HAITIAN INTERNATIONAL

50 CONTINUITY AWARENESS NEW WAYS

Advantage

Plastics News from Haitian International

A Magazine of Haitian International | Issue 16/2016

ZHAFIR PLASTICS MACHINERY

HAITIAN PLASTICS MACHINERY

TIANJIAN PLASTICS MACHINERY

WELCOME TO SHANGHAI!

Discover more Flexibility with Technology to the Point

Chinaplas 2016 国际橡塑展

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Professional: perfection
An interview with Solex Xiamen

Industrial Automation is not industry 4.0
A visit at WDI Technology

Large Zeres – ideal for automotive lighting.
A talk with Huayi & Changtai

EDITORIAL

FLEXIBILITY
THE KEY TO THE FUTURE

Chief Editor, Prof. h.c. mult. Helmar Franz
Text: Prof. Franz

communication. innovation. efficiency.

Some 26,000 machines sold, the second-best exports figures in our history, sales increases of almost 50% in the all-electric segment: There's no doubt about it, 2015 was an outstanding year for Haitian International.

Even though the difficult market conditions increasingly demand greater efforts from the mechanical engineering industry, we see at the same time the opportunity to grow from these challenges and reach new goals. Our strict customer-focused innovation strategy of „Technology to the point" and efficiency for sustainable growth has once again stood the test.

Flexibility is the key word for the future.

It will be the defining yardstick and an important factor in the success of future series and generations of machines, for our customers, and also for us as machine designers and manufacturers. Today, our standardized machines with „Technology to the point" already afford our customers a high degree of flexibility, so that the machines can be used to manufacture an unusually broad range of parts within a product group of similar parameters with efficiency and precision. In the future, you can expect even more from Haitian International.

Significant new features, for example, on our electric and two-platen models will be strategically transferred to other machine series. Our technological expertise in energy-optimized drives and other design innovations will be used for new model options. Establishing all-electric machines as a new standard in the small and medium-range clamping-force categories is just one of the medium-range goals.

Operation of the machines will be even easier and will also allow networking across interfaces – Keyword: intelligent manufacturing. In tandem with this, we will continue the development of Haitian International from being a specialist engineering company to being a provider of complete system solutions. Our course has been set and important steps have already been made. In 2015 alone, we expanded our production capacity with new factory halls in China, Germany, and India (see page 4/5) and we opened several new sites around the globe with application centers for mold tests. In short, we are here on-site to support you with full expertise so that you can maximize your competitive advantages with regard to economic efficiency, dynamics, and flexibility.

Welcome to Chinaplas!
We look forward to seeing you!

Sincerely yours,
Prof. h.c. mult. Helmar Franz
Director of Board and Chief Strategy Officer

Statistics 2015

- Total turnover 7.34 billion RMB
- Second-best export year with 2,3 billion RMB
- Almost 70% share in total turnover: Best-selling Haitian Mars Series
- 46.2% sales increase: Zhafir Venus Series
- 39.8% sales increase: Two-Platen Haitian Jupiter Series

ADVANTAGE_A Magazin of Haitian International

We Create and Extend Advantage.

ZHAFIR PLASTICS MACHINERY HAITIAN PLASTICS MACHINERY TIANJIAN PLASTICS MACHINERY

→ more Information under www.haitianinter.com

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ADVANTAGE_A Magazin of Haitian International

INTERNATIONAL EXPANSION

Technology to the point with extended application and service performance

Production efficiency and sustainable growth are key factors for Haitian International in the process of participating in the global plastics industry. Through the consistent expansion of production capacities and services in various markets, the customer support on-site should be optimized and enhanced. Showrooms and application centers for mold tests are in as much focus as faster customization of stock machines and increased availability of spare parts. In this context, in 2015, new production plants in Germany and India have been built and will be put into operation in 2016. Moreover, the existing sites in Brazil, Vietnam and Turkey will be expanded with application centers. New Technical Centers have been opened in Indonesia, Mexico and Thailand, complete with application centers as a performance focus.

New application center

Manufacturing & assembling
in China, Brazil, Turkey, Vietnam, India and Germany

Upgrade to application center

Regional Offices

Sales- and Service Partner

R&D, Headquarters

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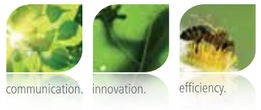
HAITIAN JUPITER II

THE NEW JUPITER II : THE BIG PLUS

Updated and improved two-platen-solution
from Haitian Plastics Machinery



The new Haitian Jupiter II with two-platen technology: Received the Ringer's Technical Innovation Award last month. Compact and space-saving design, with lots of room for the mold, modified for the automotive industry, logistics, white goods etc.

The new JU II: available from 4,500 kN - 80,000 kN.
Right: Ringer's Technical Innovation Award

Since introduction in 2013, the Haitian two-platen solution Jupiter II Series had an increasing success year by year. Already started in 2014, the two-platen technology machine design was optimized step by step according to customers' feedback and the market demand. Available clamping forces range starts from 4,500 to 66,000 kN.

The technologically robust new Jupiter II Series is impressive not only because of its rapid, smooth mold movements, and its very economical energy consumption: Because of its compressed design, it is also unbelievably space-saving and in addition it is quiet in operation. The selection of up to 5 injection sizes per clamping unit gives the processor great flexibility. "Because the products and the requirements of many of our customers are very varied so that they have to modify or readjust their manufacturing processes time, flexibility in our design is tailored to address such needs," Mr. Gao Shiquan, the deputy director of the Technical Department in Ningbo. The new clamping system is precise and easy to handle. Mr. Gao adds "And besides the fact that the Jupiter meets all international requirements, it is not only very comfortable to handle in many respects, for instance in terms of ease of overview and access to the individual areas, but also with regard to maintenance, for example because of the propoer placement of the hydraulics system in the machine base."

Technology to the Point – new Jupiter II for flexible injection molding

In addition to developing the smaller and medium clamping force categories for electrical machines, Haitian International places strategic emphasis quite clearly on its compact two-platen technology in the bigger clamping-force categories. Demand in these sectors is high: In 2015, the sales figures for the Jupiter II Series increased worldwide by around 40% compared to 2014.

Improved clamping unit

The biggest highlight of the new Jupiter II is an overall optimization of the clamping unit. The optimized design of the platen increases about 10% more mechanic rigidity, without increasing the weight of the platen, which can effectively reduce the platen deformation during mold close.

To achieve significantly shorter dry cycle time, various components have been newly designed, replaced, or optimized. For example, included among the basic changes are the optimized and now significantly faster travelling cylinders (increased mold movement by 5%), as well as new cylinders for the split nut mechanism.

Less wear is guaranteed by the contact-free, suspension structure of the tie bar, which helps to reduce the friction and improves the operation efficiency. Four independent clamping cylinders ensure accurate tie-bar positioning and allow precisely regulated adjustment of the mold height. With digital position-sensor system on the platen, the rapid reaction times using CAN bus communication and maximum positioning accuracy (± 0.05 %) is therefore achieved.

Jupiter production in the new factory Tong Tu Lu II

With improvement of the rigidity of the clamping unit in general, the service life of the machine has been extended and the operation is even more stable.

The optimized Injection unit is equipped with a new heater band design, which provides 20% more heating efficiency than the old design.

Flexible High-Speed Control System

All new Jupiter II Series are equipped with the established controller system from Techmation but can be upgraded by the high-performance KEBA controls (1.4 GHz CPU), which have diverse standard interfaces (CAN, KeNet, KeBus, Sercos, etc.) and can be configured rapidly and easily by a machine operator working comfortably at the LCD color touchscreen (12 or 15 inch), for the widest range of applications.

The new JU II also offers more practical functions in terms of the programming; for instance, the way of clamping pressure adjustment can be selected. Consequently it is an approach which can maximize the energy saving while controlling the clamping pressure within a certain range. Another additional function is that it offers the operator to re-examine the mold height automatically when the machine restarted.

Engineering Team with Mr. Gao Shiquan, Deputy Director of Technical Department in Ningbo (first row, second from right)

→ more Information under www.haitianinter.com

PROFESSIONAL: PERFECTION

AN INTERVIEW WITH SOLEX XIAMEN

Founded in 1992, Solex is engaged in the innovation, design and manufacture of kitchen and bath products. Currently, most of its products are exported to suppliers to the world's leading kitchen and bathroom products brands. The quality of Solex products and the growth of its sales have been widely recognized and the company is regarded as one of the leaders in the industry.

Solex Xiamen

When we first entered Solex' facilities, we went through the employee's playground, where we were warmly received by Mr. Liu Yangwang, who has more than 20 years of experience in injection molding.

Advantage: We noticed that Solex has been constantly ordering all-electric injection molding machines. What is the motivation behind this decision?

Solex's main products are bathroom showers, which are a high precision product. The competition in the bath design industry is extremely fierce. In order to stand out among various powerful competitors, the very first and most important condition is to establish higher requirements for product quality. And of course, better production equipment can provide a solid basis for helping to guarantee the achievement of these higher standards.
For instance, we produce a small part for water saving, for which the plus-minus tolerance should be within 1 mm. This is usually impossible for hydraulic machines. Even if a hydraulic machine could manage to produce the part, the yield would be not satisfactory. Therefore, such products need to be produced by precision injection molding machines.

Currently, Solex has 148 injection molding machines with clamping force from 60 to 800 tons, among which 12 are all-electric machines, all from the Zhafir ZE and VE series. Before buying Zhafir all-electric machines, we compared it with other injection molding machines of a certain Taiwanese brand. After our sophisticated investigation and comparison of specifications, precision, energy consumption and after sales service, we finally decided to buy Zhafir machines.

Advantage: What kind of machine is a good machine according to your understanding?

As a machine user and manager, the top priority for me is the performance of the machine, including the molding capability, yield, stability and failure rate.

Secondly, the after sales service is also an important factor. It is normal for a machine to break down occasionally, but if it is not repaired in a timely manner, it will negatively impact production. If we only consider price and choose cheap machines, we may face higher defect rates or higher failure rates. Then, if the machines break down and cannot be repaired quickly, the money we saved when buying the machine will be quickly lost. The total cost during the entire life cycle of the machine will be much higher than an "appropriate" machine.

Of course, energy consumption of the machine becomes more and more important for the company. We have to meet the energy consumption requirements established by the government every year. As injection molding machines are a major energy consumer throughout our entire production, we will only choose machines which are energy saving. Zhafir all-electric machines are very advantageous when it comes to energy savings.

We have always been interested in trying and evaluating machines and equipment with new technology and new features, because we believe that once it is transformed into productivity, it will certainly generate considerable efficiency and profit for the company.

Advantage: What's Solex's specialty in terms of product R&D?

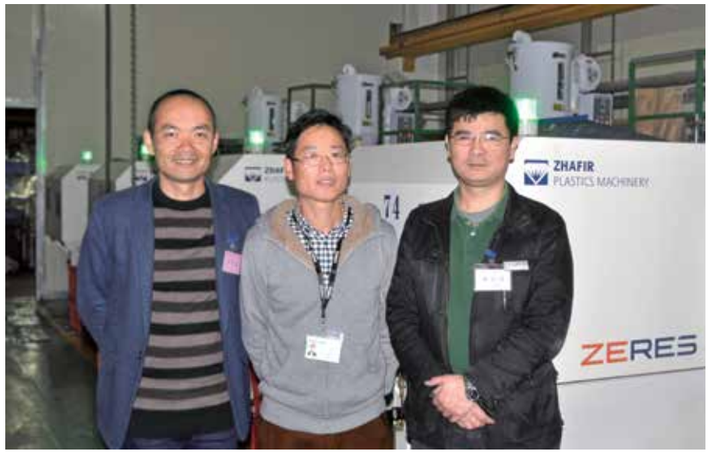
We have a very strong R&D team at Solex of around 200 people, who are concerned with front-end design up to the design for the production process. Some of them are based in the headquarters and others are dispatched to make a seamless connection with suppliers in terms of technical aspects.

Advantage: Haitian is currently working hard to enhance our application support to the customers, such as to realize the smart factory or the upgrade of manufacturing factories. What is your opinion concerning this direction?

Solex started our upgrade in automation several years ago. Our budget for automation apart from the injection molding machines has already reached RMB 10 million this year. Automation for us means not only to reduce the cost of labor, but to generate better quality and ensure a stable production cycle.

First of all, we has realized the auto supply of materials. Even if iin case of multi-color and having mold exchange frequently, it can also integrate the materials auto supply system by rational planning. Later, we have the robot gripper to take out the part and also have planned complicated robot outside mold automation solution. In addition, ERP is also indispensable for digitalization of production data.

Workshop of Solex



Mr.Zhu Yuanjie (left) and Mr. Wang Yulin (right) from Haitian, Mr. Liu Yangwang (middle) from Solex

SOLEX

Solex Sanitary Xiamen Co., Ltd.
No.298 Yangguang West Road,
Haicang District, Xiamen, Fujian
www.solex.com.cn
Established in 1992
Employees: 5680
Products: bath products, shower, bathroom and kitchen faucet, bathroom cabinet etc.
Machines: 5 ZE600, 5 Venus II and other 80 small and medium hydraulic machines

→ more Information under www.haitianinter.com

INDUSTRIAL AUTOMATION IS NOT INDUSTRY 4.0

VISIT AT WDI TECHNOLOGY (XIAMEN) CO., LTD.

WDI Technology (Xiamen) Co., Ltd. is the largest professional bath solutions provider in Asia and enjoys worldwide recognition. WDI's goal is to provide first-class bath parts and service solutions to both world-leading sanitary companies and individual consumers.

Currently, WDI operates almost 100 injection molding machines, manufacturing bath products which are mainly supplied to global first-class brands. In recent years, WDI has been granted more than 300 patents from China and overseas as a result of its focus and persistence in independent R&D. With its product quality and capacity for innovation reaching international standards, WDI has attracted numerous customers throughout the world.

Automation is a common target, but should be evaluated case by case

The question of automation has often been raised with Mr. Wang . He has been careful about implementing automation, holding back until he has a clear understanding about the real situation of the company. He has found that in reality, most of the companies are not yet ready for "Industry 4.0." It really depends on case by case evaluation. According to Mr. Wang, "Industry 4.0" is not the same thing as an "unmanned workshop." It is not limited to the automation of the production process, or easy integration of robots. Rather, it can only be achieved with a perfect combination of software and hardware.

WDI invested its full year profit in 2001 into an SAP project, making WDI the smallest company worldwide to use an SAP system. Now, the ERP and MES systems used by WDI were both developed and rewritten by its own software engineers based on the SAP system, and fits perfectly into the actual requirements of WDI.

"There is sophisticated and comprehensive ERP software available, and many consultants hope that they can simply copy a successful model and further provide it to other customers. But we don't think it always fits," said Mr. Wang. "Management principles and ideas vary from one company to another. Our focus and targets are different. For instance, WDI does not aim to produce products which have the most cutting edge technology, but we are always trying to constantly improve the quality of our products."

WDI Technology (Xiamen) Co., Ltd.

Quality control is the reason

"If there is a quality problem with a part, we can identify and remove it with labor during the traditional production process," said Mr. Wang. "However, when it happens in the fully automated production process, the quality problem may not be identified during the production process, but discovered in the inspection stage. Then we may face a very dangerous situation for the whole batch of finished products: how to deal with those products which have been finished but identified as having quality problems. This will be a true disaster."

WDI was extremely cautious about its approach and created a sophisticated plan for renovation with automation, taking it stage by stage and according to the needs of different products and different workshops. Many automation renovation projects are vetoed every year. For some particular projects, automation has not been and will not be considered at all. WDI will not go for automation because of everyone is doing so.

"When we saw the industrial automation implemented in foreign companies, it was easy to misunderstand, which may have lead us to believe that automation is only for saving labor force costs", Mr. Wang told us. "However, WDI introduces automation mainly for upgrading our quality and efficiency, because we believe that automation can somehow solve the problem concerning uncertainty caused by labor during the production process."

In WDI's automated workshop, the defective rate is controlled at under 0.05%. It has installed full coverage of real time inspection and identification of defective products. For instance, if there is some exceptional situation such as the deviation of final injection point, pressure fluctuation, injection speed fluctuation, etc., the plastics parts in this mold batch will be taken out to recycling as "defective parts." WDI guarantees that the products received by the customers will reach a defective rate of less than 5ppm. The strict requirement for quality control is the reason for automation.

Higher requirements for injection molding machines and processes

As to plastics parts, everything related to the production process needs to be strictly controlled such as equipment, mold, process, raw materials, environment, etc. If lacking control of any of those elements, the automation will not be perfect and may even become an obstacle.

The injection molding machine plays a major role in affecting the defective rate, therefore, WDI has extremely strict requirements for the precision and stability of their injection molding machines. For example, the KEBA control is a "must-have" condition when WDI is purchasing any injection molding machine. With advantages such as high precision and energy savings, all-electric machines such as Zhafir Venus machines are more attractive to WDI.
It is easy to transfer the workshop into an "unmanned" one. But to establish a suitable quality system is much more difficult. Once the molding process is changed, it will be necessary to newly evaluate the entire product quality system. Or the quality assessment and adjustment will be necessary when a screw needs to be changed. Therefore,.

It takes WDI more than 5 years to renovate a workshop with automation. Even a small fan in the workshop is controllable based on variable frequency and can adjust the air output according to different environmental conditions, controlling the temperature and humidity within the workshop.

Industrial automation—a long way to go

When we are talking about "Industry 4.0" at this moment, is still limited to reading the production data from the equipment or to partially realize some functions such as alarm monitoring. If later on it is possible to detect any abnormal situation during the production, the real time automated adjustment can be carried out based on data analysis to further make it a self-adjustable close loop. Then we can finally reach the target of Industry 4.0. In this sense, we still have a long way to go to realize Industry 4.0.

Workshop of WDI

Mr.Wang Xiangji from WDI

Workshop of WDI

LARGE ZERES – IDEAL FOR AUTOMOTIVE LIGHTING

A TALK WITH HUAYI & CHANGTAI

In recent years, due to its role in reducing automotive emissions and improving combustion efficiency, the lightweighting of automobiles has generated increased attention in the industry. It has developed into one of the most important initiatives for automotive materials. The use of plastics in automobiles has therefore been accelerating.

High precision products in the automotive industry is one of the target markets for medium-and-large Zeres machines.

Plastic automotive parts have a wide range of applications which can usually be classified into groups such as large interior/exterior parts, interior parts, functional parts, etc. Among the car lighting industry, there has been a shift from traditional halogen lights and xenon lights towards the current LED and laser lights. The mainstream LED headlights have already developed into light guided LED headlights. What is the difference between the plastics parts in the light guided LED headlights as compared to traditional lights? How about the processing? Is there any difference?

With these questions in mind, Advantage Magazine took a trip to Shanghai, a major automotive production base in China, where a lot of automotive parts suppliers are gathered. Advantage Magazine spoke with two professional automotive lamp manufacturers there, both of which are supplying Koito Automotive Lamp.

One of the most important functional parts on the LED lamp is the strip lighting, which can regularly reflect the LED light source. It is an optical part for the automotive industry and has extremely high requirements for its injection molding process.

To process such parts, the mold space needs to be very large. The control over the injection parameters, such as the pressure and speed, should be very precise. The pick-up of such parts needs to be done all by robots. In this sense, the precision of the mold opening ?? and the position of the injection molding machine is also very essential.

All-electric machines, which directly drive the machine's moving parts through mechanical structure of the servo motor, can generate extremely precise movements in terms of pressure, speed, and position. Compared to traditional hydraulic machines, the all-electric machines are much more stable and can substantially improve the rate of qualified plastics parts during the production cycle.

The automotive lamps produced at Huayi must strictly comply with the inspection standards from Shanghai Volkswagen and they are only allowed to start mass production two months after successful operation on the car tested by the automotive producer.

Mr. Yang Zhihua, the leader of the injection molding workshop at Huayi Automotive Lamp, told the Advantage Magazine. "Originally, all the machines used in Huayi were hydraulic.. We know that a hydraulic machine is more sensitive to the environment; the precision of the molded parts can be substantially influenced by conditions such as oil temperature, low viscosity of the hydraulic oil as it is used for a long period, etc. In order to meet the strice requiremnts, we decided to shift to all-electric machines from Zhafir. We were excited about the excellent performance of the machines, which helped to improve our quality rate from 85% to 95%!"

Automotive lamp

Huayi has purchased 25 electric machines. The positive feedback further convinced Huayi that the electric solution would continue to be their first choice. Mr. Yang said, "Apart from better precision and quality, we are also very satisfied with its energy saving performance, which brings about direct benefits, too."

In the workshop at another supplier to Koito Automotive Lamp, there are 23 electric injection molding machines. Mr. Gu, who is in charge of the injection molding workshop, said, "All the machines here are equipped with accurate flow meters, and we also have chillers and mold temperature controllers, to ensure the precision of the injection molding process. As a result, the quality rate can be above 95%. We are very satisfied with Zhafir's electric machines. It is especially outstanding in stability and controlling of the error rate."

Workshop of Huayi

Workshop of Changtai

Workshop of Huayi

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WELCOME TO CHINAPLAS

EXHIBITS AT A GLANCE

This QR code creates compact information about us and our product portfolio.

Haitian **Mars** 2 Series

1,700 / 2,100 / 2,700 / 3,300 kN

NEW EDITION HIGH PERFORMANCE

Haitian Mars II /h Series

Mars High Performance edition enhance the application field of the best seller Mars Series: overall upgrade in design, substantial improvements in addressing problems such as oil leakage and limited service life of machine in fast cycle time injection molding. Modern manufacturing process and advanced injection control enables fast response and highly stable performance of the machine. It can be widely applied in the plastics processing industry, especially for applications as thin-wall parts and it also provides increased mold space with high cavities.

Machine type ..... MA2100 II /750h
Application ..... Icecream cup
Part weight ..... 7.2 g
Cavity 4
Material ..... PP
Cycle time ..... 4 s

ENERGY SAVING TECHNOLOGY

Haitian **Iapetus** 2 Series

1,200-20,000 kN

MULTI-COMPONENT

Haitian Iapetus II Series

Haitian Iapetus turntable multi-color machine in two-platen solution, is developed based on Haitian Jupiter II two-platen series, with substantial improvement in the loading capacity and stability of the turntable. With application of the single injection cylinder, the injection unit is more compact and the structure is more simple and stable. The turntable system is equipped with a rotating encoder and a movement control card to establish the close-loop control, giving the advantage of speed, stable and precise. Two independent servo systems offer better enery saving.

Machine type ..... IA7500 II /n-j
Application ..... Computer key
Part weight ..... 138 g
Cavity 104
Material ..... AB,PA
Cycle time ..... 45 s

ENERGY SAVING TECHNOLOGY

Zhafir **Venus** 2 Series

400-10,800 kN

DYNAMIC COST EFFECTIVE

Zhafir Venus II Series

The Venus II Series is highly dynamic, cost-efficient, and more customer-oriented than ever before. The new injection unit has a more compact shape; fewer individual components provide for greater stability and dynamics in the injection process. The clamping force for Venus II Series is available from 400 until 10,800kN.

Machine type ..... VE1200 II /300
Application ..... flexible cable tray base
Part weight ..... 9.85 g
Cavity 4
Material ..... ABS
Cycle time ..... 20 s

ENERGY SAVING TECHNOLOGY

Zhafir Zeres Series

400-10,800 kN

NEW ELECTRIC SERIES WITH INTEGRATED HYDRAULIC

Zhafir Zeres Series

The Zeres offers all the advantages of electric injection molding technology: precision, energy efficiency, independent parallel movement throughout the whole cycle, and, not least, easy maintenance. Servo-electric drives for injection, dosing, and mold movement ensure a high level of dynamics. In addition, an integrated hydraulic unit for minor movements the Zeres for applications with core pulls or standard precision parts.

Machine type ZE1200/300
Application ..... flexible cable tray link
Part weight ..... 2.5 g
Cavity 8
Material ..... PA66+GF13
Cycle time ..... 15 s

ENERGY SAVING TECHNOLOGY

→ more Information under www.haitianinter.com

Haitian Plastics Machinery manufacturing hall in Ningbo, China

Zhafir Plastics Machinery in Ningbo

Haitian International Germany

Proximity to customers create advantage

Because of the permanent availability of important customer services, replacement parts and service features, our customers are always able to develop clear competitive advantages and to use them lucratively, both now and in the future.

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