

FCS TODAY

FU CHUN SHIN MACHINERY MANUFACTURE CO., LTD.

Breaking
News

Deputy
Minister of
Economic
Affairs
visited FCS!

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FOCUS

► New Innovations to be Showcased in Chinaplas

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New Innovations to be Showcased in Chinaplas

Chinaplas® 2017
国际橡塑展

Reported by PMO

“CHINAPLAS 2017” will be held in Guangzhou, China from May 16 to 19. The mega show, which is over 250,000 square meters exhibition area will focus on “Intelligent manufacturing, high-tech materials, and environmental technology”. It will showcase the latest solutions in the world's leading rubber and plastics machinery, materials and technologies across different industries such as electronics, automotive, packaging, construction and medical, etc. which offers by more than 3,300 exhibitors from around the globe.

FCS Group (FCS) will display its abilities through energy saving innovations and technologies. This year, FCS will launch its Horizontal Rotary Table Two-Component IMM and Servo Power-Saving Multi-Component IMM. These models contain highly technical and innovative concept, which show that FCS Group has a high degree of specialization in system integration and innovative development.

Functional Two-Component Molding System

In 2012, FCS successfully developed the HB-R: “High Tonnage Two-Platen Two-Component IMM”, series with a clamping force of up to 1,900 tons. This is one of a few huge two-component IMM in the world. This series combines the structure of Two-platen and Two-component model, the horizontal rotary table, stack mold, and the servo power-saving technology. FCS will be displaying HB-350RV with KUKA 6-axis robot automatically producing two-component parts indicating the application of car sunroofs. It also has the following multiple features:

- A horizontal rotary platen which decreases issues coming from gravity and inertia.
- The horizontal turntable design could withstand loads of up to 3,600kg and quickly complete a cycle within 3 seconds.

- This model is capable of producing single and dual component products.
- This 350 ton machine has the same mold loading capacity as a 1,000 tons dual-colored injection machine.

Precision Energy-Saving Multi-Component Molding System

In dual molding field, FCS has been ahead of the technical strength of the industry to lead the direction of innovation. Moreover, in the development of Servo Power-Saving Multi-Component IMM, the mold clamping force can be up to 1,900 tons; and with closed-loop servo valve, the single-cylinder injection structure and accurate rotary positioning clamber, the machine can perform stable actuation and precise positioning, which can lead to a high-response, high-precision and high-repeatability. FCS will be showing their FB-280R automatically producing two-component drinking water bucket lid.

- Rotary table controlled by servo motor could shorten rotary time by more than 50%, with more stable rotary speed switch and more precise positioning.
- Adopting high efficiency double servo power system which is certified the first grade of national power saving standard ($\leq 0.40\text{kw h/kg}$).
- With accurate rotary positioning clamber, it protects the mold.

Welcom to FCS !

Booth 3.1 / F21

5/16-5/19



Fast Response · Customer Oriented · Service Differentiation

Deputy Minister of Economic Affairs Visited FCS!

Reported by PMO

In order to promote Taiwan's machinery industry in the world, the Deputy Minister of Economic Affairs Jung Chin Shen, MIRDC CEO Chiou Feng Lin and others recognized FCS as the first station to drive the wisdom of Taiwan injection molding machine.

FCS's board of director Po-Hsun Wang personally welcomed the distinguished guests. And while demonstrating the flow balancing module control technology of All-Electric IMM and RemoteMonitoring System, FCS exhibited the processed intellect and automated integration of injection

energy for the visitors to show the achievement of wisdom machinery.

Minister Shen, who is taking another role as the CEO of the Wisdom Machinery Drives Office, not only visited FCS, but also closely listened



to the aspirations and requirements of the industry. After all, building Taiwan as a global wisdom manufacturing key supply chain couldn't rely on businesses alone. As the leader injection molding machine industry in South Taiwan, FCS is honored to be the voice of industries to the government to provide resources in helping domestic manufacturers accelerate the integration of smart production and injecting new vitality.



In the conference, Minister Shen initiated to promote a platform of injection molding industry. Meanwhile, following the competition mechanism of machine tool M-Team could share the wisdom growth, integrate customers and suppliers, support Taiwan's injection molding industry breakthrough and take the lead in the global competitive wave.

K SHOW:FCS Achieves Success

Reported by PMO

Enthusiastic crowds, advanced technical seminar, bustling machines and equipment operating day after day, are not even enough to describe how spectacular K 2016 was. Over 230,000 trade visitors were welcomed to the exhibition halls over the eight days of K 2016: some 70% came from abroad, of which visitors from India again constituted the biggest group here which accounted for as high as 11,542. 3,285 exhibitors from all continents introduced their latest developments, occupying a net exhibition area of 173,966sqm in all 19 halls of the Düsseldorf Exhibition Center.

At a span of 3 years, FCS, as a leader of injection molding machine, again went forward to K SHOW and not only increased the scale, but also attacked with the European distributor - Germany Windsor to show three years of new technological achievements. With the white background design, the two star products- "Servo Power-Saving System" and "Precise Energy-Saving Multi-Component Molding System" which FCS displayed were especially eye-catching in the Hall 12 B11.



Servo Power-Saving System

SD-SV series is a new member of Servo Power-Saving system, which is based on the industry development trend and customer's production requirements, and combines the European and American standards to present FCS classic charm. SD series can be easily applied on numerous product areas such as Household decors, food



containers or even car parts and has been sold to Europe, United States and other countries. In the exhibition, FCS presented a show of assortment box (1.6mm) automatically produced with one-cavity mode by SD-150SV and SEPRO robot in 30 secs.

Precise Energy-Saving Multi-Component Molding System

Different from the previous exhibition, this K SHOW was further favored by customers in the two-component industry, bringing considerable demand, while FCS exhibited FB-160RV also coincided with the needs of the industry. It brought high-precision, high-speed and low energy consumption, etc. advantages together and could be applicable in production of all types of dual-color finished products including push buttons, tool handles, lights, household electrical appliances. In the exhibition, FCS presented a show of two-colored comb automatically produced with one-cavity mode by FB-160RV, whose shape was delicate and color was versatile that changed each day that creates a colorful scene in the fair.



Not only the machines had frequently asked inquiries, but also the two-colored comb and assortment box made a splash. Now, the constant receiving of order information during consultations made the exhibition outcome perfect. In addition, there are many groups which visited FCS booth like foreign presses, Taiwan Representative in Germany, the executive of Taiwan Association of Machinery Industry and students. FCS was able to garner praise not only from visitors, but as well as other potential orders by giving priority to the needs of the German market: A fast-responding, customer-oriented, and service differentiated company.

Flow Intelligent Auto-Balancing System

Reported by PIM

Introduction

Injection with multi-cavity mold are widely used in industry. They cannot increase the efficiency but also decrease the cost of product. These are advantages. However, the filling processes in cavities are always not equilibrium, generating the short injection, bending, shrinking phenomenon. These problems affect product quality and development process of product.



Figure 1. All electric injection molding machine HE



Figure 4. Cover mold with four cavities

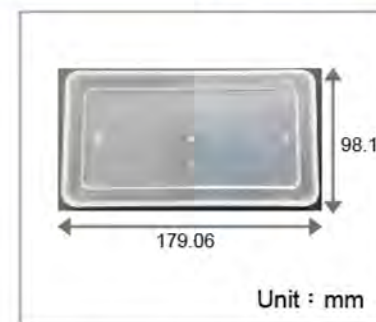


Figure 5. Cover dimensions

Flow Intelligent Auto-Balancing System

Temperature sensor is installed in each cavity to measure temperature of plastic melt at the corresponding location. When filling processes in cavities are not balance, the times to reach to desired temperature in each cavity are different as shown in Figure 2. These are called time difference. The flow intelligent auto-balancing system will use these time differences to compute the temperature which need to compensate from mold heater machine to each cavity temperature.

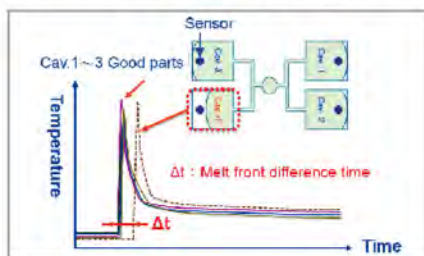


Figure 2. Cavity temperature and filling time difference

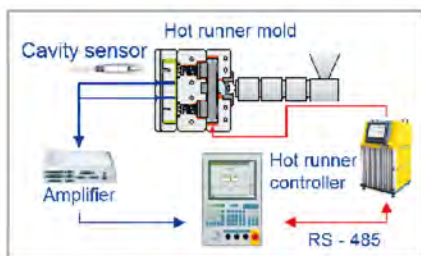


Figure 3. Flow Intelligent Auto-Balancing System

Firstly, the hot-runner temperature is set 230°C as temperature of the nozzle, and the flow intelligent auto-balancing system is not activated for 10 cycles then activated with 4-cavity mold.

It is obvious that, when the flow intelligent auto-balancing system is not in operation, the time difference is about 0.042 s. When the flow intelligent auto-balancing system is activated, and after 10 cycles training process, the time difference is about 0.02 s, the time difference is thus reduced 50% as shown in Figure 6.

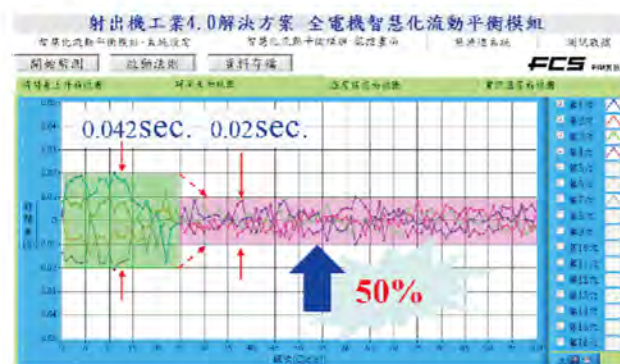


Figure 6. Interface of the flow intelligent auto-balancing system: time difference curves

After the system was verified in product weight stability, 100 molds of weight stability were then tested, in which first 50 molds were tested without activation of the flow intelligent auto-balancing system, and last 50 molds were tested using this system as shown in Figure 7. It is obvious that, when using the intelligent system, the weight standard deviation is reduced 81.7 % and the weight average in each cavity is reduced 30.8 %. In the other words, the weight stability is improved with the flow intelligent auto-balancing system.

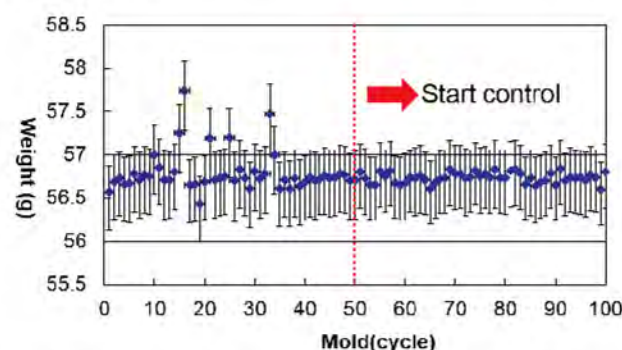


Figure 7. The flow intelligent auto-balancing system: 100 mold cycles results of weight stability

Product Characteristic

Online monitoring product system

- Mold cavity temperature accurate control.
- Monitoring the operation parameters adjustment, increasing the operation efficiency.

Online intelligent auto-balancing control technology

- Hot-runner temperature auto-compensating, improving the product consistency.
- Monitoring and controlling the operation parameters, unmanned product management.

Intelligent auto-balancing hardware monitoring system

- External module/ machine build-in module, flexible with all injection molding machine.

Recording the multi-cavity cover mold parameters and operation signals

- Applicable this intelligent system in medical products, product packing, vehicle product elements.

Experiment Setup and Results

Machine	HE300-all electric injection molding machine	Sensor	Temperature sensor
Mold	4-cavity cover mold (as shown in Figure 4)	Cooling temperature	temperature: 20°C
Nozzle temperature	230°C	Cycle	8 sec
Hot-runner	without valve gate	Product weight	14g
Material	PP	Product thickness	0.7 mm
Company/model	Formosa /1600N	Product dimensions	179x98.1 mm (as shown in Figure 5)

Conclusions

From industrial 4.0 overview, with target of energy saving and automation, the flow intelligent auto-balancing system is developed via plasticization and injection values of all electric injection molding machine to overcome the disequilibrium of filling process by compensating the temperature of hot runner. With product quality improvement target, it can execute the unmanned product monitoring, improve the manufacture efficiency and reduce the cost.

This product was participated the 2016 plastic and machine research and development competition and got the first prize award certification.

FCS Got an International Invite!

Reported by PMO

India's leading plastic toy maker built a new plant in Bangalore and held an opening ceremony.

The company was established in 2005 and mainly produces all kinds of toys and portfolio models to supply the United States and the United Kingdom with well-known brands. Moreover, it posted annual sales of US\$15 million, and it just completed the opening of its third plant.

FCS is not only selected as an excellent supplier, but also the only injection molding machine factory in Taiwan who was invited to attend this event such as Indian ritual ceremony and opening press conference. On the day of the ceremony, the plant exhibited its new production line-nearly 50 FCS injection machines neatly arranged from the plant entrance which guests were amazed. This will not only reflect the customer's trust and affirmation of FCS, but also symbolize the expected win-win situation in close cooperation.



2017 FCS Global Exhibition Preview

Reported by PMO

FCS continues to take a step closer at their goal of becoming among the top global injection molding machine brands. Taking one big step further this 2017, FCS aims to reach their goal through increased exposures such as actively participating in worldwide exhibitions as well as the frequent

customer visits by service and sales team. With pride, we present to you the following exhibitions that FCS would be partaking in. You are sincerely welcome to our booth!

■ In China

Exhibition	CMEF	Chinaplas	DAILY-USE ARTICLES TRADE FAIR	CMI-PLAS	WUHAN PLASTICS AND RUBBER & PACKAGING	PEC	ME EXPO
Location	Shanghai	Guangzhou	Shanghai	Chongqing	Wuhan	Taizhou	Yiwu
Duration	5/15-5/18	5/16-5/19	8/3-8/5	9/18-9/25	9/20-9/23	10/12-10/15	11/18-11/21

■ In Overseas

Exhibition	InterPlas Thailand	TIAE	M'sia Pack	PLASCOM
Location	Thailand	Taiwan	Malaysia	Taiwan
Duration	6/21-6/24	7/13-7/17	7/27-7/30	9/13-9/16

Exhibition	Philippines Plas	Fakuma	Plastimagen	Plastic Rubber Indonesia	Plast Eurasia Istanbul
Location	Philippines	Germany	Mexico	Indonesia	Turkey
Duration	9/13-9/16	10/12-10/14	10/17-10/21	11/7-11/10	11/15-11/18

※If you want to know the corresponding dates of our exhibitions, please check our website.