香港工商業獎

2019

HONG KONG AWARDS FOR INDUSTRIES

設備及機械設計
EQUIPMENT AND MACHINERY DESIGN

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

2019香港工商業獎：設備及機械設計
得獎產品名單

2019 Hong Kong Awards for Industries: Equipment and Machinery Design
List of Winning Products

設備及機械設計大獎
Equipment and Machinery Design Grand Award

得獎公司 Winning Company	得獎產品 Winning Product
震雄集團有限公司 Chen Hsong Holdings Limited	SPARK星火系列全電動注塑機 SPARK Series of All-Electric Injection Moulding Machine

設備及機械設計獎
Equipment and Machinery Design Award

得獎公司 Winning Company	得獎產品 Winning Product
遊艇主義有限公司 Aviva Yacht Limited	納米光催化海洋防污防腐漆(Nano-MA^{2}P) Nano-Photocatalytic Marine Antifouling/Anticorrosion Paint (Nano-MA^{2}P)
香港應用科技研究院有限公司、香港盈盛股份有限公司 Hong Kong Applied Science and Technology Research Institute Company Limited, Profit Peak Hong Kong Holdings Limited	生物識別穿透式頭戴顯示器 Biometrics Optical See Through Head Mounted Display
香港晶體有限公司(科研集團) Hong Kong X'tals Limited (Member of Kolinker Group)	GNSS 衛星同步時鐘 GNSS Disciplined Oscillator
力勁科技集團有限公司 L.K. Technology Holdings Limited	DCC5000 大型壓鑄生產單元 DCC5000 Diecasting Cell
三博顯示有限公司 Magi Display Limited	Magic Touch AR 智能陳列櫃 Magic Touch AR Smart Vitrine
寶力機械有限公司 Pro-Technic Machinery Ltd	九軸自動拋光中心(型號：APC-2800III) Nine-axis Automatic Polishing Center (Model: APC-2800III)
精銳動力科技有限公司、香港理工大學工業及系統工程學系 RV Automation Technology Co Ltd, The Hong Kong Polytechnic University – Department of Industrial and Systems Engineering	基於工業物聯網技術的智能機器化倉庫管理系統 Industrial Internet of Things (IIoT) based Smart Robotic Warehouse Management System
威博科技有限公司 Welbot Technology Limited	威博機械人焊工(工地使用) Welbot Robotic Welder (for Construction Site)

設備及機械設計優異證書
Equipment and Machinery Design Certificate of Merit

得獎公司 Winning Company	得獎產品 Winning Product
冠科創意有限公司 A-Champ Creative Limited	超微防偽隱形碼品牌保護系統 Micro Security Code Brand Protection System
震雄集團有限公司 Chen Hsong Holdings Limited	超霸6500噸伺服驅動二板雙射台超大型注塑機 SUPERMASTER Two Platen Series 6500tons Clamping Force with Two Injection Unit System
中大捲閘有限公司 Chung Tai Roller Shutters Company Limited	具防火隔熱功能的水平向防火捲閘 Horizontal Sliding Insulated Fire Rated Roller Shutter
漢機鑽岩機械有限公司 HD Engineering Limited	HD325 全液壓鑽掘機 HD325 Series All Hydraulic Drilling Rig
香港生產力促進局 Hong Kong Productivity Council	一套創新的食品殺菌系統 A Revoluntary Food Disinfection System
金茶王加盟店有限公司、香港生產力促進局 KamCha Franchising Concept Limited, Hong Kong Productivity Council	港式奶茶智能製作機器人系統 Hong Kong Style Milk Tea Brewing A.I. Robotic System
昂納科技(集團)有限公司、香港應用科技研究院有限公司 O-Net Technologies (Group) Limited, Hong Kong Applied Science and Technology Research Institute Company Limited	用於光通信組件的快速多焦點自動檢測設備 Fast Multi-Focus Automatic Inspection Equipment for Optical Communication Components
鴻創科技(香港)有限公司 SuiRich Flex Limited	鴻創柔性透明LED顯示屏 TransFlex®

香港中華廠商聯合會會長吳宏斌博士 BBS MH 獻詞
Message by Dr Ng Wang Pun, Dennis BBS MH
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：設備及機械設計」組別的主辦機構，藉此表揚本港在設備及機械的設計水準，提高產品競爭力，並對傑出的產品予以獎勵。

事實上，傳統製造業一直對推動本港經濟發展作出不可或缺的貢獻，廠商會十分高興看到特區政府在推動「再工業化」採取了積極的態度，發展創科的決心更是有目共睹的。

以創新科技推動社會發展已成全球大趨勢，也是各行各業未來發展的重要動能，香港更被委以重任，在粵港澳大灣區中擔任「建設國際創科中心」的引領角色。廠商會將繼續透過舉辦各種活動提升港商對新科技、新產業的認識，亦會促請有關當局從人才培育及匯聚、稅務優惠、研發資助等方面協助業界，包括內地港資企業擁抱新科技。我們深信，香港設備及機械製造商亦會繼續朝着創新及高增值方向發展，生產高質素的產品，為本地工業創造更美好的前景。

在此，本人謹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郭位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支持機構，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。

吳宏斌

香港中華廠商聯合會會長
吳宏斌博士 BBS MH

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

Traditional manufacturing industries make indispensable contributions to fostering economic development in Hong Kong. We are pleased that the Hong Kong government has taken a more proactive approach to promoting re-industrialisation, and the government's determination to boost innovation and technology development is widely recognised.

Leveraging technology innovation to foster social development has become a global trend and a significant motivator for the future development of various sectors. Hong Kong has been entrusted with a pioneering role in establishing an international innovation and technology centre in the Greater Bay Area. The CMA will organize various activities to enhance Hong Kong manufacturers' understanding of new technology and industries. The CMA will also urge the authorities to assist different industrial sectors, including Hong Kong-owned enterprises in the Mainland, to embrace innovation and technology through training, pooling, tax concessions and research-and-development grants. We firmly believe that Hong Kong's equipment and machinery manufacturers will continue to innovate and produce high value-added and high quality products.

I wish to pay special tribute to members of the Judging Panel, especially to Panel Chairman Prof Way KUO, for the most important task of selecting the winners. I would also like to thank all participating companies and supporting organizations and wish they will continue to support this meaningful event in future.

Last but not least, I would like to warmly congratulate all the winners on their outstanding achievements in this year's event.

Dr Dennis W P Ng BBS MH
President
The Chinese Manufacturers' Association of Hong Kong

2019 香港工商業獎：設備及機械設計組別最終評審委員會
2019 Hong Kong Awards for Industries: Equipment and Machinery Design Final Judging Panel

左起：

柯嘉倫博士、陳鏡昌教授、曾漢奇教授、陳雲青博士工程師、任揚教授、郭位教授（最終評審委員會主席）、楊立門先生（香港中華廠商聯合會行政總裁，非最終評審委員會成員）、郭始剛教授、盧金榮博士、葛明博士（技術小組成員）、衛懿欣女士（工業貿易署助理署長（工商業支援部），非最終評審委員會成員）

From left:

Dr Calvin K L OR; Prof Keith K C CHAN; Prof TSANG Hon Ki; Ir Dr Lawrence W CHAN; Prof Yeung YAM; Prof Way KUO (Chairman of the Final Judging Panel); Mr Raymond YOUNG (CEO of CMA – Not a Final Judging Panel Member); Prof Paul C K KWOK; Dr LO Kam Wing; Dr GE Ming (Technical Team Member); Ms Christine WAI (Assistant Director-General of Trade and Industry, Trade and Industry Department – Not a Final Judging Panel Member)

2019 香港工商業獎：設備及機械設計組別最終評審委員會
2019 Hong Kong Awards for Industries: Equipment and Machinery Design Final Judging Panel

郭位教授（最終評審委員會主席）
Prof Way KUO
(Chairman of the Final Judging Panel)
香港城市大學校長
President
City University of Hong Kong

畢堅文先生
Mr Mohamed Din BUTT
香港生產力促進局總裁
Executive Director
Hong Kong Productivity Council

陳鏡昌教授
Prof Keith K C CHAN
香港理工大學工業及系統工程學系教授及系主任
Professor and Head
Department of Industrial and Systems Engineering
The Hong Kong Polytechnic University

陳雲青博士 工程師
Ir Dr Lawrence W CHAN
香港高等教育科技學院行政副校長
Executive Vice President
Technological and Higher Education Institute of Hong Kong

郭始剛教授
Prof Paul C K KWOK
香港公開大學榮譽教授
Honorary Professor
The Open University of Hong Kong

盧金榮博士
Dr LO Kam Wing
香港中華廠商聯合會副會長
Vice President
The Chinese Manufacturers' Association 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
Chair Professor
Department of Electronic Engineering
City University of Hong Kong

柯嘉倫博士
Dr Kalun OR
香港大學工業及製造系統工程系副教授及助理系主任
Associate Professor & Assistant Head
Department of Industrial and Manufacturing Systems Engineering
The University of Hong Kong

彭耀雄先生
Mr Eric PANG, JP
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 TSANG Hon Ki
香港中文大學電子工程學系教授
Professor
Department of Electronic Engineering
The Chinese University of Hong Kong

王煜教授
Prof Michael Yu WANG
香港科大機器人研究院院長
Director of HKUST Robotics Institute
The Hong Kong University of Science and Technology

任揚教授
Prof Yeung YAM
香港中文大學深圳研究院（深研院）院長、機械及自動化工程學系研究教授
Director of Shenzhen Research Institue (SZRI), Research Professor of Department of Mechanical & Automation Engineering
The Chinese University of Hong Kong

源栢樑博士 工程師
Ir Dr YUEN Pak Leung
香港工程師學會高級副會長
Senior Vice President
The Hong Kong Institution of Engineers

2019 香港工商業獎：設備及機械設計大獎
2019 Hong Kong Awards for Industries: Equipment and Machinery Design Grand Award

產品名稱： SPARK 星火系列全電動注塑機
Product Name: SPARK Series of All-Electric Injection Moulding Machine

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

設計者： 盧德雄先生
Designer Name: Mr Vincent Lo

網址 /Website: chenhsong.com

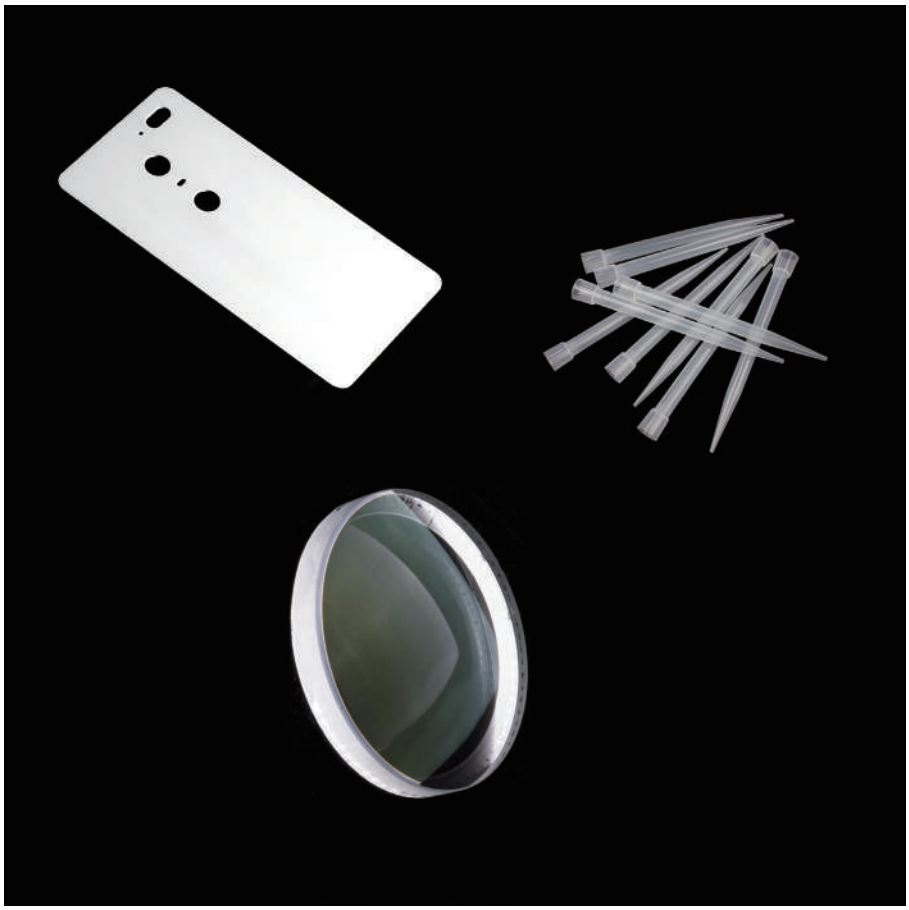
評審委員會意見：

此 SPARK 星火系列全電動注塑機的設計，滿足了從超薄壁塑膠製品（如高速包裝品）到超厚壁製品部件（如光學製品）的廣泛應用，通過嚴謹的標準，以及在各項複雜甚至矛盾的性能要求中找到平衡，為客戶提供同類設備一個高性價比的選擇。它具有高敏動態控制技術，使用專有的超高回應伺服系統，能夠在毫秒級時間內，讓電機的轉速由靜止加速到最大值，加速度可達 1.5g，比傳統的注塑機控制回應快了 10 倍以上。此外，此設備採用一種革命性的（ASRS）智慧應力釋放系統，有效降低內應力，從而減緩金屬疲勞，提高產品的穩定性和生產效率。另外，此設備應用究極省電技術，通過精巧的機械結構設計和採用直流母線供電系統，配合智慧鎖模力修整，智慧鎖模力匹配等智慧控制技術，使此部震雄全電機更省電更高效。

General Comments on the Product:

The machine is designed to cover the full range of applications from ultra-thin-walled moulding (such as high-speed packaging) to thick-walled, high-pressure parts (such as optics). The machine is facilitated by a proper balancing of multiple, complex and even contradictory performance requirements. It features the Agile Boost Control technology that uses a proprietary ultra-high-response servo system to produce levels of responsiveness capable of going from 0 to 2000 rpm in less than 30 msec. The technology is faster than the traditional all-electric machines, and produces a shorter cycle, and higher precision injection and clamping actions for quality outputs. Moreover, a revolutionary Auto Stress Release System (ASRS) is employed to dynamically monitor the actual motion of the injection screw via high-speed digital pressure transducers and to make real-time adjustments to the screw motion. This leads to reduced internal stresses, hence slower metal fatigue and heightened stability in production, and also higher energy efficiency.

2019 香港工商業獎：設備及機械設計大獎
2019 Hong Kong Awards for Industries: Equipment and Machinery Design Grand Award



2019 香港工商業獎：設備及機械設計獎
2019 Hong Kong Awards for Industries: Equipment and Machinery Design Award

產品名稱： 納米光催化海洋防污防腐漆 (Nano-MA²P)
Product Name: Nano-Photocatalytic Marine Antifouling/Anticorrosion Paint (Nano-MA²P)

公司名稱： 遊艇主義有限公司
Company Name: Aviva Yacht Limited

設計者： 梁顯庭先生、梁國熙教授、梁耀彰教授
Designer Name: Mr Leung Hin Ting, Prof Michael K H Leung, Prof Dennis Y C Leung

網址 /Website: avivayacht.com

評審委員會意見：

此產品是利用金屬和金屬氧化物的摻雜來提升光催化防污漆的技術。去年第一代產品 Nano-MAP 含有陰離子摻雜的 TiO_2，專為非金屬船體防污而設。此第二代新產品是納米光催化海洋防污 / 防腐漆 (Nano-MA²P)，增加了對鋼、鐵、鋁船體的防腐功能。除了光電陰極保護防腐外，Nano-MA²P 還透過納米結構材料充當填料以阻止 Cl^- 和 Na^+ 離子運輸來抗腐。Nano-MA²P 主要應用包括船舶、潛艇、海水冷卻設施、海洋基礎設施等。Nano-MA²P 於無銅防污 / 防腐漆市場上極具潛力。

General Comments on the Product:

A new antifouling paint has been developed using metal and metal oxide doping to enhance the photocatalytic antifouling effect. The first generation product, Nano-MAP containing anion doped TiO_2, was designed for antifouling applications in non-metal hull. The second generation adopts the same antifouling technology with anticorrosion function for steel, iron and aluminium hulls. The new product is Nano-Photocatalytic Marine Antifouling / Anticorrosion Paint, Nano-MA²P. It performs anticorrosion by photocathodic protection. Another anticorrosion mechanism occurs due to the nanostructured material acting as a filler to impede the transport of Cl^- and Na^+ ions for corrosion resistance.

The target applications of Nano-MA²P are vessels, submarines, seawater cooled facilities, marine infrastructures, etc.

Nano-MA²P has the potential to establish its market as a non-copper based antifouling / anticorrosion paint for the shipping industry.

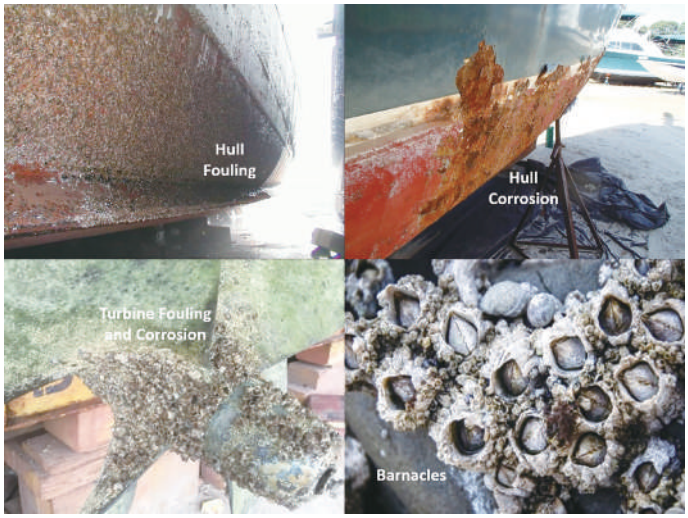


Photo 1. Marine fouling and corrosion problems

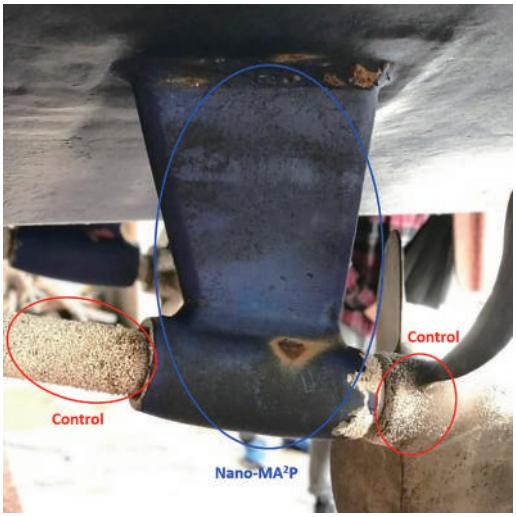


Photo 2. Anti-fouling and anti-corrosion effects of MA²P

產品名稱： 生物識別穿透式頭戴顯示器
Product Name: Biometrics Optical See Through Head Mounted Display

公司名稱： 香港應用科技研究院有限公司、香港盈盛股份有限公司
Company Name: Hong Kong Applied Science and Technology Research Institute Company Limited, Profit Peak Hong Kong Holdings Limited

設計者： 陳建龍先生、劉德華先生、黃駿業先生、陳國頌先生、張瑋女士、潘錦豪先生、沈史輝先生、王敏婷女士、Mr Daluz Wilfredo D
Designer Name: Mr Kenny Chan, Mr Derek Liu, Mr Wong Chun Yip, Mr Calvin Chan, Ms Wei Zhang. Mr Samuel Poon, Mr Shen Shihui, Ms Grace Wong, Mr Daluz Wilfredo D

網址 /Website: www.astri.org; ppkholdings.com

評審委員會意見：

這部頭戴顯示器使用眼球視線追踪功能來實現人機交互的輸入控制，以及虹膜識別技術來進行身份識別。產品配備了全高清的擴增實境顯示器，為用戶提供業界領先的 60 度大視場顯示體驗。成本低廉是這項產品主要優勢之一，現已製造了約 300 部擴增實境頭戴顯示器，並送交潛在的商業客戶進行測試和評估。

General Comments on the Product:

The head mounted display features a partially transparent display, with eye gaze tracking capability for use in the human computer interface system and iris recognition for individualized interface and biometrics security. It employs a full HD microdisplay projection system which can enable small size spectacle based head mount display, and is competitive in have a field of view of 60 degrees, which is among the largest available for the microdisplay based projector HMD. The low build of materials cost of the HMD system is one of its major advantages. About 300 HMD systems have been manufactured and sent to potential business customers for testing and evaluation.

2019 香港工商業獎：設備及機械設計獎
2019 Hong Kong Awards for Industries: Equipment and Machinery Design Award

產品名稱： **GNSS 衛星同步時鐘**
Product Name: **GNSS Disciplined Oscillator**

公司名稱： **香港晶體有限公司（科研集團）**
Company Name: **Hong Kong X'tals Limited (Member of Kolinker Group)**

設計者： **陳國輝先生、黃浩然先生**
Designer Name: **Mr Chan Kwok Fai Kenneth, Mr Wong Ho Yin Marco**

網址 /Website: **group.kolinker.com**

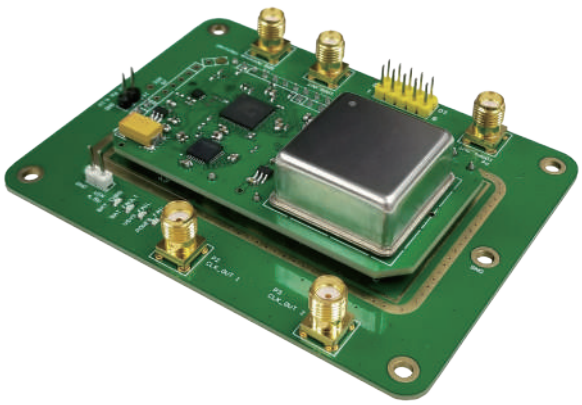
評審委員會意見：

高精度衛星同步時鐘 (GNSSDO) 是由高穩定振盪器，GNSS 接收器，數碼相鎖環電路及動態晶體數學模型組合而成。GNSSDO 在工作時會以衛星訊號進行頻率及時間鎖定，從而控制高穩定振盪器，產生能與 UTC 時鐘源同步至納秒級的訊號及高穩定的頻率。

在 GNSS 鎖定期間，系統會進入自我學習模式，演算出一套最佳的系數，作為動態晶體數學模型。當 GNSS 信號丟失時，此動態模型及數據會按環境溫度等變化，替代數碼相鎖環的工作，修正高穩定時鐘源，保持時間同步精度，直至衛星訊號回復正常。

當 GNSSDO 應用於通信網絡基站時，即使 GNSS 訊號丟失，仍可持續提供高精度的時間和頻率訊號。另外，它亦會自動搜尋最可靠的 GNSS 衛星，以作同步及產生高穩定性的時間和頻率訊號。

一體化設計
All-in-one device



模塊式設計，可配合外置的衛星接收器或 1PPS 進行授時
Modular form,flexible connection to any GNSS receiver by 1PPS input

General Comments on the Product:

Global Navigation Satellite System Disciplined Oscillator (GNSSDO) consists of high stability oscillator, GNSS receiver and phase-locked controller. GNSSDO works by steering a high quality oscillator to lock to the GNSS signal via a tracking loop. It continuously adjusts itself to align with UTC time.

During GNSS lock period, a self-learning algorithm generates a set of optimal system coefficients representing the dynamic oscillator model. The coefficients are used to compensate the influence due to temperature and other variables change during the holdover period when GNSS was lost.

When the GNSSDO is used in base-stations of telecom network, it can provide accurate time signal even GNSS signal is lost. Meanwhile, GNSSDO automatically scan for satellites in the background to find the best combination of GNSS and switch to it, in order to enhance time accuracy and stability.

產品名稱： DCC5000 大型壓鑄生產單元
Product Name: DCC5000 Diecasting Cell

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

設計者： 劉相尚先生及其開發團隊
Designer Name: Mr S S Liu & LK Engineering Team

網址 /Website: www.lk.world

評審委員會意見：

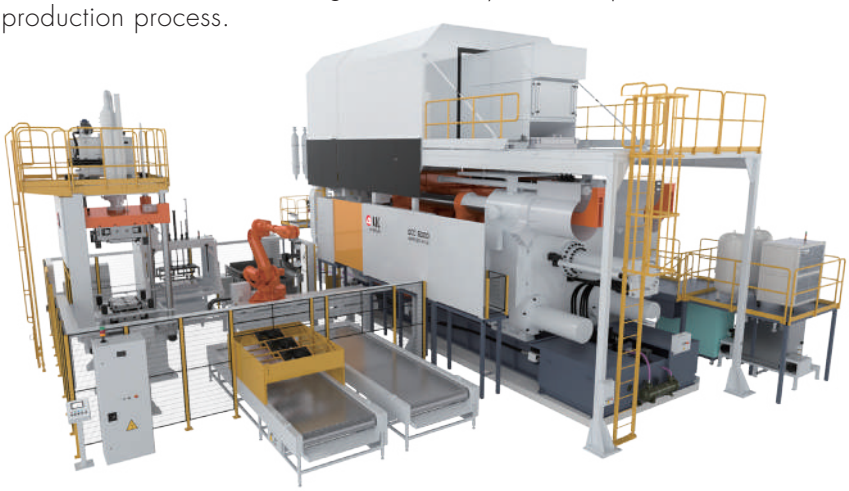
DCC5000 冷室壓鑄機是世界上同類產品中最大鎖模力的商業生產用壓鑄機之一。此機的鎖模力達 50,000kN，產品最大鑄造面積可以達到 11,250 cm^2。

此機器製造的成品可以滿足輕量化、防水、堅固及高導熱性的要求；其中電池殼的傳統製造方法是由多個工件焊接而成，需要大量勞工並會出現因人手工藝所造成的瑕疵；因此，裝置這台機器可大大減低勞工成本，並能縮短生產時間及提高生產效率。

此機器的創新功能包括節能伺服系統和智能控制系統，可節省冷卻水和電量消耗達 50% 以上，並可對生產過程進行即時控制和提供遠端監控。

General Comments on the Product:

The DCC5000 Diecasting Cell is one of the largest die-casting machines of its kind in the world. It has a maximum clamping force of 50,000 kN and covers a casting area of up to 11,250 cm^2. The end product needs to be light-weight, water-proof, sturdy, and have high thermal conductivity. The conventional process of making the battery housing involves welding several work-pieces together, which is labor-intensive and prone to have workmanship-related defects. With the installation of the DCC5000, the manufacturer can significantly reduce labor costs, lower production time, and improve the product yield. The innovative features of the machine includes a novel energy-saving servo system that reduces water and electricity consumption by more than 50% and an intelligent control system that provides real-time control and remote monitoring of the production process.



2019 香港工商業獎：設備及機械設計獎
2019 Hong Kong Awards for Industries: Equipment and Machinery Design Award

產品名稱： **Magic Touch AR 智能陳列櫃**
Product Name: **Magic Touch AR Smart Vitrine**

公司名稱： **三博顯示有限公司**
Company Name: **Magi Display Limited**

設計者： **李忠勇博士**
Designer Name: **Dr Michael Lee**

網址 /Website: **www.magi-display.com**

評審委員會意見：

Magic Touch AR 智能陳列櫃使用了獲得專利的電子屏幕，該屏幕在一般情況下像普通電視，並不透明；但在有需要時，它可以透過改變透明度，變成透明屏幕，從而使用家可以清楚看到放置在屏幕後面的物件或場景，好像玻璃一樣。Magic Display 屏幕比普通透明屏幕更先進，因 Magic Display 的透明度可自由控制，並結合了傳統不透明屏幕的功能，從而使物件或場景在不透明模式下顯示更為清晰生動。現時產品的應用包括零售展示櫃和自動販賣機中的玻璃廣告顯示屏。

General Comments on the Product:

The Magic Touch AR Smart Vitrine is using a patented digital screen which normally functioned as a TV screen in opaque mode but when needed, it is able to control freely its screen transparency so that the content of any object or scene being placed behind the screen can be seen with good viewing quality. The Magic Display is superior to conventional transparent display not having opaque mode in that Magic Display's transparency is adjustable and the display content is vivid and clear under the opaque mode. Current applications made included retail display vitrine and glass panel advertisement display in vending machines.

產品名稱： 九軸自動拋光中心（型號：APC-2800III）
Product Name: Nine-axis Automatic Polishing Center (Model: APC-2800III)

公司名稱： 寶力機械有限公司
Company Name: Pro-Technic Machinery Ltd

設計者： 黎啟東先生、邱江勛先生
Designer Name: Mr Robert Kai Tung, Lai & Mr Jiangxun Qiu

網址 /Website: www.protechnic.com.hk

評審委員會意見：

這項新的拋光方法（即九軸自動拋光中心），採用了CNC 加工中心的三軸定位技術，並與六軸拋光機器人結合，以傳動部件 / 力矩傳感器來驅動進行加工。通過使用力矩傳感器，可自動調整偏移量的反饋，即力矩傳感器將力矩數據立即傳送到控制系統，使機器人動作更精確及有效地調整偏移量，從而達至高精度加工。總括而言，此拋光技術可增加拋光的應用範圍，提高產品質量，改善生產的穩定性及生產效率，並能減少所需的佔地面積。

General Comments on the Product:

The new polishing method (namely, 9-axis automatic polishing center) exploits the CNC three-axis positioning technique driven by a motion device/torque sensor that is combined with the six-axis polishing robot for the processing. With the use of the torque sensor, feedback about offset adjustment can be automatically realized. More specifically, the torque sensor is used to instantly send the torque data to the control system, through which the robot motion can be more precisely and effectively offset to achieve a high-precision machining. Overall, the polishing method can increase the application range of the polishing, enhance the processing quality, improve the stability of the workpiece, improve production efficiency, and reduce the required floor space.

2019 香港工商業獎：設備及機械設計獎
2019 Hong Kong Awards for Industries: Equipment and Machinery Design Award

產品名稱：
Product Name: 基於工業物聯網技術的智能機器化倉庫管理系統
Industrial Internet of Things (IIoT) based Smart Robotic Warehouse Management System

公司名稱：
Company Name: 精銳動力科技有限公司、香港理工大學工業及系統工程學系
RV Automation Technology Co Ltd,
The Hong Kong Polytechnic University - Department of Industrial and Systems Engineering

設計者：
Designer Name: 周定漢先生、周振強先生、李嘉敏博士、陳炎材先生、李逸曦先生
Mr Chau Ting Hon, Mr Chow Chun Keung, Dr Lee Ka Man, Mr Tan Burly K, Mr Lee Yat Hei

網址 /Website: www.rvautotech.com; www.cps.ise.polyu.edu.hk

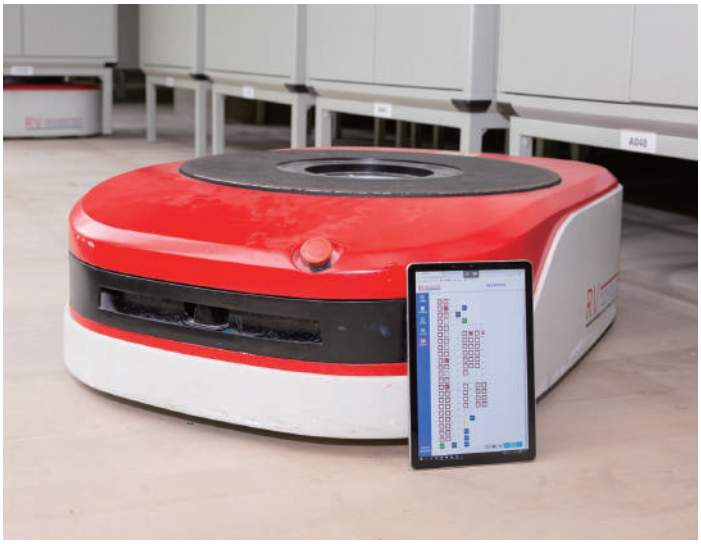
評審委員會意見：

此智能機器化倉庫管理系統集成了多種技術，以實現不同工商業發展所需的自動化倉儲管理。此系統採用了多項創新技術，包括機器人自主搬運、防碰撞和防擁塞技術。此系統應具備可觀的經濟效益，在本港及以外地方均有龐大的市場潛力。此智能機器化倉庫管理系統已投入運作，展現了倉庫管理系統與物聯網和 5G 技術相結合的發展趨勢。

General Comments on the Product:

This smart warehouse management system integrates multiple technologies for automating operations of various industrial and commercial warehouses. A number of innovation technologies are deployed in the system, with a self-serving robotic system and robot swarms without collision or congestion. The potential market for such system in Hong Kong and elsewhere is substantial. The economic benefits of deploying this system or a variation of it seems to be viable and attractive. A self-service system is already in operation with customer experiences.

It represents a trend in using smart warehouse management systems with innovative integration of IoT and 5G technologies.

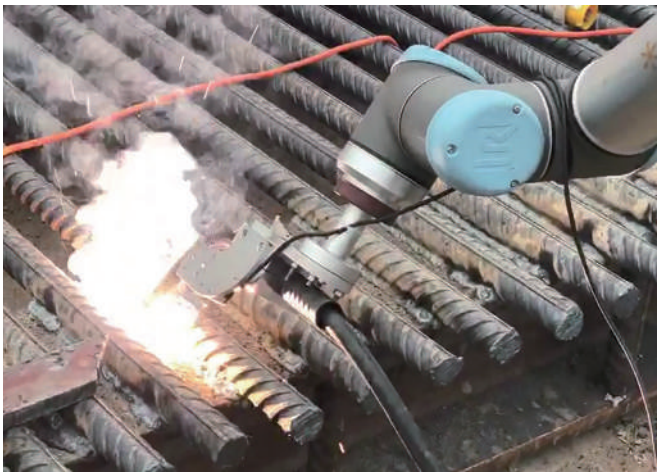


產品名稱： 威博機械人焊工（工地使用）
Product Name: Welbot Robotic Welder (for Construction Site)

公司名稱： 威博科技有限公司
Company Name: Welbot Technology Limited

設計者： 黎志雄先生
Designer Name: Mr C H Lai

網址 /Website: www.welbot-tech.com



評審委員會意見：

威博 (Welbot) 機械人焊工旨在執行建築行業的焊接任務。它能夠通過非編程而能自動在實際的焊接間隙和複雜的 3D 焊接路徑來實現焊接任務。適應性機械人編程技術是機械人焊工的核心技術，現正申請專利。自 2019 年，機械人焊工已成功地在建築工地上使用。此焊接工序因長期缺乏技術焊工，故這個機械人焊工在建築行業有很大的需求。

General Comments on the Product:

Welbot robotic welder is designed to carry out welding tasks for the construction industry. It is able to achieve non-programming welding tasks by generating automatically actual welding gap and complex 3D welding paths. An adaptive robotic control is the core technology for the welder and a patent is being applied. Since 2019, the robotic welders were successfully used in the construction sites for achieving some welding tasks. Because of the long-term lack of skilled welders, this kind of robotic welder is of big demand in the construction industry.

2019 香港工商業獎：設備及機械設計優異證書
2019 Hong Kong Awards for Industries: Equipment and Machinery Design Certificate of Merit

產品名稱： **超微防偽隱形碼品牌保護系統**
Product Name: **Micro Security Code Brand Protection System**

公司名稱： **冠科創意有限公司**
Company Name: **A-Champ Creative Limited**

設計者： **冠科創意有限公司**
Designer Name: **A-Champ Creative Limited**

網址 /Website: **www.achampcreative.com**

評審委員會意見：

這是一個可為全球品牌公司提供防止假冒產品的品牌保護系統。此系統利用精密激光在生產授權產品上刻上安全代碼，以防止假冒產品。此系統結合高精度的激光掃描及光學檢測系統，亦可同時進行標記、讀取和解碼程序，從而減省成本及提高生產效率，同時能遙距追蹤整個生產流程，過程中 OEM 製造商不會得到任何安全代碼資料，以確保資料得以保密。

General Comments on the Product:

This system provides a solution for the global brand companies to prevent the counterfeit products from the manufacturing processes by printing unique micro security code on each licensed product using laser. It provides a high accuracy laser scanning system and optical inspection system, so that the whole system can mark, read and decode. Although the market has similar solutions on laser marking unique ID on each product and decode, the system allows the companies to tracking control across the whole processes without the OEM manufacturer's involvement.

產品名稱： 超霸 6500 噸伺服驅動二板雙射台超大型注塑機
Product Name: SUPERMASTER Two Platen Series 6500tons Clamping Force with Two Injection Unit System

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

設計者： 盧德雄先生
Designer Name: Mr Vincent Lo

網址 /Website: chenhsong.com

評審委員會意見：

該注塑機採用獨創的「Y 型雙射台」結構的創新設計，即在一台機器上組合兩個射台單元，通過非剛性連接裝置連接，獨創專利的「Y 型雙射台」設計能夠同時或獨立地操作兩個射台單元，在同一台機器上既能生產 10KG 的小型產品，也能生產 110KG 的超大型產品。從而為一機多品種注塑產品的生產提供了獨特的解決方案，並能節省空間。該注塑機更採用了新型的調模定位結構和開合螺母夾緊結構。

General Comments on the Product:

The system adopted the innovative design on "Y-Injectors" structure that is to combine two injection units on a single machine. These two injection units have different shot-weights. With the dual-stage connection device, the patented "Y-injectors" design is able to operate the two injection units synchronously or independently. Thus, it provides a unique solution on producing of large range of injection products (product weights from 10kg to 110kg) using only one machine and it can save the space. The system also developed the new positioning mechanism and clamping force distribution approach.

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2019 Hong Kong Awards for Industries: Equipment and Machinery Design Certificate of Merit

產品名稱： **具防火隔熱功能的水平向防火捲閘**
Product Name: **Horizontal Sliding Insulated Fire Rated Roller Shutter**

公司名稱： **中大捲閘有限公司**
Company Name: **Chung Tai Roller Shutters Company Limited**

設計者： **黎浩仁先生**
Designer Name: **Mr Lai Ho Yan**

網址 /Website: **www.chungtai-rs.com.hk**

評審委員會意見：

此產品為一幅水平開關防火捲閘，並具有高達 240 分鐘的完整性防火和 153 分鐘的隔熱性能。此捲閘安裝於商業樓宇兩樓層之間的中庭位置，平時是全開狀態，為樓層洞口作採光用途。當火警發生時，樓宇防火監控控制簾頁在 60 秒內完全關閉，作防火用途。

General Comments on the Product:

The horizontal sliding roller shutter system installed between two floors in the atrium. It is normally open and out of sight and would not be an artifact to disturb the interior design of the indoor space. The system is connected to the building's fire alarm system. When the fire alarm is triggered, the shutter will be drawn automatically and the curtain closed completely in 60 seconds.
The shutter is rated for fire resistance up to 240-minute of integrity and 153-minute of insulation.

產品名稱： HD325 全液壓鑽掘機
Product Name: HD325 Series All Hydraulic Drilling Rig

公司名稱： 漢機鑽岩機械有限公司
Company Name: HD Engineering Limited

設計者： 黃漢智先生及設計團隊
Designer Name: Mr Wong Hon Chi & His Team

網址 /Website: www.hdengineering.com

評審委員會意見：

此鑽機為香港地基工程面對有限的空間提供了解決方案；由於此產品可折疊台或伸縮操控臂和履帶，讓鑽機能在狹窄的工地或橋樑下仍能發揮功能。此鑽機易於安裝，僅需兩人在 10 分鐘內完成豎立致施工狀態。其價格更比同類機種便宜，故現已廣泛地在多項鑽掘工程上使用。

General Comments on the Product:

The machine provides a solution to the problem of confined space of construction sites in Hong Kong. It can be used in construction sites that have confined/small areas or are under bridges, for example, its mast, control arm and crawler can be folded and retracted. Machine setup is straight-forward–it only needs two persons and takes 10 minutes to set up the machine. The machine is cheaper than other similar machines in the market and it is already used in a number of construction sites.

2019 香港工商業獎：設備及機械設計優異證書
2019 Hong Kong Awards for Industries: Equipment and Machinery Design Certificate of Merit

產品名稱： **一套創新的食品殺菌系統**
Product Name: **A Revoluntary Food Disinfection System**

公司名稱： **香港生產力促進局**
Company Name: **Hong Kong Productivity Council**

設計者： **林子聰博士、雷凱茵小姐**
Designer Name: **Dr Lam Chi Chung, Ms Lui Hoi Yan**

網址 /Website: **www.hkpc.org**

評審委員會意見：

此食品殺菌系統採用美國食品藥物管理局認可之高壓處理技術，能把經包裝的袋裝或瓶裝食品及飲料進行殺菌程序。在處理過程中，食品會被放置在一個注滿水的高壓艙內，高壓艙以油壓方式產生高達 600 兆帕的超高壓持續 3 分鐘。相關技術不但能大幅減少食品的細菌含量，亦能保留其原有之營養價值，如新鮮果汁的保質期可從 3 天延長至 60 天。

General Comments on the Product:

The Food Disinfection System applies a FDA-approved high-pressure processing technology for the pasteurization of food and drinks that are packed in sachets or bottles. During operation, treated products are placed in a water-filled pressure vessel whereby an ultra-high pressure, up to 600MPa, is applied to the vessel using a hydraulic press for about 3 minutes. By using this process, treated products can have their bacterial count significantly reduced without a major loss to nutrient contents and fruit juice can have their shelf life extended from 3 to 60 days.

產品名稱： 港式奶茶智能製作機器人系統
Product Name: Hong Kong Style Milk Tea Brewing A.I. Robotic System

公司名稱： 金茶王加盟店有限公司，香港生產力促進局
Company Name: KamCha Franchising Concept Limited, Hong Kong Productivity Council

設計者： 黃家和 BBS JP、葛明博士
Designer Name: Mr Simon Wong BBS JP, Dr Ge Ming

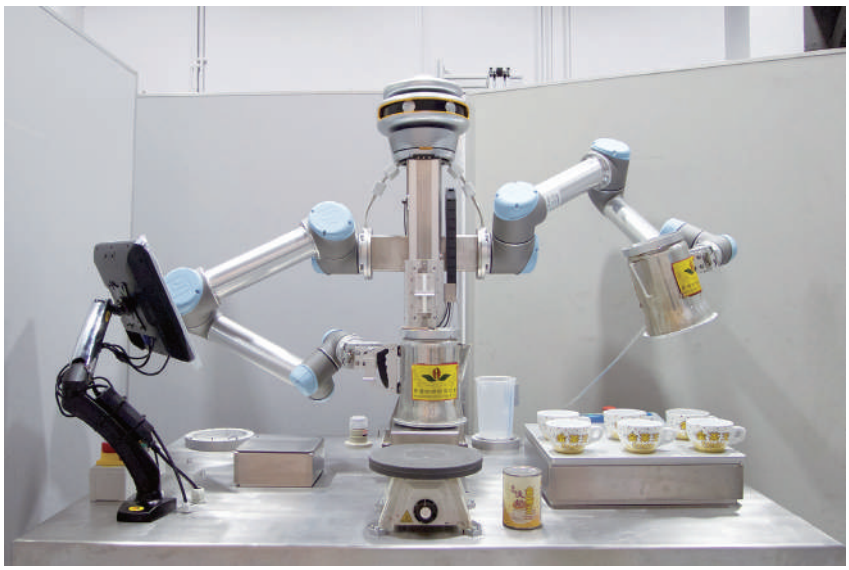
網址 /Website: www.kamcha.com.hk; www.hkpc.org

評審委員會意見：

港式奶茶智能製作機器人系統擁有與香港傳統文化相聯繫的獨特性。系統創新地將傳統工藝自動化，使用兩套多關節機械臂製作地道口味的港式奶茶。在推動香港特色美食及飲品的商業發展上，此發明無疑具有一定的潛力和獨特性，以吸引顧客。

General Comments on the Product:

The Hong Kong Style Milk Tea Brewing A.I. Robotic System has a unique characteristic relating to one of the Hong Kong's traditions. It is innovative in making traditional labor process into an automated system. It uses two UR robots for performing the tea making job. These robots are general purpose robots and not cost-effective. For the specific Hong Kong food and beverage industry, this innovation certainly has its potential value and unique features for attracting customers for business development.



2019 香港工商業獎：設備及機械設計優異證書
2019 Hong Kong Awards for Industries: Equipment and Machinery Design Certificate of Merit

產品名稱：
Product Name: **用於光通信組件的快速多焦點自動檢測設備**
Fast Multi-Focus Automatic Inspection Equipment for Optical Communication Components

公司名稱：
Company Name: **昂納科技（集團）有限公司、香港應用科技研究院有限公司**
O-Net Technologies (Group) Limited, Hong Kong Applied Science and Technology Research Institute Company Limited

設計者：
Designer Name: **高豐源先生、陳有林先生、李曉斌先生、馬俊先生、Dr Vladislav Nikitin、王志誠先生、陳君麟先生、吳昌力先生**
Mr Victor Kao, Mr Yonlin Chen, Mr Xiaobin Li, Mr Jun Ma, Dr Vladislav Nikitin, Mr Charles Wong, Mr Junlin Chen, Mr Changli Wu

網址 /Website: **www.o-netcom.com; www.astri.org**

評審委員會意見：

此項產品具備獨特的光通信組件專業檢測技術，並採用了高分辨率及高速聚焦的液體透鏡，它能夠處理生產線上的各種缺陷，能夠在幾秒鐘內以微米分辨率進行檢查，並可實時分析檢查結果。

此外，此項產品於生產線中提供更高度自動化檢測，包括部件表面質量控制和部件形狀，色標和傾斜檢查，有助減少質量控制人員的工作量。

General Comments on the Product:

The product has a unique technology for the specialized inspection of optical communication component. By using high-resolution and high-speed focusing liquid lens, it is capable of handling all kinds of defects in the production line. It performs inspection within a few seconds with micrometer resolution and the inspection result can be analysed in real time.

Moreover, the product helps to reduce QC workload by providing higher level automation in production lines involving component surface quality control and component shape, color marks and tilting inspection.

產品名稱： **鴻創柔性透明 LED 顯示屏**
Product Name: **TransFlex®**

公司名稱： **鴻創科技（香港）有限公司**
Company Name: **SuiRich Flex Limited**

設計者： **袁錫鴻先生**
Designer Name: **Mr Yuen Sik Hung, Ronald**

網址 /Website: **www.suirich.com.hk**

評審委員會意見：

TransFlex® 是高達 90% 透明的柔性 LED 顯示屏，其厚度為 3 毫米，並且具備防水性和可彎曲功能。TransFlex® 適用於室內及戶外，並支援 4D 和 8K HD 分辨率，其重量亦比傳統 LED 屏輕約 50%，因此可節省運輸和安裝成本。現時，TransFlex® 可為客戶提供度身訂製服務，並已在香港、四川、上海和湖北等地廣泛使用。

General Comments on the P roduct:

TransFlex® is a 90% transparent and flexible LED display. The tailor-made service ability is significantly contributed by its 3 mm thickness which is flexible, waterproof and bendable. More than that, TransFlex® is suitable for both indoor & outdoor with the support of 4D and 8K HD resolution. Compared to traditional LED, the weight is 50% lighter which improves shipping and installation costs. TransFlex® now has been widely adopted in the region of Hong Kong, Sichuan, Shanghai and Hubei etc.

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，85 年來歷經時代變遷，現已成為本港最大及最具代表性的非牟利工商團體之一，擁有會員企業 3,000 家，致力促進工商業發展。

宗旨

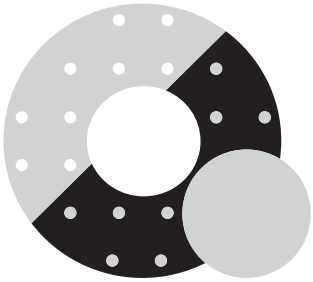
- 促進香港工業與貿易的發展
- 改善營商環境
- 代表工業界就政府政策的訂定與執行發表意見
- 參與社會發展工作
- 促進國際間的了解與合作
- 履行企業社會責任

INTRODUCTION

Established in 1934, the Chinese Manufacturers' Association of Hong Kong (CMA) is a non-profit making industrial organisation. In the past 85 years, CMA has grown significantly and is now one of the most representative industrial associations in Hong Kong. With some 3,000 member companies, CMA is committed to promoting Hong Kong's industrial and commercial development.

MISSION

- Promoting trade and industrial development
- Improving the business environment
- Representing the industrial sector in the formulation and implementation of Government policies
- Participating in community development work
- Fostering international understanding and co-operation
- Fulfilling corporate social responsibility



2019 香港工商業獎：設備及機械設計
2019 Hong Kong Awards for Industries: Equipment and Machinery Design

宗旨 OBJECTIVE

是項比賽旨在鼓勵和提高本港設備及機械的設計及生產水準，藉此提高產品競爭力，及對傑出的產品加以獎勵。

The objective of the competition is to encourage the upgrading of the design of equipment and machinery in Hong Kong so as to enhance competitiveness and to give recognition to outstanding products.

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
- 安全程度 Safety
- 對環境的影響 Environmental impact
- 市場銷售性 Marketability

查詢表格 Enquiry Form

2020 年香港工商業獎：設備及機械設計
主辦機構：香港中華廠商聯合會

**2020 Hong Kong Awards for Industries:
Equipment and Machinery Design**
Organizer : The Chinese Manufacturers' Association of Hong Kong

Tel 電話 : 2542 8621/2542 8624 Fax 傳真 : 2541 8154

我想獲得更多有關2020年香港工商業獎：設備及機械設計的資料
I would like to have more information about the 2020 Hong Kong Awards for Industries: Equipment and Machinery Design

公司名稱
Name of Company

業務性質
Nature of Business

地 址
Address

聯絡人
Contact Person

電 話
Telephone

傳 真
Facsimile

電 郵
Email

二零一九香港工商業獎籌備委員會
2019 Organising Committee of the Hong Kong Awards for Industries

主席 CHAIRPERSON

工業貿易署署長甄美薇女士
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Director-General of Trade and Industry
Trade and Industry Department

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