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FCS TODAY

CHINAPLAS 2018 Preview

Location	National Exhibition & Convention Center, Hongqiao, Shanghai, PR China
Date	4/24~4/27
Booth	3H B61

Reported by MPO

The 32nd "CHINAPLAS 2018" will be held in Shanghai from April 24th-27th. This year it first moves to the National Exhibition & Convention Center, Hongqiao, Shanghai. It is expected to gather over 4,000 exhibitors at the 340,000m^2 exhibition hall. The exhibition has two themes of "Smart Manufacturing, and Molding the Future", and showcases the world's leading solutions for rubber and plastic machinery, materials and technology.

FCS Group will launch four major themes of "All-Electric," "Multi-Component," "Two-Platen," and "Packaging" in the plastics industry. The new design and up-to-date technologies which are combined with an "Intelligent ManuFactory" Platform and Industry 4.0 demonstrate the professional capabilities of system integration and innovative R&D, and further announces the new corporate mission of FCS "Shape a better world".

All-Electric Molding System: HE Series

FCS has successfully developed the all-electric injection molding machine ten years ago and won the TAIPEIPLAS, "Excellent Award" and " Ringier Technology Innovation Award for the plastics industry". In this time, FCS introduces an all-electric injection molding machine with a 300-ton clamping force. In combination with cavity pressure sensor, it can quickly and easily produce 100ml ice cream cup with 4+4 cavities. It not only doubles production output through the stack mold technology, but also uses flow intelligent auto-balancing system for monitoring and automatic compensation and screening of defective products to achieve unmanned production monitoring. It demonstrates the concept of an intelligent factory.

Precision Power-saving Multi-Component Molding System: FB-R Series

FCS has been leading the development direction of the industry with advanced technical strength in the field of dual molding. The Servo Power-Saving Multi-Component injection machine developed by FCS has a maximum clamping force of 1,900 tons. It is equipped with a closed-loop servo valve and new single cylinder injection construction as well as patented rotary positioning clamper and other technologies to achieve stable actuation and precise positioning. FCS will showcase a newly designed FB-280R coupled with the European SEPRO robot, automatic production of collapsible strainer to show the highly admired multi-component molding technology.

Two-Platen Molding System: LN Series

In conjunction with European technology, FCS has successfully developed a large-sized two-platen injection molding machine with a clamping force of 500-3,700 tons since 2006. Its feature is that except for the third platen (adjustment of mold), the required area of the equipment is reduced by 20%-30% compared with the traditional injection molding machine; the ultra-long mold clamping strokes and the huge capacity are applicable to all types of large and deep barrel products. In view of the energy saving of the injection molding machine and the trend of miniaturization of the two-platen machine, the LN-500 is exhibited here. With KUKA 6-axis robot, it can automatically produce 850g finishing box.

In Mold Labeling Turnkey Solution: HN-h/p Series

The HN-h/p series are FCS's newly designed rapid injection molding machines. They are precise, power-saving, high-speed, stable, and high-efficiency and can significantly increase production efficiency and reduce costs, satisfying the demands for various high-speed solutions for thin-wall packaging containers. In this exhibition, the launched HN-280p is equipped with servo electric hot melt single-cylinder injection construction and in mold labeling automation equipment and can produce 8-cavity yogurt cup with cycle time 5 seconds.

NPE 2018 Preview

Location	Orange County Convention Center
Date	5/7~5/11
Booth	W911, W1103

Reported by MPO

First introduced in 1946, NPE is currently USA's NO.1 and world's NO.2 plastics and rubber trade fair. And it will be held in Orlando from May 7th to 11th. The mega show this year features advanced technology, plastics and rubber technologies and products offered by more than 65,000 exhibitors from 128 countries participating in this event. U.S. Plastics Industry is one of the largest manufacturing industries in the United States and holds a leading position in the global plastics market. Its employees are as many as 1.4 million, and the annual shipment value exceeds US$ 310 billion. To meet the domestic demand for a large number of plastic products, FCS made a contract with MARUKA in 2011, which declared to cooperate in general agency of the North America, and will focus on plastic commodities, exhibiting 3 systems namely Hi-Tech Intelligent IMM, Two-Platen Hydra-Mech IMM and Standard Toggle Hydraulic IMM. These models contain highly technical and innovative concept, which shows that FCS Group has a high degree of specialization in system integration and innovative development.

Two-Platen Molding System：LA-550

Since 2006, FCS successfully developed the first "Two-platen Hydra-Mech IMM", LM series, with a clamping force of up to 3,200 tons. Despite its long clamping stroke, its small design can save of 20% to 30% floor space making it suitable for products with deep depth. There is no toggle structure needed for the LN series. The clamping unit requires less lubrication and maintenance so the pollution and cost would be lower. The mold opening speed is faster which lessens cycle time. FCS will be showing LA-550 automatically producing one-cavity Cutlery Tray weighted around 148.4g.

Standard Power-Saving Molding System：HA-140

HA has always been a regular winner on FCS's sales charts. Adopted with high efficiency motor, the energy saving could be 40% better than various pump, 70%~80% better than traditional pump and even weight error of the products lesser than 0.4%~0.7% to accomplish high energy saving, high precise, high response, low noise and easy to be controlled. FCS will be displaying HA-140 with master-batch feeder and automated packaging systems automatically producing Puzzle indicating the application of diversified production solutions.

Standard Toggle Hydraulic Molding System：FA-160

The FA series is a new generation standard servo energy-saving model newly released by FCS. Not only the specifications are upgraded, but its design is also optimized. In addition, the appearance of this model's shielding design combines both aesthetics and human ergonomics concept to create head-line news again. It also has the following multiple features：

- Product specifications upgrade：

  including increases in tie-bars distance, injection velocity, higher system pressure to match high injection volume requirements, high injection pressure for higher- pressure requirement products.

- New generation of mold clamping unit：

  strength of the mold clamping increased by 30%, more uniform clamping force distribution, lower machine platen deformation, smoother mold closing-opening operation control, more stable operation and extended machine lifetime.

- New generation of injection unit improvements：

  machine operates accurately with injection close-loop operation control without installing additionally sensors and equipment, machine operation stability optimized.

NPE2018
THE PLASTICS SHOW

Group CEO Inauguration Ceremony

Reported by MPO

The FCS Group held the CEO inauguration ceremony at the headquarters of the Group on December 27, 2017. The former CEO Mr. Sheng-chung Tsai turned reigns over new CEO Mr. Chun-hsien Wang under the witness of the guests and staff. Mr. Tsai takes a back seat and transfers to Chief Operating Officer. In addition, Mr. Mu-chuan Hsu, the Chairman of KEYWAY company, also attended the inauguration.

On the ceremony, the Chairman Po-hsun Wang on behalf of FCS presented a certificate of appreciation to Chief Operating Officer Sheng-chung Tsai. He thanked him for his hard work for FCS over the past 30 years. His hard work is obvious to all. He congratulated also encouraged the new CEO can continue to lead FCS to growth and excellence.

Sheng-chung Tsai, the Chief Operating Officer, joined FCS in 1987 and has successively served as business manager, executive deputy general manager and chief executive officer. He has served 30 years so far. With his professional marketing background and leadership management talent, he put forward strategic roadmap, planning and corporate vision - "NTD 10 billion in 10 years, Customer First, Happy Growth, Profit Sharing", formulate marketing, product, R&D, production, management, and other strategic guidelines for each division; and adheres to the thought of FCS in Taiwan as FCS Group's "Global Operations Management Center" for reorganization and layout, leading FCS to a new height in the international arena.

The new CEO, Chun-hsien Wang, also expressed his high respect and heartfelt gratitude to the Chief Operating Officer Sheng-chung Tsai. Under the careful management by Chief Operating Officer Sheng-chung Tsai, FCS business is developing fast, and his dedication also has laid the foundation for FCS and enhanced competitiveness to greatly help the growth of the company. In the future, the new CEO will uphold the corporate vision, and "innovative implementation", lead FCS to shape a better world and complete three major corporate missions: "Shaping better Machines" which aims at efficient products, and sustainable customer satisfaction; " Shaping better People" which means molding good corporate culture and caring for social charity; "Shaping better Environment" which means molding green energy technology and friendly global environment, develop a global layout with fast customer-oriented services, and persist and maintain FCS brand value.

The new CEO, Mr.Chun-hsien Wang ◀
The chairman, Mr.Po-hsun Wang ▶

Example of Asia-Pacific Industry Chain

-- FCS Grasps 4.0 to Double Sales Turnover

FCS Group was founded more than 40 years ago. When FCS was originally created, it has been marketing its own brands at home and abroad. It has been continuously innovating for many years, accumulating strength, and upgrading professional skills and services. It is Taiwan's largest and most powerful leading manufacturer of plastic injection molding machines. It has more than 70 global marketing sites, and the combined revenue was NTD 3 billion in 2016 and NTD 2.43 billion in the first three quarters of 2017, which was increased as compared to the same period of last year with an annual growth rate of 18%.

In the face of fierce market competition, FCS CEO Chun-hsien Wang attributed such brilliant results to two core strategies: "professional technology and global service". First, he provides customers with overall solution for plastic injection molding to strengthen quality and efficiency of mechanical design, and provide customers with effective whole plant planning and value-added services; second, the market reputation established by the back-end services effectively increases the customer's loyalty to the FCS brand.

Through the Asia-Pacific industry linkage platform, FCS and Thailand BDI have signed the MOU, focusing on the research and development of automotive locomotive component production systems, tailoring the 4.0 smart factory for BDI, and assisting it to become an important demonstration point for transformation and upgrading of Thailand's Industry 4.0. BDI will purchase FCS large-scale two-plate injection machine for trial production of high-priced products for Japanese carmakers. If customer certification is passed, it is expected to bring considerable orders for both parties.

Chun-hsien Wang, the CEO of FCS: "the Asia-Pacific Industrial Linkage Platform can help manufacturers expand the ASEAN market and directly provide opportunities for both companies to connect with each other, saving the time and cost of developing unfamiliar customers. " He has a positive attitude toward this platform.

FCS actively seizes the industry 4.0 trend and develops a smart factory system. In response to the market, it is estimated that the 4th production base will be built in 2018. The CEO Chun-hsien Wang shouted with confidence that the company's turnover will be doubled within 3 years and will become Taiwan's first company to rank world's top 10 plastic injection molding manufacturers within 7 years.

Source：Commercial Times

Long Fiber Injection Molding Application

Reported by PIM

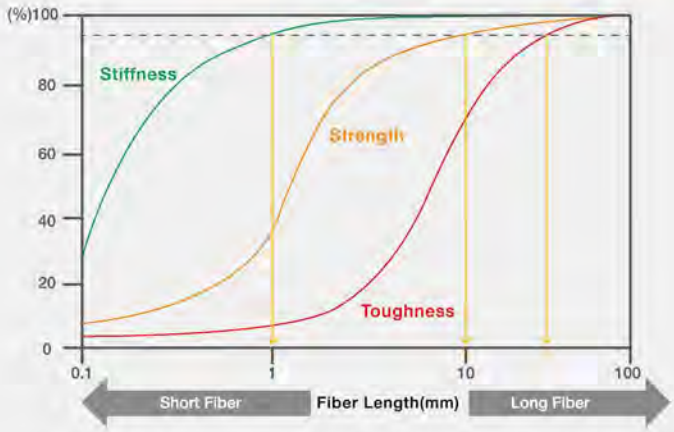


Figure 1 Diagram for the relationship between fiber length and stiffness, strength and toughness

Introduction

People attach more importance to the issue of lightweight and the trend of lightweight needs to satisfy the more secure, energy-saving, environmentally-friendly and comfortable demands. Carbon fiber is the material having the advantages of high strength and lightweight. At present, the use of fiber cloth of carbon fiber has become gradually mature and marketable, but molding is difficult for the fiber cloth of carbon fiber, and the labor cost for process is high. Therefore, the process of long fiber injection molding has become the mainstream and it can produce the complicated components and improve the structural strength. At present, the process of fiber application injection molding includes the combination of short fiber and resin SFT, combination of long fiber and resin aggregate LFT-G as well as the combination of continuous long fiber and resin LFT-D, FCS and LFT-D (Long Fiber Thermoplastic Direct) application injection molding. The finished product of fiber with the fiber length of more than 12 mm is tested in the target test. It is observed from Figure 1 that short fiber (0.1~1 mm) can only sustain the structure stiffness of the finished product; when the fiber length is increased (10 mm~50 mm), it can not only sustain the structure stiffness but also improve the strength of materials; the continuous fiber (more than 50 mm) can improve the toughness of finished product and FCS target can improve the structure stiffness of the finished product as well as the strength of materials.

The unit equipment (see Figure 2) required by long fiber application injection molding has the special barrel, so it is necessary to match the following equipment to realize long fiber injection molding:

(1) VENT barrel:

VENT barrel is the free-drying molding barrel and characteristic of this barrel is that it can mold the undried plastic raw material; the special design of barrel can exhaust the steam and gas in the plastic raw material and meanwhile the continuous fiber is input through the exhaust vent.

(2) HUNGRY FEEDER:

The exhaust vent is designed in the middle of the VENT barrel. If a large amount of plastics enters through the feeding hole, it will cause the plastics to discharge from the exhaust vent, so it is necessary to install HUNGRY FEEDER to control the feeding.

(3) FIBER ROVING:

Different from the short fiber molding, the long fiber application injection molding needs to use the input of the continuous fiber.

LONG FIBER MOLDING FRAMEWORK

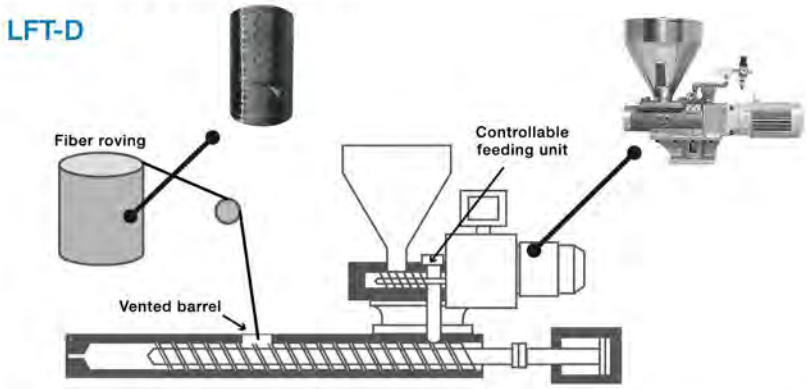


Figure 2 Diagram for the framework of long fiber molding injection units

Table 1 Specifications of machines and molding conditions

Test machine	HT30087	Distance between tie bars	605×605
Mould thickness	200~730 mm	Injecting stroke	280 mm
Material temperature	295℃	Mould temperature	80℃
Carbon fiber	A company / B company	Test material	Chimei PC-110
Test mold (Figure 3)	Tensile specimen mould	Dimension of finished product (Figure 4)	510mm×310mm×6mm
Weight of finished product	282g		

Experimental Planning

Figure 3
Test mould-tensile specimen

Figure 4
Physical diagram of tensile specimen
Machine test and result

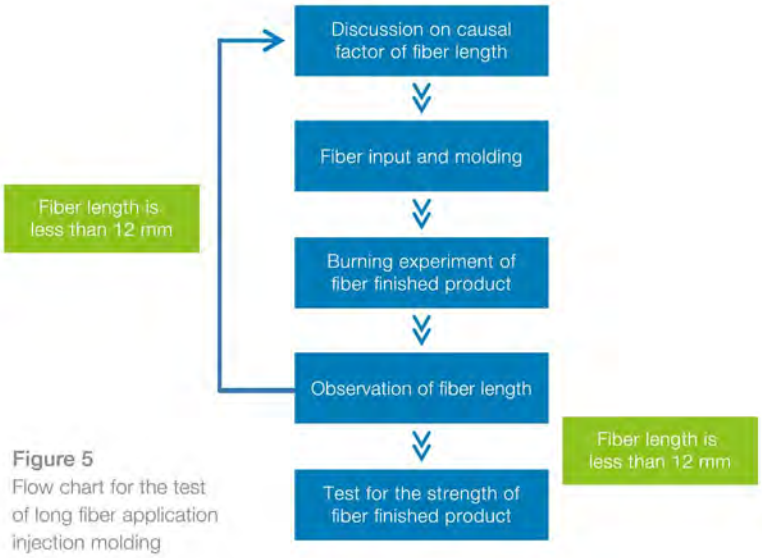
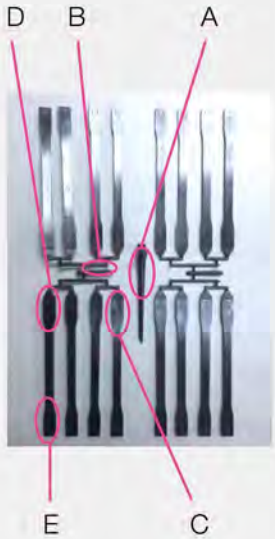


Figure 5
Flow chart for the test of long fiber application injection molding

Experimental Results and Discussion

The carbon fiber of the 2 brands (A/B) is used for molding and the fiber length distribution of different fibers and different positions is observed, so as to observe the persistence of fiber length of tensile specimen at each position through burning experiment. According to the burning result of tensile specimen in Table 2, the maximum fiber length of the fiber finished product of A company is about 30 mm and the average length is 10 mm, while the maximum fiber length of the fiber finished product of B company is about 25 mm and the average length is 6 mm.

Table 2 Table for the distribution of fiber length at each position of tensile specimen

Graphic illustration	Position	A	B	C	D	E
	Fiber of A company	 Average length : 4 mm Maximum length : 25 mm	 Average length : 3 mm Maximum length : 15 mm	 Average length : 6 mm Maximum length : 20 mm	 Average length : 8 mm Maximum length : 30 mm	 Average length : 10 mm Maximum length : 25 mm
	Fiber of B company	 Average length : 3mm Maximum length : 14 mm	 Average length : 2 mm Maximum length : 4 mm	 Average length : 3 mm Maximum length : 25 mm	 Average length : 3 mm Maximum length : 15 mm	 Average length : 6 mm Maximum length : 25 mm

Conclusion

According to the above test result, the fiber length has reached the target length of 12 mm set by FCS. The carbon fiber injection molding mainly focuses on energy and lightweight industry and later this technology will be introduced to the clients related to carbon fiber application industry, to help them solve the difficulty in long fiber injection process, so as to improve the product value of long fiber injection molding.

2018 FCS Global Exhibition Plan / Reported by MPO

Based on the principle of being "Fast Response, Customer Oriented and Service Differentiation", FCS not only constant pursuit of excellence in innovation, but also construct a comprehensive global marketing service network (e.g., set the global headquarter in Taiwan and three factories in Dongguan, Ningbo and Indonesia) to head towards the goal of "Top 10 in the world & NTD 10 billion in 10 years."

Taking one big step further this 2018, with the strategy of globalization and diversification, FCS has been actively reaching out to the world, expanding more branches and giving in-depth service to more customers. Moreover, with the prescient thought, FCS participates positively in the global exhibitions of plastic machinery and sincerely invites you to visit our stand.

In China

Exhibition	CHINAPLAS 2018	Daily-Use Articles Trade Fair	Asia-Europe EXPO	CMI-PLAS	Yuyao International Plastics EXPO	DMP
Location	Shanghai	Shanghai	Urumqi	Chongqing	Yuyao	Guangdong
Duration	24~27, Apr.	26~28, Jul.	30, Aug.~3, Sep.	Oct.	7~10, Nov.	27~30, Nov.

In Overseas

Exhibition	NPE	Expo Plast Peru	Interplas Thailand	Argenplas XV	Taipeiplas	Propak Myanmar
Location	USA	Peru	Thailand	Argentina	Taiwan	Myanmar
Duration	7~11, May.	23~26, May.	20~23, Jun.	11~14, Jun.	15~19, Aug.	13~15, Sep

Exhibition	Colombia Plast	Vietnamplas	Fakuma	Pack Print Plas Philippines	Plastics & Rubber Indonesia	Plast Eurasia Istanbul
Location	Colombia	Vietnam	Germany	Philippines	Indonesia	Turkey
Duration	24~28, Sep.	4~7, Oct.	16~20, Oct.	8~11, Nov.	14~17, Nov.	5~8, Dec.

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

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