置需埋電路與水 D:在辦公區可見打色機升溫狀態 E:做橫向滑門較不影響空間

备注: 1. 共需準備五組電腦供滴液機、泡藥機、打色機、電腦配色系統使用，設備類用需有RS232接口

2. 滴液機: 單相電 電壓 220V; 耗電量 2.5kw/h; 入水 6*8mm 排水 12*16mm

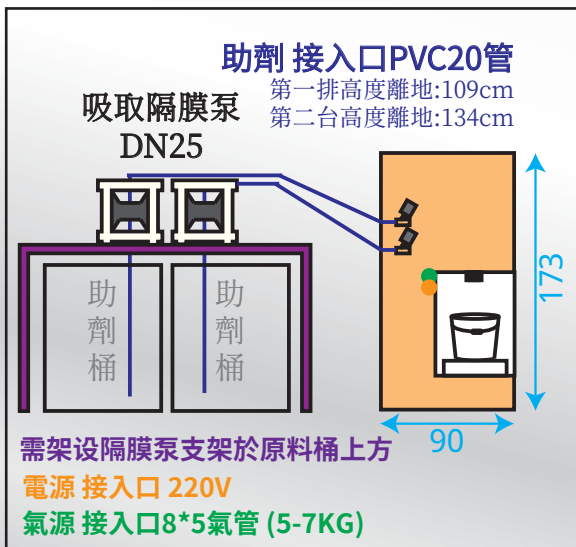
泡藥機: 單相電 電壓 220V; 耗電量 3.5kw/h; 入水 8mm 排水 1寸(4分)

攪拌機: 單相電 電壓 220V; 耗電量 0.08kw/h

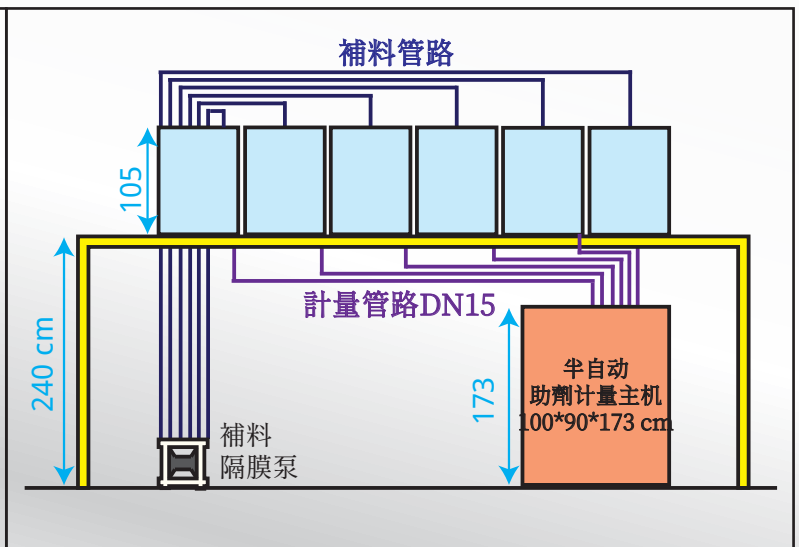
打色機: 單相電 電壓 220V; 耗電量 6.8kw/h

助劑供料補料管路參考

隔膜泵抽取法



高台自流法



電腦配色單色準備

**** 基礎資料準確與否，將影響日後配色效果。因此在製作上必須特別仔細 ****

單色基材準備:

- 1.以產量最大宗且為素面之基材為基礎資料的基材
- 2.按照現場大貨標準前處理條件處理之
- 3.要預留日後更換新色料使用之基材 (1~2年)
- 4.樣布須注意經緯面一致性。不能有布邊或汙點

規劃單色濃度:

我司建議每支色料的製作濃度分別為:

0.05%、0.15%、0.5%、1.0%、1.5%、2.0%、2.5%、3.0%

具體可以視工廠實際情況而定，比如一些淺色系色料可能會用到更高濃度，那麼可以減少低濃度的輸入。

*注意:

- 1.製作單色最低濃度不應低於 0.05%，因為如果濃度過淺，會受到布的底色影響。
白胚布的白度略有不同都會影響其色光。
如配色需要0.05%以下的色光濃度，系統會自動計算。
- 2.製作基礎單色時，盡可能使用同一台自動滴定機及同一台打樣機。將可能的誤差減至最小。

需避免缸汙染:

如用缸杯染色，容易造成顏色汙染。所以在打單色前必須將缸杯漂洗乾淨，特別是淺色。

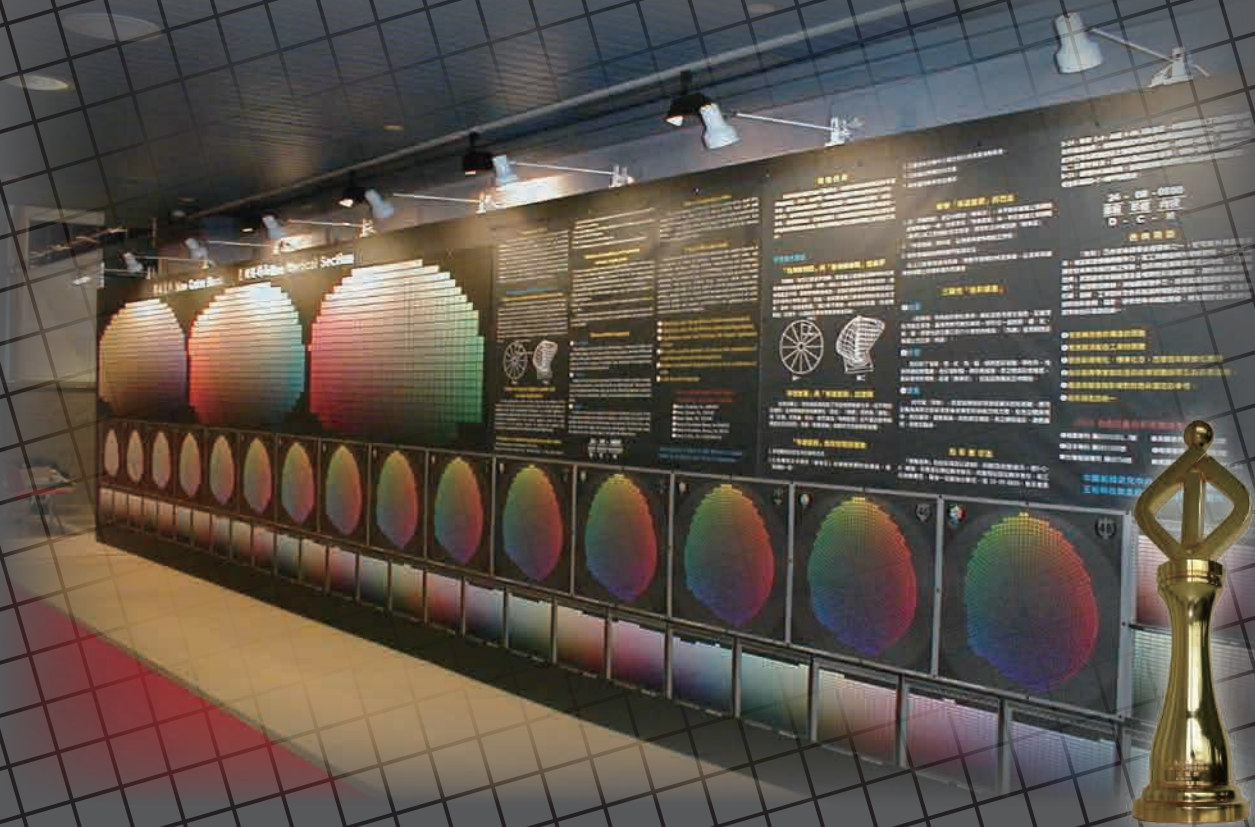
注意布面無色花 (若染色不均勻須重做):

如布面出現色花不均勻，會影響分光儀測色的結果。需保證染色質量。

MEMO

公司創辦人許雲鵬先生，出身台灣聯邦印染，以其豐富的印染行業色彩管理應用經驗撰寫出方便實用為主的電腦配色軟體。在二十多年前已得到台灣印染行業普遍認可。許雲鵬先生致力於色彩標準化工程，其色彩均勻排列技術獲得台灣金頭腦發明獎，並由台灣的中國紡織研究中心邀請，製作能與視覺同步，色彩均勻排列的紡織色卡《漢風色典》。

2001年成立上海正裕色彩軟件有限公司，並籌畫跨足設備製造業，2003年正式成立上海千立自動化設備有限公司，在內地直接研發生產化驗室用自動滴液機，並進一步在2010年開始研發印染大貨生產使用的自動供料系統，整合印染企業從打樣到量產的色彩質量管理體系。台灣正裕於2017年重新更名虹歌科技，並於2019年成立晉江虹台科技，繼續助力紡織供應鏈的色彩管理應用。



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