香港工商業獎

2013

HONG KONG AWARDS FOR INDUSTRIES

機器及機械工具設計
MACHINERY AND MACHINE TOOLS DESIGN

香港中華廠商聯合會
The Chinese Manufacturers' Association of Hong Kong

香港中華廠商聯合會會長施榮懷太平紳士獻詞
Message by Mr Irons Sze, JP
President, The Chinese Manufacturers' Association of Hong Kong

由香港特區政府全力支持的「香港工商業獎」獎勵計劃，是一年一度工商界的盛事。廠商會十分高興繼續成為「香港工商業獎：機器及機械工具設計」組別的主辦機構，藉此鼓勵和提高本港在機器及機械工具設計的設計水準，加強產品競爭力，並對傑出的產品予以獎勵。

香港在機器及機械工具設計方面，可謂經驗豐富、成就卓越。業界正日漸增加在科技研究和產品開發方面的投資，並對提高產品質素和不斷創新的工作愈益重視。縱觀今年的參賽產品，不少產品在創新、應用新技術、市場銷售性，以及環保方面皆表現卓越。這些產品繼續印證本港的機器設備除了以價格取勝外，其品質亦能達到國際水平，我們十分相信本港機器及機械工具製造商將繼續發揮創意，創造新機，為本地工業創造更美好的前景。

本人謹藉此機會，向評審委員會各委員致以衷心感謝，並特別感謝評審委員會主席陳繁昌校長領導委員會完成重要的評審工作，同時感謝所有參賽企業和贊助機構，希望您們繼續支持這項意義非凡的比賽。

最後，本人謹向所有得獎公司致以熱烈祝賀。

施榮懷

香港中華廠商聯合會會長
施榮懷太平紳士

"The Hong Kong Awards for Industries" scheme is fully supported by the HKSAR Government and is an annual eminent event in Hong Kong's trade and industrial sector. The Chinese Manufacturers' Association of Hong Kong is honoured to be the organiser of the "Machinery and Machine Tools Design Competition" again this year. The objective of the competition is to encourage and upgrade the design of machinery and machine tools in Hong Kong so as to enhance competitiveness, and to give recognition to outstanding products.

Hong Kong has extensive experience and prominent achievements in the design and production of machinery and machine tools. The manufacturing sector has made increasing investment in technology research and product development, and attached much importance to quality enhancement and product innovation. We are pleased to note that many participants of this year's competition have demonstrated their outstanding achievements in terms of innovation, application of technology, marketability and environmental protection. This demonstrates that, besides cost competitiveness, the quality of our machinery and machine tools has also reached international standards. We firmly believe that Hong Kong machinery and equipment manufacturers will continue to generate innovative ideas, create new opportunities and continue to prosper.

Taking this opportunity, I wish to pay special tribute to members of the Judging Panel, especially to the Chairman Prof Tony F Chan, for the most important task of selecting the winners. I would also like to thank all participating companies and sponsors and wish you will continue to support this meaningful event in future.

Last but not least, I would like to warmly congratulate all winners on their outstanding achievements.

Irons Sze JP
President
The Chinese Manufacturers' Association of Hong Kong

2013 香港工商業獎：機器及機械工具設計組別最終評審委員會
2013 Hong Kong Awards for Industries: Machinery and Machine Tools Design Final Judging Panel

前排左起：

陸貴文教授、潘永生先生（技術小組成員）、任揚教授、陳繁昌教授（最終評審委員會主席）、薛永恒副署長、郭始剛教授、尤佳教授、陳雲青博士

後排左起：

周力德工程師（技術小組成員）、丘立教授、朱立強博士（技術小組成員）、曾漢奇教授

First row from left:

Prof LUK, Kwai-Man; Mr Joseph POON (Technical Team Member); Prof Yeung YAM; Prof Tony F CHAN (Chairman of the Final Judging Panel); Mr SIT Wing-hang, Alfred; Prof Paul KWOK; Prof YOU Jia, Jane; Ir Dr Lawrence W CHAN

Second row from left:

Ir Ricky CHAU Lik Tak (Technical Team Member); Prof Li QIU; Dr L K CHU (Technical Team Member); Prof Hon Ki TSANG

2013 香港工商業獎：機器及機械工具設計組別最終評審委員會
2013 Hong Kong Awards for Industries: Machinery and Machine Tools Design Final Judging Panel

陳繁昌教授（最終評審委員會主席）
Prof Tony F CHAN
(Chairman of the Final Judging Panel)
香港科技大學校長
President
The Hong Kong University of Science and Technology

陳健碩工程師
Ir Raymond CHAN Kin Sek
香港工程師學會會長
President
The Hong Kong Institution of Engineers

陳雲青博士
Ir Dr Lawrence W CHAN
職業訓練局副執行幹事
Deputy Executive Director
Vocational Training Council

郭始剛教授
Prof Paul KWOK
香港公開大學全日制本科生院院長
Director, College of Full-time Studies
The Open University of Hong Kong

陸貴文教授
Prof LUK, Kwai-Man
香港城市大學電子工程學系講座教授
Professor (Chair), Department of Electronic Engineering
City University of Hong Kong

麥鄧碧儀女士
Mrs Agnes MAK
香港生產力促進局總裁
Executive Director
Hong Kong Productivity Council

麥啟寧教授
Prof K L MAK
香港大學工程學院副院長
Associate Dean, Faculty of Engineering
The University of Hong Kong

丘立教授
Prof Li QIU
香港科技大學電子及計算機工程學系教授
Professor
Department of Electronic and Computer Engineering
The Hong Kong University of Science and Technology

薛永恒先生
Mr SIT Wing-hang, Alfred
機電工程署副署長 / 規管服務
Deputy Director / Regulatory Services
Electrical and Mechanical Services Department

曾漢奇教授
Prof Hon Ki TSANG
香港中文大學電子工程學系教授及系主任
Professor and Chairman
Department of Electronic Engineering
The Chinese University of Hong Kong

任揚教授
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Professor and Chairman
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尤佳教授
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Professor and Associate Head
Department of Computing
The Hong Kong Polytechnic University

阮邦志教授
Prof P C YUEN
香港浸會大學計算機科學系教授及系主任
Head and Professor, Department of Computer Science
Hong Kong Baptist University

2013 香港工商業獎：機器及機械工具設計大獎
2013 Hong Kong Awards for Industries: Machinery and Machine Tools Design Grand Award

產品名稱： **Superwin 單向筒子紗染色機**
Product Name: **Superwin Single Flow Yarn Dyeing Machine**

公司名稱： **立信染整機械有限公司**
Company Name: **Fong's National Engineering Company Limited**

設計者： **徐達明博士**
Designer Name: **Dr William Tsui**

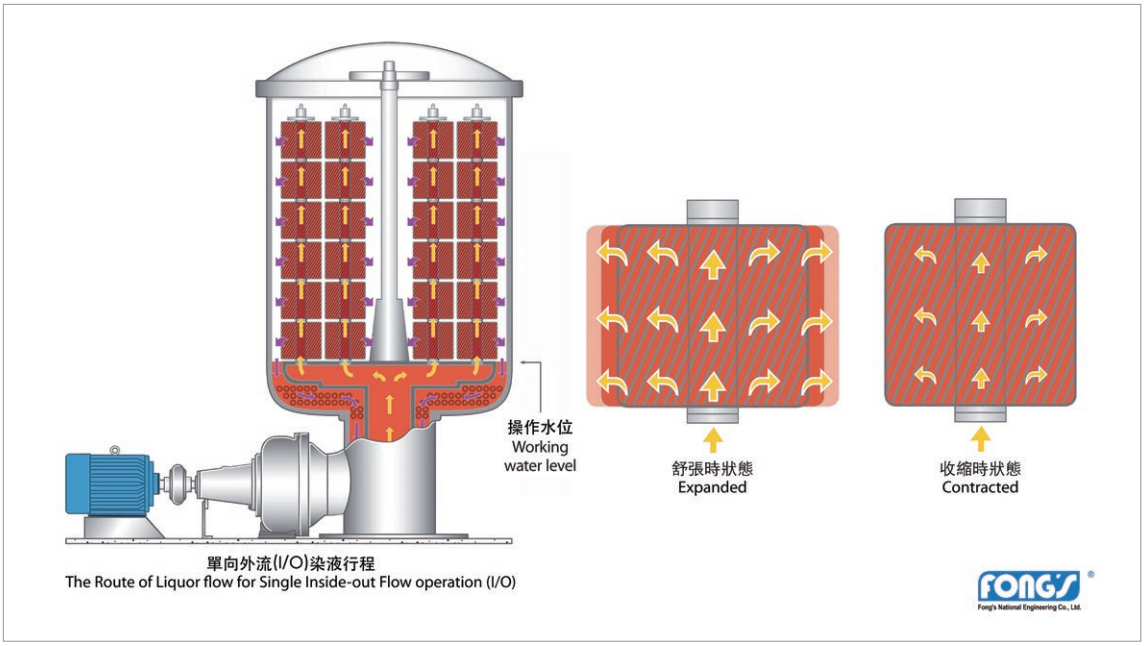
評審委員會意見：

立信的 Superwin 單向筒子紗染色機獨創單向外流染色技術，將染液泵入中空紗竹再往外滲透各層筒子紗。過程配合浪濤染色技術製造脈衝液流，使染色效果更均勻。因為筒子紗不用完全浸泡於染液當中，Superwin 可做到 1:3.2 的超低浴比，較舊有型號減少達 48%。浴比降低亦間接減少 38% 化學劑用量及 49% 必需淨化的工業污水。Superwin 單向外流的機身設計精簡，省卻液流換向裝置，操作壓力亦由 5.2 巴降至 4.4 巴。發熱管道融入主缸將整體佔據空間減少 20%，以上所有的設計使機器耗電量減少多達 38%，產品更配備專利綜合智能洗水技術，高效循環系統及先進的快思邏輯溫控程式。

General Comments on the product:

The Fong's Superwin Single Flow Yarn Dyeing Machine features an innovative single inside-out flow process, under which dye liquid is pushed up the hollow shaft of the spindles from bottom to top and then outflows to the yarns on the spindles. The process is coupled with a wave dyeing technology that generates pulsating pressure on the liquid to facilitate even dyeing performance. With the bobbins not totally immersed in the dye, the Superwin achieves an ultra-low liquid ratio of 1:3.2, which is 48% lower than previous models. The low liquid ratio also translates to a reduction of 38% of chemical usage, and 49% of polluted water required for purification. With the flow in only one direction, the machinery and piping of the Superwin machine are also simplified. The complicated flow inverter is eliminated. The operation pressure is reduced from 5.2 bar to 4.4 bar. The heating coil is relocated inside the tank and the machine footprint is reduced by 20%. All these contribute to an additional saving of 38% of electricity consumption. The machine also features the patented Integrated Intelligent Rinsing (IIR) technology, a high performance pumping system, and an advanced fuzzy logic-based temperature control program.


FONG'S
Fong's National Engineering Co., Ltd.


操作水位
Working
water level
舒張時狀態
Expanded
收縮時狀態
Contracted
單向外流(I/O)染液行程
The Route of Liquor flow for Single Inside-out Flow operation (I/O)
FONG'S
Fong's National Engineering Co., Ltd.

2013 香港工商業獎：機器及機械工具設計獎
2013 Hong Kong Awards for Industries: Machinery and Machine Tools Design Award

產品名稱： **LD812V4 專業 LED 貼片機**
Product Name: **LD812V4 LED Pick and Place Machine**

公司名稱： **寶迪自動化設備有限公司**
Company Name: **Borison Automation Limited**

設計者： **陸建聰先生及其工程設計團隊**
Designer Name: **Mr K C Luk and The Engineering Team**

評審委員會意見：

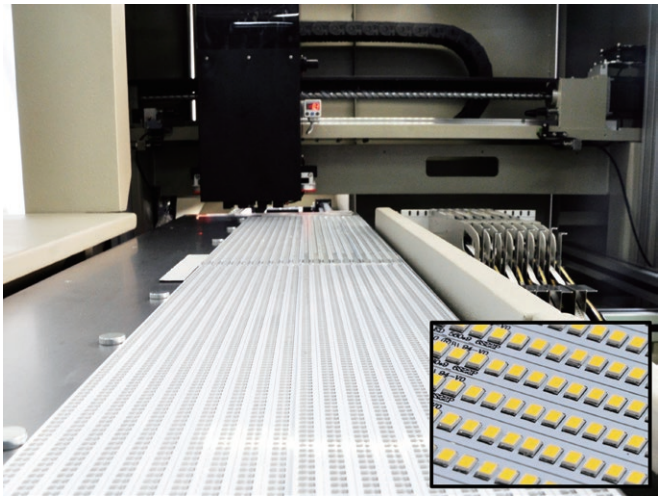
這專業貼片機提供了針對 LED 電路板所需的適中貼裝精度（50 微米），加上有視覺定位系統及智能送料器的支援，體現了高性能和低成本的競爭優勢。

此機使用了成熟的技術，其中四組移動軸更各自善用了不同驅動技術的特性優點，如使用直流伺服皮帶驅動配以直線編碼器（長距離移動）於 Y 軸，交流伺服（高速移動下位置精度）於 X 軸，皮帶傳動直流伺服於 Z 軸及簡單的步進馬達於旋轉 R 軸。此外，其自家設計的光學對位系統提供了優良對位準確性及低成本的優點。其智能軟件控制系統和四個同步取料的送料裝置設計實現了即使有個別送料器缺料的情況下，仍能保持不間斷生產的能力。在競爭激烈的市場中，該產品已具有良好的銷售記錄。

General Comments on the product:

The pick and place LED mounter is targeted at the moderate placement accuracy (50 microns) needed for LED boards and combines machine vision based positioning with smart feeder support to ensure highly competitive performance and low cost.

The machine appears to be well engineered, with different actuators for each of the 4 axes making use of the different respective advantages of DC servo with belt drive and linear encoder (for large movement range) for Y-axis, AC servo for X-axis (position accuracy at high speed movement), and belt drive with DC servo for Z-axis and a simple stepper motor for rotational R-axis. Good use of custom designed optics for the machine vision facilitated accurate placement at low cost. The smart software control system and four simultaneously pickup component feeders design provided a continuous production capability even if one or more of the feeders is out of component. The product has a proven record of sales in the competitive market.



產品名稱： **超霸先進系列 -4500 噸二板大型注塑機**
Product Name: **Super Master Two Platen Series 4500tons Clamping Force with Energy Saving Servo Pump System**

公司名稱： **震雄集團有限公司**
Company Name: **Chen Hsong Holdings Ltd**

設計者： **蔣震博士、蔣志堅先生、李崇德先生、劉立雄先生**
Designer Name: **Dr Chiang Chen, Mr Chiang Chi Kin, Mr Li Sung Tak, Mr Liu Li Xiong**

評審委員會意見：

震雄 - 超霸先進系列 - 4500 噸二板大型注塑機，是專門設計用於生產大型塑料產品（每件製品可達 60 公斤），其創新的鎖模系統設計使鎖模力達至 4500 噸，精度比上一代產品進一步提高。

針對大型注塑機精確的鎖模位置和有效的鎖模力控制這兩個問題，每條哥林柱都有獨立的調整機構用作精密的位置調整；其次，有效的鎖模是以機鉸式設計的半合螺母來完成。這台機優化了速度控制、機器性能和操作方便性。此外，產品採用了最先進的節能動力系統，大大減低了能耗和對環境造成的污染。

General Comments on the product:

This SuperMaster two-platen injection moulding machine is designed for producing large plastic parts whose weight could be up to 60 kg. The innovations made on the mould closing system enable the machine to have a mould clamping force of 4,500 ton and that its accuracy is on a par with the present generation of 3,500-ton machine. For such large capacity machines, the accurate adjustment of the platen position and effective mould clamping are the major problems to tackle. For the first problem, an adjusting mechanism is installed on individual tie bars to allow fine adjustment of the movable to be made separately. Secondly, for effective clamping, a lock-nut open-close mechanism is incorporated in the movable platen. Furthermore, this machine has been extensively optimised for speed, performance and not least, environmental friendliness. The machine uses least amount of energy and raw material, and makes least use of polluting consumables.

2013 香港工商業獎：機器及機械工具設計獎
2013 Hong Kong Awards for Industries: Machinery and Machine Tools Design Award

產品名稱： **SYN-8 獨立供風氣流染色機**
Product Name: **SYN-8 Airflow Dyeing Machine**

公司名稱： **立信染整機械有限公司**
Company Name: **Fong's National Engineering Company Limited**

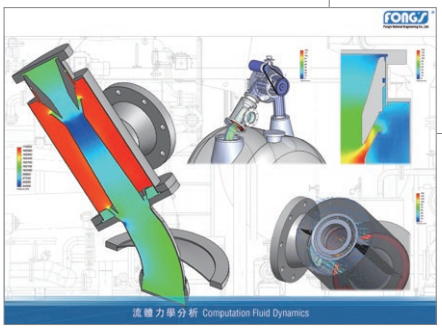
設計者： **徐達明博士**
Designer Name: **Dr William Tsui**

評審委員會意見：

立信的 SYN-8 氣流染色機特有的多管獨立供風設計，與傳統單台風機設計形成強烈對比。該專利設計提供更佳的操控，當個別管道出現問題，其他管道運作亦能保持暢順。為節省用電，經重新設計的風機擁有更高效能，比傳統風機優勝。新設計剔除缸底集水槽，解決染液循環造成的溫差問題，產品同時降低了機身高度，更方便用家操作。

General Comments on the product:

Fong's SYN-8 Airflow Dyeing machine features a multi-tube air flow design with separable blow supply system, contrasting the traditional machines that use just one bulky blower. The new and patented design allows for more uniform and controlled flow pattern in the tubes. The separable design also has the advantage that should one or more of the tubes need servicing, the dyeing operations and conditions on the remaining tubes can still be maintained. To save energy, the new blowers are designed to be highly efficient, while keeping the same level of overall flow power as traditional design. The new machine also eliminates the dye liquid collection chamber at the bottom of the kier in traditional machine. This serves to alleviate the temperature control problem in the recycling of the dye liquid, and at the same time allowing the height of the kier body to be lowered for better access by workers.



產品名稱： EFFECTA PT1300V 三色車燈專用注塑機
Product Name: Effecta PT1300V for Automotive Lighting

公司名稱： 力勁科技集團有限公司
Company Name: L.K. Technology Holdings Limited

設計者： 劉相尚先生及力勁工程設計團隊
Designer Name: Mr S S Liu and L.K. Engineering Design Team

評審委員會意見：

隨著汽車車燈在市場需求日益增長，這台注塑機 Effecta PT1300V 超越了三項技術要求：

1. 實現高精度的光學性能要求
2. PMMA/PC 達到高清晰度要求
3. 達到最短週期時間內成型二、三色多組分件的生產

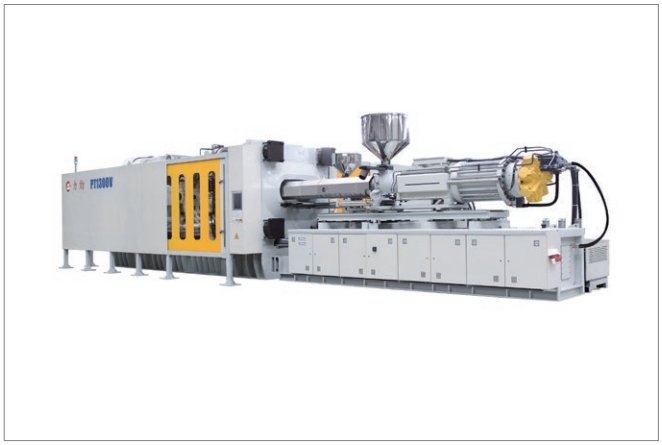
本機針對 PC 和 PMMA 的注射螺杆和機筒研發出優良的相容技術，獨特設計的垂直旋轉台，使中心轉動系統成為一個關鍵的部件，轉盤穩定可靠；而專用模板則提供較大的支撐範圍，使到定位更精準，減少偏差。

本機還具有一個特殊的功能就是兩個平衡的注射單元，當使用主射料單元時，另一個射料單元橫向移到一邊，此技術有利單色或多色產品的轉換生產。

General Comments on the product:

The Effecta PT1300V 3-colour injection moulding is designed to cater for the growing market of automotive lighting lenses. The challenges of the design include (i)meeting stringent requirements by attaining high precision for optical performance; (ii)achieving high clarity of large PMMA/PC parts; and (iii)attaining the shortest cycle time for moulding two/three colour multi-component parts.

The machine has incorporated excellent engineering skills in developing the PC and PMMA compatible injection screw and barrel. The unique design of the vertical rotation table is commendable which is integrated with the movable platen. The special platen and centre rotor system is one of the crucial parts of the design to provide large supporting span to achieve stable movement and minimum deflection.



The machine has a special feature that the two parallel injection units are sitting on a platform which can be shifted sideway to allow the main injection unit to align with the machine platen when single colour item is produced. This would give greater flexibility in production planning of single/multi colour parts.

2013 香港工商業獎：機器及機械工具設計獎
2013 Hong Kong Awards for Industries: Machinery and Machine Tools Design Award

產品名稱： **全自動第一代輪轂軸承裝配、檢測生產線**
Product Name: **Auto Assembly & Inspection Line for 1st Generation Hub Unit Bearing**

公司名稱： **東榮機械設備有限公司**
Company Name: **R & S Machinery Equipment Ltd**

設計者： **倪永平先生、張維華小姐**
Designer Name: **Mr Ngai Wing Ping, Ms Chang Wai Houn**

評審委員會意見：

該生產線是針對一代輪轂軸承裝配過程的完整自動化解決方案。自動實現軸承內外圈溝徑測量、分選、鋼球選配組裝，以及產品檢測的全過程。此產品的應用將大大滿足現時高速增長的一代輪轂軸承市場需求。

產品最突出的創新之處在於自主研發的振動及噪音檢測技術運用。其通過動態信號採集、處理及資料分析，可實現缺陷產品區分，並顯示時域、頻域譜、包絡譜的模擬狀況。整線檢測數據的 SPC 數據統計系統分析實時控制和反饋產品的品質狀況，及時控制生產過程。

General Comments on the product:

The system is an end-to-end solution comprising a series of linked machines from inner and outer ring raceway measurement, sorting and matching of steel balls, assembly and total inspection of product performance. The development of this machine is targeted to solve current issues in the production of high quality 1st Generation Hub Unit Bearing for the fast growing demand of automotive applications.

The most innovative feature of the system is the novel approach of engaging vibration and noise sensing technologies for inspection. This inspection system was developed by R&S Machinery Equipment Ltd by using dynamic signal acquisition, signal processing and statistical analysis of the noise and vibration patterns. With the intelligent expert system, the analysis could also identify the faulty parts and generate simulation status for time domain, frequency domain and envelop spectrums. The data offers quick feedback of the process capability value analysis, CPK, for timely process control.

產品名稱： 希望之手
Product Name: Hand of Hope

公司名稱： 復康機器人技術有限公司
Company Name: Rehab-Robotics Company Ltd

設計者： 徐錦輝先生、湯啟宇教授
Designer Name: Mr Michael Tsui Kam Fai, Prof Raymond Tong

評審委員會意見：

希望之手是一個可穿戴的機械手。它檢測患者的動作意圖（通過採集表肌電信號）來驅動機械手，以協助患者進行手部運動。希望之手用於中風後導致上肢癱瘓的患者。經過訓練，患者可隨意進行手部運動。

由於手指關節的複雜性，要設計可穿戴的機械手需要一些特別的考量及不斷的努力。此產品包括機械手、前臂支撐座、控制器、肌電感應器及訓練軟件來提供不同的訓練模式。臨床測試顯示一些患者使用希望之手訓練後可拿起一罐飲料、牙膏和握筆寫字。

General Comments on the product:

The "Hand of Hope" is a wearable hand robot that supports the action of a human hand by sensing the intention of the hand movement to actuate the drive mechanism to power-assist the human hand movement. It is intended as a rehabilitation device for patients with upper limb paralysis due to stroke. The patient can move the hand under one's own will.

The hand movement intention is interpreted by sensing the surface electromyographic (sEMG) signals. Due to the complication of the various joints in the hand, special design efforts have been devoted to arrive at an ergonomic wearable device.

The product consists of a hand brace, forearm support, controller, sEMG sensors and exercise software to provide a programmable system for different hand training protocols. Some clinical evidences show that by this training method some patients are able to pick up a can of drink, toothpaste and able to hold a pen and write a few words.

2013 香港工商業獎：機器及機械工具設計獎
2013 Hong Kong Awards for Industries: Machinery and Machine Tools Design Award

產品名稱： **SR300 非接觸式讀卡器**
Product Name: **SR300 Contactless Reader**

公司名稱： **瑞柏科技控股有限公司**
Company Name: **SPECTRA Technologies Holdings Co. Ltd.**

設計者： **洪朝江先生**
Designer Name: **Mr Patrick Ang**

評審委員會意見：

SR300 非接觸式讀卡器可連接到市面上的銷售點系統使用，其外型精巧，節省安裝空間。現已應用於銀行發行的 NFC（非接觸式）信用卡，並已為將來手機付款服務做好準備。持卡人向讀卡器輕拍卡就可以支付商品和服務費用，操作簡單容易。非接觸式交易系統的優點（i）減少交易時間（ii）交易過程中，信用卡由持卡人持有，確保安全。

該產品結合科技及用戶需要，並已通過 Visa PayWave，萬事達卡 PayPass 和中國銀聯 QuickPass 等的非接觸式交易認證。SR300 已廣泛應用到各行業如連鎖便利店、超市、餐飲食肆及零售店舖等。

General Comments on the product:

The SR300 contactless card reader is a compact component for integration into a point-of-sale system, with a small footprint so that it can be installed within an often confined space in a typical point-of-sale environment. It accepts bank cards with NFC (contactless) and ready for mobile Payment. Cardholders can simply tap the card against a card reader to pay for goods and services, an operation that is easily acquired by the consumers. The advantages of contactless solution are (i) reduction in the transaction time compared with the traditional credit card payment method; (ii) ensuring the credit card is kept by cardholders in the transaction process.

The project is a thoughtful integration of technologies and has been certified by Visa PayWave, MasterCard PayPass and China Union Pay QuickPass and approved for the contacless payments. SR300 contactless readers are successfully installed at the convenience stores, supermarkets and retail outlets.

產品名稱： 文胸帶超聲焊接 / 衣車縫製自動穿扣機
Product Name: Automatic Buckle Drawing-in of Ultrasonic Welding & Sewing Machine Sewing for Lingerie Straps

公司名稱： 東寶超聲科技有限公司
Company Name: Tung Po Ultrasonic Technology Company Limited

設計者： 雷國偉先生
Designer Name: Mr Lui Kwok Wai

評審委員會意見：

這機器將內衣帶生產的整個過程自動化，將肩帶剪切、穿扣、縫製和焊接等功能集於一身，而其肩帶的剪切和焊接功能採用了內置的超聲波技術，使其發揮到更好的質量和更大的靈活性。

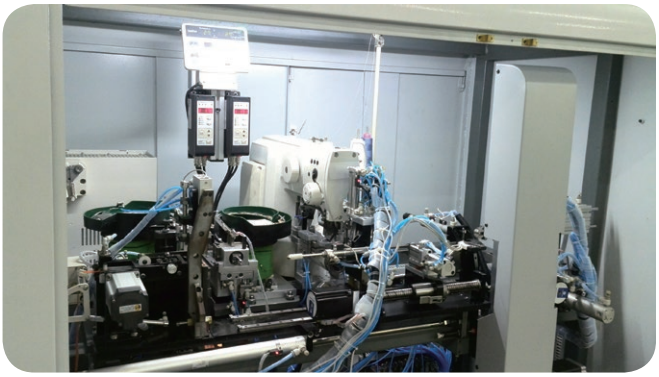
此公司是應用超聲波技術在各種材料上的切割和焊接領域的先驅，在開發、研究和應用的技術上，擁有超過 10 年經驗。而創新自動化超聲波切割和焊接功能，為這公司帶來獨特的優勢，在市場上更具有競爭力。

這機器可大量減少常規生產內衣的人手，融合了多項具有良好特性的功能，定必為市場上帶來可觀銷路。

General Comments on the product:

This new machine automates the entire process of lingerie strap production, integrating strap cutting, buckle drawing-in, sewing and welding into a single process, executed by a single machine. The cutting and welding use the in-house ultrasonic technology, allowing better quality and greater flexibility.

The company is the regional pioneer in using ultrasonic technology in cutting and welding of various materials and has had over 10 years of experience in the research, development, and applications of the technology. This brings a unique advantage to the company in innovatively automating the ultrasonic cutting and welding processes, with competitive cost.



The machine will liberate a huge number of frontline workers from the manual routine of lingerie production. The strong need for such machines blended with the nice features of the newly developed machine ensures its promising marketability.

2013 香港工商業獎：機器及機械工具設計獎
2013 Hong Kong Awards for Industries: Machinery and Machine Tools Design Award

產品名稱： Ge 全電機 + 注塑機
Product Name: Ge All-electric+ Injection Moulding Machine

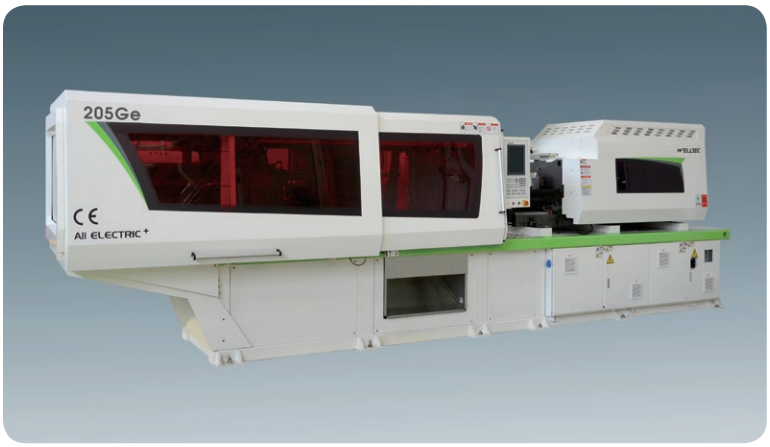
公司名稱： 華大機械有限公司
Company Name: Welltec Machinery Limited

設計者： 注塑機產品研發部團隊
Designer Name: Injection Moulding Machine R&D Team

評審委員會意見：

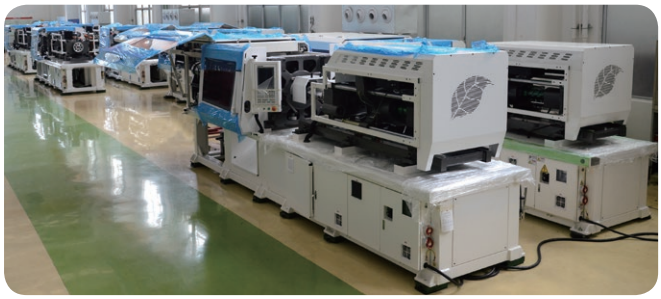
Ge 全電機 + 系列注塑成型機採用伺服驅動控制技術實現精密生產流程。該產品主要針對具高精密性及品質要求的塑料產品，並採用了伺服驅動技術，能夠直接控制注塑成型中的鎖模過程；使整體鎖模過程包括低速及最終低壓保護階段達至平穩暢順。如比較傳統機鉸連杆式鎖模，此機器所採用的鎖模方式證實能夠有效地減低模具變形。

Ge 全電機 + 所應用的伺服驅動控制技術，不僅是幫助機器實現精密控制；同時亦帶來節能及減少污染。另外，此機器還能有效減少潤滑油脂的耗用量，並且通過同步動作有效縮短成型生產週期，而此產品亦已深受市場信賴，並有極高的市場潛力。



General Comments on the product:

The Ge All-electric+ series of injection moulding machines employs electrical servo-control technologies in achieving precision in the production process. Such servo-control injection moulding machines are mainly used for producing plastic parts that have a high precision and quality requirement. In this machine, the servo control technology is applied to directly control the clamping process during mould formation. The process consists of a gross movement stage and a fine movement or final mould closing stage. In contrast to the conventional toggle-type mould closing method, this method proves to be more effective in minimising mould deformation. In the Ge All-electric+ machines, the servo-control technologies not only helps in achieving precision in machine control, but also helps to save energy and minimise the use of polluting consumables. Moreover, less lubrication is used and the production cycle time can be reduced by performing the various mould closing processes in parallel. The product has proven reliability and marketability.



產品名稱：
Product Name: **THE PADLOCK**

公司名稱： **建盈工業發展有限公司**
Company Name: **Accurist (HK) Limited**

設計者： **周浩樑先生**
Designer Name: **Mr Leslie Chow**

評審委員會意見：

此產品是一把可配合電腦軟件使用的耐用掛鎖，其電子鎖匙可設置多個加密密碼及同時可記錄使用者的日期、時間、次數和控制使用的權限。此產品可以在極端環境下工作，兼備防水、防塵，並不會受惡劣天氣、冷熱影響。此產品於國內和海外極具市場潛力，最典型的例子是用於公用事業及物流行業。本掛鎖之核心技術，可廣泛用於需控制各持匙人使用權限的地方。

General Comments on the product:

The product is a heavy duty programmable padlock to work with a digital key with a code selected by the user. Moreover, all accesses are logged and can be monitored. The product can operate under extreme conditions and not affected by the weather, dirt, water or heat. The product possesses good market potential in both domestic and overseas markets. The typical market is in the utility industry. The core technology of THE PADLOCK can be applied to various applications in which access rights needs to be controlled

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產品名稱： **ACR320 車載收費機**
Product Name: **Ticket Validator ACR320**

公司名稱： **龍傑智能卡有限公司**
Company Name: **Advanced Card Systems Ltd**

設計者： **龍傑研發部**
Designer Name: **Advanced Card Systems R & D Team**

評審委員會意見：

ACR320 車載收費機是用於公共交通系統的一機多用型 AFC（自動收費）設備，產品可支援 GPS、Wifi、3G、GPRS 等功能，更可以利用 GPS 模塊，基於乘車距離計算車費。它可讀寫非接觸式智能卡或銀行卡（信用卡或借記卡），能夠確保營運商準確收費並消除逃票與欺詐的可能性。該產品極具競爭力、系統建設費用便宜和營運成本低，產品已成功打入多個發展中國家的市場，並有潛力擴展到其它地區。

General Comments on the product:

The Ticket Validator is an all-in-one AFC (Automatic Fare Collection) device intended for use in public transport. It supports GPS, Wifi, 3G, GPRS, etc, and can change the distance-based chargeable fare automatically with the use of GPS module. This product can accept contactless smart card or bank cards (credit or debit) and ensures the operators receive correct income, eliminating free-riders or fraud. The product is competitive, inexpensive to build and the operating cost is low. It has already established a market in several developing countries and has the potential to expand into other regions.

產品名稱： **便攜式在線測試儀**
Product Name: **Portable In-circult Tester**

公司名稱： **振華科技有限公司**
Company Name: **Concord Technology Limited**

設計者： **李日生先生和工程團隊**
Designer Name: **Mr Lawrence Li Yat Sang and Engineering team**

評審委員會意見：

便攜式電路測試儀可以測試各種組裝電子線路板，包括電子零件，半導體，集成電路等，此產品的軟件操作簡單易用、省錢，可通過 LAN/Wi-Fi 連接下載測試文檔、或上傳測試數據用於統計流程監控。產品優點包括：外形纖巧、平價，便攜外出實地測試維修等；並具備檢測顏色和亮度等功能。

General Comments on the product:

The device is a portable in-circuit tester which could test all kinds of printed circuit board assemblies such as electronics components, semiconductor, integrated circuit, etc. It is simple to operate with user friendly software to reduce the operation cost and it provides LAN/Wi-Fi connection to download test file and upload test data for Statistic Process Control. The advantage of the device is its small form factor at a low cost, easy to carry for field testing of devices. It can also perform colour and intensity testing.

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產品名稱： EHY1650 直壓式液壓鎖模冷室壓鑄機
Product Name: EHY1650 Hydraulic Clamping Cold Chamber Die-casting Machine

公司名稱： 億利達精密機器廠有限公司
Company Name: Elite Precision Machinery Company Limited

設計者： 劉紀明先生
Designer Name: Mr Jimmy Liu

評審委員會意見：

鎖模部分是壓鑄機的一個重要組成部分，具有以下功能：1）開模與合模，2）在壓射成型過程中保持模具閉合，3）射料和保壓，和 4）支撐頂針部件。

液壓鎖模冷室壓鑄機採用 4 高壓液壓油缸，提供精確的鎖模力和控制動板的水平移動。與機鉸式鎖模機構比較，模具受力更均勻，結構更緊密，活動部件減少，和更高的定位精確度等等優勢。

General Comments on the product:

The clamping unit is an important component of a die-casting machine and has the following functions: 1) opening and closing the mould, 2) holding the mould closed during injection, 3) packing and holding, and 4) holding the ejection unit.

The Hydraulic Clamping Cold Chamber Die-casting Machine uses 4 high-pressure hydraulic cylinders to provide the precise clamping force and control the horizontal movement of the moving platen. It has the advantages over the toggle mechanism in terms of more uniform pressure over the mould surface, more compact in size, fewer mechanical adjustments, and higher positioning accuracy.

產品名稱： 碎毛收集器
Product Name: Lint Collector

公司名稱： 立信染整機械有限公司
Company Name: Fong's National Engineering Company Limited

設計者： 徐達明博士
Designer Name: Dr William Tsui

評審委員會意見：

傳統毛屑清理需使用過濾網或濾袋，過程耗費人力亦增加機器停運的時間。碎毛收集器自動清除毛屑，於染色過程中染液會被泵入收集器使毛屑積聚於過濾網的內壁上。此外，刮刀將毛屑掃除並通過特製的坑槽沉入槽底，從而分階段排出，解決布匹染整過程的一大難題。

General Comments on the product:

Conventional methods of lint removal include the use of perforated filter or filtering bag. But the process is labour intensive and involves prolong machine downtime.

The Lint Collector is designed to automatically remove unwanted threads and lint during the dyeing operation. During the dyeing process, dyeing solution that contains lint fragments is pumped into the Collector and the fragments are accumulated on the inside wall of the filter insert. They are swept away by the cutter slices through the special slot and deposited at the bottom of the vessel, which can be removed at fixed intervals.

The Product solves a troublesome problem in the fabric dyeing process.

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產品名稱： GIS126 全自動三次光檢機
Product Name: GIS126 Automatic 3rd Optical Inspection Machine

公司名稱： 格蘭達科技集團有限公司
Company Name: Grand Tech Group Ltd

設計者： 林宜龍先生等
Designer Name: Mr Lam Yee Lung, Wade, etc

評審委員會意見：

此產品擁有圖案識別和圖像處理系統，以檢測半導體設備的佈線壓焊情況。機器內配備 2 維碼掃讀功能，沖模連接位和金屬絲焊接位的檢測功能。該產品比市場上有類似功能的產品在價格上佔有很大優勢。該產品亦分別於兩間國內半導體伙伴公司 ASE 和 Gooddark 率先使用。該機器在中國半導體加工產業中擁有市場潛力。

General Comments on the product:

The machine is a pattern recognition and image processing system to inspect the wire bonding of semiconductor devices. It is equipped with 2D code reading, die attachment position and gold wire welding positing detecting function. The product is much cheaper than similar products in the market. Two such machines have been installed in two semiconductor manufacturing partners ASE and Goodark, in the Mainland. It has market potential in the semiconductor fabrication industry in China.

產品名稱： 液體矽膠覆蓋注塑成型系統
Product Name: LSR and Over-moulding Injection System

公司名稱： 香港生產力促進局 - 材料及製造科技部
Company Name: Hong Kong Productivity Council, Materials and Manufacturing Technology Division

設計者： 李國強先生、孫國偉先生、高耀祖先生
Designer Name: Mr K K Lee, Mr Samson Suen, Mr Ko Yiu Cho

評審委員會意見：

此系統應用覆蓋注塑成型的工序如下：1) 熱塑性塑膠 (PC) 先在第一個低溫模腔注塑成形，然後由轉盤轉移到第二模腔；2) 送料閥把由兩種成份組成的液態矽膠 (LSR) 泵入射筒，安裝在進料口的靜態混合器可幫助攪拌和添加劑的混合；3)LSR 被注入第二模腔中並覆蓋在 PC 基板上，模腔溫度保持在高溫以固化矽膠；4) 多物料產品形成，並自動脫離模具。

這項新技術可以縮短生產週期，工人成本和投資成本於生產擁有在設計及功能上富有靈活性的液態矽膠 – 熱塑性塑膠多物料產品。

General Comments on the product:

The system applies an over-moulding process as follows: 1) the thermoplastic (PC) is injection moulded in the first lower temperature mould cavity and transferred to the second mould cavity by a rotating table, 2) the two-component LSR is pumped into the injection unit using a metering device with a static mixer mounted at the feed throat to aid in mixing and additives dispersion, 3) the LSR is injected into the second mould cavity over the PC perform and the mould temperature is maintained at a higher temperature to cure the material, 4) the multi-material product is formed and automatically released from the mould.

This new technology could reduce production cycle time, labour costs, and capital investment in the manufacture of LSR-thermoplastic multi-material products with enhanced design and functional flexibility.

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產品名稱： 智能軌道轉轍器檢測台
Product Name: Intelligent Point Machine Test Rig for Operating Railways

公司名稱： 高明科技工程有限公司
Company Name: KML Engineering Ltd

設計者： 陳澤麟先生、鄭恒泰先生及謝啟祥先生
Designer Name: Mr Chan Chak Lun, Philip, Mr Cheng Hang Tai, Johan & Mr Tse Kai Cheung, Matthew

評審委員會意見：

此產品是特別設計用作在車間量度及測試不同品種軌道轉轍器的功能，讓軌道設備的維修工作得以順利進行。這部檢測台已具備保障操作人員和檢修員安全和減低對環境污染的措施。此檢測台性能獨特；可用程式編寫產生相應的動力與在軌道上運行中的轉轍器相抗衡，從而測試轉轍器運作行程中的性能。

這部檢測台為香港本土設計及生產。潛在客戶包括香港、內地及其他地方的鐵路營運商。

General Comments on the product:

The product is designed for measuring the performance and testing the functions of different types of point machines in the railway workshop to facilitate the railway equipment maintenance works. It is equipped with a number of features to effectively safeguard the operators, maintainers and minimize the environmental impact.

It is a one-of-a-kind test rig which can apply a programmable amount of force to the rail against the motion of the point machine to test the machine's performance under different circumstances.

The test rig is designed and built in Hong Kong. The potential customers are the railway operators in Hong Kong, Mainland, and other countries.

產品名稱： 手機識別光學防偽科技
Product Name: MOID (Mobile Optic Identification) Universal Anti-counterfeiting System

公司名稱： 香港數碼立體影像科技有限公司
Company Name: LO 3D Co Limited

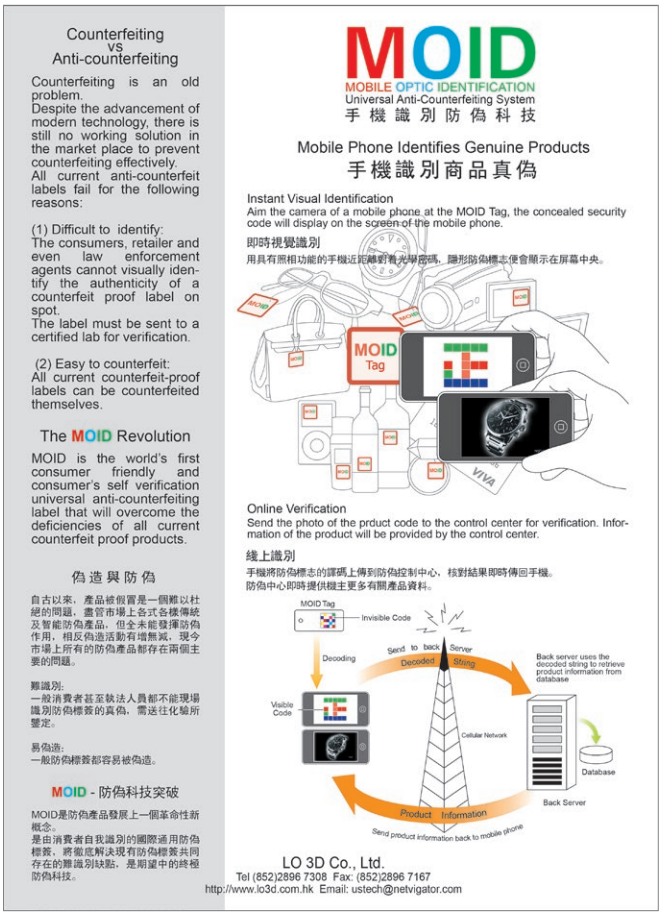
設計者： 勞國華先生
Designer Name: Mr Lo Kwok Wah, Allen

評審委員會意見：

MOID 是防偽科技發展的革命性全新概念，由消費者自我識別的通用防偽系統。消費者只需用手機將 MOID 標籤上的光學隱形防偽標誌解碼，還原的防偽標誌顯示於手機屏幕上即時以視覺識別，標誌同步傳送至防偽中心核對驗定真偽。除此之外，有關防偽標籤可廣泛應用於防偽貼紙、身份証、入場券、鈔票等等。此技術用於創新的保安系統上將會發揮很大的潛力。

General Comments on the product:

Mobile Optic Identification (MOID) is a consumer's self identification universal anti-counterfeiting system that enables consumers to use their mobile photo to reveal an invisible optical security safety product code concealed in a MOID Tag for instant visual identification. It is easy for consumer to learn how to identify the tag. This tag is also suitable for a wide range of application, such as Simple counterfeit proof labels, ID Cards, tickets, bank notes, etc. It has the potential of deployment in innovative security applications.



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產品名稱： **電位器全自動組裝設備**
Product Name: **Automatic Assembly Equipment of Potentiometer**

公司名稱： **昇威電子製品有限公司**
Company Name: **Soundwell Electronic Components Co Ltd**

設計者： **洪金鑣先生、曾河先生**
Designer Name: **Mr Hung Kam Piu, Mr Zeng He**

評審委員會意見：

此款精密設備專為提高電位器的生產產能設計，應用自動化原理來確保企業達到高效、精確及穩定的生產，有效提升產品品質的穩定性。產品可將人工成本從原有基礎上降低約十倍，為企業創造更多利潤。該機器操作簡單易學，性能高效穩定，堅固耐用。

General Comments on the product:

This is a delicate machine for an in-house production improvement for potentiometer. The applications of automatic elements are up to the optimum level to ensure high-speed, accurate and reliable, the reduction of manpower down to one-tenth the original is a credit. The product is easy to learn and simple to operate for unskilled personnel. The design of the machine is robust and effective.

產品名稱： 精益自動化系統
Product Name: Cell Automation System (CAS)

公司名稱： 豐卓（香港）有限公司
Company Name: Superior (HK) Limited

設計者： 王其健先生
Designer Name: Mr Charles Wong

評審委員會意見：

豐卓（香港）有限公司利用適當工業工程概念去優化最人手密集的生產線工序，不用花巧技術，如機械臂或自動送料機，而是透過精心設計的夾具和簡單可編程 XY 定位機械裝置去做鑲嵌五金雞眼和焊接線材工序。

使用這套精益自動化系統 (CAS) 機器，能夠縮短生產時間、節省人手和降低生產成本。

General Comments on the product:

Instead of using fancy technology such as robot arms or auto feeders, the entrant applied suitable industrial engineering concept for optimizing one of the most labour demanding process in their production line by a well designed jigs and fixture together with a simple programmable X-Y positioning mechanism for the eyelet punching process.

By using this machine, it will shorten the production lead time, save manpower and lower the production cost.

主辦機構
Organizer

香港中華廠商聯合會
The Chinese Manufacturers' Association of Hong Kong

簡介

香港中華廠商聯合會創立於 1934 年，歷史悠久，為本港最大及最具代表性的非牟利工商團體之一，擁有各行各業會員超過 3,700 家，致力服務社會，維護公眾利益。

本會對世界市場最新發展趨勢及可能影響香港工商業的內外情況，均予密切注視。本會雖為工商業團體，但一切活動與服務，均以香港福祉為依歸，亦重視促進國際間的了解與合作。

宗旨

本會主要宗旨為：

- 促進香港工業與貿易的發展；
- 就政府政策的訂定與執行代表工業界發表意見；
- 參與社會發展工作；以及
- 促進國際間的了解與合作。

Introduction

Established in 1934, the Chinese Manufacturers' Association of Hong Kong (CMA) is a not-for-profit chamber of commerce and one of the most representative industrial associations in Hong Kong. With over 3,700 member companies from various sectors of industry and trade, the CMA is committed to serving the community and safeguarding public interest.

The CMA constantly keeps itself up-to-date with commercial and industrial trends on the international market, and watches closely the domestic conditions which may affect trade and industry. The CMA's activities and services are directed at the well-being of Hong Kong as a whole, and it places equal emphasis on fostering international understanding and co-operation.

OBJECTIVES

The CMA's primary objectives are:

- to promote Hong Kong's trade and industrial development;
- to represent industry in the formulation and implementation of Government policies;
- to participate in community development work; and
- to foster international understanding and co-operation.

2013 香港工商業獎：機器及機械工具設計
2013 Hong Kong Awards for Industries: Machinery and Machine Tools Design

宗旨
Objectives

是項比賽旨在鼓勵和提高本港生產機器及機械工具設計的水準，藉此提高產品競爭力，及對傑出的產品加以獎勵。

The competition aims to encourage and upgrade the design and promotion of machinery and machine tools in Hong Kong so as to improve competitiveness and to give recognition to outstanding achievement.

評審標準
Judging Criteria

- 創新 Innovation
- 應用新技術 Application of technology
- 性能 Functionality
- 方便使用 Ergonomics
- 成本效益 Cost-performance
- 安全 Safety
- 對環境的影響 Environmental impact
- 市場銷售性 Marketability

查詢表格 Enquiry Form

2014 年香港工商業獎：機器及機械工具設計
主辦機構：香港中華廠商聯合會

**2014 Hong Kong Awards for Industries:
Machinery and Machine Tools Design**
Organizer : The Chinese Manufacturers' Association of Hong Kong

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Name of Company

業務性質
Nature of Business

地 址
Address

聯絡人
Contact Person

電 話
Telephone

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