The Characteristics and Regularity of China Die Casting Industry Development

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1. General Situation of China Die Casting Industry

It is announced by the State Statistical Bureau of China that the Chinese GDP in the year of 2005 was up to 18 232.1 billion yuan RMB, with a growth rate of 9.9% compared with last year. In 2005, 5 707.7 thousand vehicles were produced in China, growing 12.56%, while the sale reached 5 758.2 thousand units, growing 13.54%. Among them, the output of cars reached 2 767.7 thousand units, growing 19.49%, while the sale increased to 2 787.4 thousand units, growing 24.31%, in comparison with the same period in last year. The production and sales of vehicles in China take on the rising tendency.

The total output of die castings in China in 2005 was 864 200 tons, with a growth rate of 10.9% year-on-year in last year. It is at the phase of steadily growing.

The year of 2006 is the first year of the Chinese “Eleventh Five-Year Plan”. The development trend of the society and economy is now quite encouraging. The Chinese GDP is expected to have a about 8% growth rate. And the die casting industry will still keep a stable growth.

2. The Necessity of Continuous Growth for China Die Casting Industry

2.1 The continuous growth of national economy is the base for the development of die casting industry

In recent years, the auto industry has been rapidly growing, the output of motorcycles keeps up to ten millions annually, the real estate industry has been very prosperous, and the number of mobile phone users has approached 383 million, all these will promote the development of China die casting market. It is no doubted that the auto hot, real estate hot and economic hot in our country will last for decades of years. During the “Eleventh Five-Year Plan” of China, the GDP will grow around 7.5% each year. All these provide the base for the continuous growth of China die casting industry.

2.2 The globalization of world economy facilitates the center of international die casting to transfer to China

In the tide of world economy globalization, the industries are being developed into international divisions. The economic level of our country, especially scores of millions tons of nonferrous metal resources, and huge market, have determined the place of our country among the international industrial divisions. Obviously, China is lying in the sequence of product manufacturing. Hence, China will undertake the task of producing nonferrous metal castings and the related products in the international market for a very long time. The international center of die casting production transfer to China has become inevitable.

We soberly know that a great deal of nonferrous metal resources and energies will be consumed, and the environment will be contaminated, but the profits are very less. So we should actively take measures to gradually realize the transformation of industrial structures, to produce high-tech and value-added products, and to become the knowledge based industrial country.

2.3 The rapid development of auto industry and demand for light weight automobiles promote the development of die casting industry

Light weight castings have become the important tendency of development. Take automobile as an example, the target for a new generation car is to reduce its oil consumption to 3 liters per kilometer (L/km). Thus it is required that the weight of the whole car should be reduced 40%-50%. which offers bright prospect for the development of die casting industry.

The great demand of die castings in the domestic and abroad markets determines the historic necessity of continuous growth of China die casting industry.

In 2005, the total output of nonferrous alloy castings in the whole nation was approx. two million tons, of which the total output of high pressure die castings, low pressure castings and squeeze castings was 1.4 million tons, accounting for 70% of the total output of nonferrous alloy castings. The rest were gravity castings and sand castings.

<table>
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<td>3 251 200</td>
<td>4 443 700</td>
<td>5 070 500</td>
<td>5 707 700</td>
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<td>The output of cars</td>
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<td>2 018 900</td>
<td>2 316 300</td>
<td>2 767 722</td>
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<td>708 060</td>
<td>778 600</td>
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<th>Zinc alloy die castings</th>
<th>Magnesium alloy die castings</th>
<th>Copper alloy die castings</th>
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<td>218 500</td>
<td>8 960</td>
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<td>25.2</td>
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</table>

Table 1 The total output of die castings and vehicles in China in 2001-2005

Table 2 The output and percentage of various kinds of nonferrous alloy die castings in 2005
3 The Diversity of China Die Casting Production

The diversity of application fields for die casting products is one of the features of die casting production in our country. The automobile die castings in Japan and USA account for 80% - 90% of the total output of their die castings, but in China merely about 50%. Furthermore, 17 million motorcycles, 2.68 million farm tractors and trucks, and 8 million electric bicycles, greatly reduce the influence of automobile market fluctuation on the die casting industry. However, the automobile production and sales still had the growth rate of more than 12% in 2005. In addition, the industries of hardware and light fittings, household appliances, electric tools, etc. are very flourishing. Thus the die casting production in China still keeps the stable and higher growth rate.

In 2005, the demand for and percentage of die castings in the main industries were as follows: 542 700 tons were demanded for automobiles and motorcycles, accounting for 62.8%; 138 200 tons for hardware, toys and auto models, accounting for 16.0%; 101 900 tons for electric appliances, electronic and computers, accounting for 11.8%; 81 400 tons for general machinery and other fields, accounting for 9.4%.

3.1 Die casting of aluminum alloy cylinder blocks for automobile engines

In recent years, the die casting of aluminum alloy cylinder block for automobile engines in our country has been developed rapidly and greatly. Guangzhou Dongfeng Honda Engine Co. Ltd. was the first to commercially produce the aluminum alloy cylinder blocks of cars by means of die casting. Subsequently, Chongqing Changan Automobiles (Group) Co. Ltd., Chongqing Changan Suzuki Automobile Co. Ltd., Harbin Dongan Auto Engine Co. Ltd. all introduced the fully automatic die casting lines to produce aluminum alloy cylinder blocks for automobile engines around in 2002. Shanghai Cosmopolitan Automobile Accessory Co. Ltd. produces aluminum alloy cylinder blocks for Liuhe Wuling automobiles, and has introduced the 35 500 kN fully automatic die casting production line to develop and produce larger aluminum alloy die castings. Recently, China FAW Group Corporation introduced the 27 000 kN fully automatic die casting production line, and Yixing Jiangxu Casting Co. Ltd. introduced the 32 000 kN fully automatic die casting production line. In September 2004, the 30 000 kN automatic die casting line of Guangdong Hongtu Technology (holdings) Co. Ltd. was formally put into production. All these die casting production lines afford good conditions for developing and producing large-sized aluminum and magnesium alloy die castings.

Especially in 2005, the new-turn investment of the multinational automobile magnates for engines surges in our country. In April, Changan Automobile (Group) Co. Ltd., Ford Motor Co. and Mazda Motor Corp. set up engine plants in Jiangning Economic & Technological Development Zone, Nanjing City, Jiangsu Province. At the beginning of May, Volkswagen FAW Engine (Dalian) Co. Ltd. was founded, with an annual output of 300 thousand engines. Volkswagen Shanghai Automotive Power Co. Ltd. is a joint-venture company established in Shanghai on May 25 by SAIC Motor Corporation Limited and Volkswagen AG., with an annual output of 300 thousand engines also. In June, the new engine plant of SAIC GM Wuling Automobile Co. Ltd. was laid of cornerstone in Liuzhou, Guangxi Province, with a total investment of 3.2 billion Yuan RMB, and the annual output is 500 thousand engines. The investment hot of automobile engines will effectively accelerate the die casting of aluminum alloy engine cylinder blocks.

3.2 Aluminum alloy wheel hubs and pistons for automobiles and motorcycles

There are approx. one hundred enterprises producing aluminum alloy wheel hubs in our country. They mainly adopt the techniques of low pressure casting, gravity casting and squeeze casting. High pressure die casting is rarely utilized. In 2003, the total output of wheel hubs was 42.5 million pieces, and in 2004, the total output was up to 47 million, growing 10.6%, among them, seventeen million pieces were exported, accounting for 36.17%. The main enterprises include Qinhuangdao Diecastal Wheel Manufacture Co. Ltd., Guangdong Nanhai Zhongnan Aluminum Wheel Co. Ltd., Zhejiang Wanfeng Aowei Auto Wheel Co. Ltd., Zhejiang Wanfeng Motorcycle Wheel Co. Ltd., Baoding Lizhong Wheel Manufacturing Co. Ltd., Kunshan LiuFeng Machinery Industry Co. Ltd., Sammenxia Jiahei Wheel Hubs Co. Ltd., China Wheel (Tai’an) Aluminum Product Co. Ltd., China Wheel (Jiangmen) Aluminum Product Co. Ltd., Chengdu Yuanda Wheel Hub Co. Ltd., Xiamen Min-Shing Co. Ltd., Shanghai Kwok Hing Metal Manufactory Co. Ltd., Fushun Shunhua Aluminium Wheel Manufacturing Co. Ltd., Shanghai Fervent Alloy Wheel Manufacture Co. Ltd., Enkei Aluminium Products (China) Co. Ltd., Shenyang Dooray Wheel Co. Ltd., Weihai Wanfeng Auto Wheel Co. Ltd., Zhejiang Yuhuan Hengbao Machinery Co. Ltd., Zhejiang Tailong Aluminium Wheel Co. Ltd., Zhejiang Zent Alloy Wheel Manufacture Co. Ltd., China Wheel (Dongfeng) Aluminium Product Co. Ltd., Danyang Jincheng Wheel Manufacturing Co. Ltd., Shandong Bingshou Bohai Aluminium Wheel Co. Ltd., Weihai Wanfeng Aowei Auto Wheel Co. Ltd., Shanghai Wanfeng Aluminium Industry Co. Ltd., Chongqing Wanfeng Xinrui Car Wheel Co. Ltd., Chongqing Jieli Wheel Manufacturing Co. Ltd., Ningbo Ultra Wheel Co. Ltd., Chongqing Zhong Nan Aluminum Alloy Wheel Co. Ltd. These companies are now thriving to grow.

The demand for aluminum alloy pistons is very large. Several hundred millions of them are produced every year, mainly by means of gravity casting, squeeze casting and low pressure casting. High pressure die casting is rarely utilized. The main enterprises include Kolbenschmidt Shanghai Piston Co. Ltd., Mahle ( Nanjing) Piston Co. Ltd., Shandong Bingshou Bohai Piston Co. Ltd., Dongfeng Piston & Bearing Co. Ltd., Chongqing Changjiang Isumi Piston Industry Co. Ltd., Tianjin Tasson Piston Manufacturing Co. Ltd. (used to be Piston Manufacturing Factory of Tianjin FAW Group), Beijing Jingxing Piston Manufacturing Factory, Changzhou Zhengxing Piston Co. Ltd., Fujian Juli Industry Co. Ltd., Hebei Sanyo Piston Co. Ltd., QuFu JinHuang Piston Co. Ltd., China Qingqi Group Qufu Piston Factory, Harbin Dongan Liyuan Piston Co. Ltd., Fujian Jinjiang Min’an Piston Industry Co. Ltd., Nanping Huamin Automobile Fitting Industry Co. Ltd., Hongxing Piston Factory of Yantai
In 2005, the output of motorcycles in our country was 17.767 million units, growing 6.75% compared with the same period of last year, while the sales reached 17.745 million units, growing 6.52%, among them 4.553 million units were exported, growing 39.05%, which brought in foreign exchanges to the tune of 1.82 billion USD, growing 48.54%. Five enterprises with outputs of millions of motorcycles individually, came forth in 2005. They are Jiangmen Great Long River Group Co. Ltd., China Jialing Group, Jianshe Industries Co. Ltd. (Group), China Qianjiang Group, Luoyang Northern Enterprises Group Co. Ltd. The outputs of Chongqing Lifan Industry (Group) Co. Ltd., Loncin Industry Group, Sundiro Honda Motorcycle Co. Ltd., China Qingqi Group and Jincheng Group are all beyond 800 thousand motorcycles. The ever-lasting flourishing of motorcycle industry has become the important support for the continuous development of die casting industry.

3.4 The automobile parts and components have constructed a huge market

The great internal and external demands of automobile industry promote the rapid development of parts and components manufacturing industry. In 2004, the amount of automobile parts and components was up to 440 billion yuan RMB, and in 2005 the number was about 500 billion yuan RMB, while the aluminum alloy die castings occupied a very large part.

In recent years, a great number of enterprises and production bases producing auto parts and components have been set up, and the number is still being rapidly expanded. In Yuhuan, Zhejiang Province, the annual sales of automobile and motorcycle parts and components has been up to 10 billion yuan RMB, and the annual export amount is up to 55 million USD. In the Suzhou National New & Hi-Tech Industrial Development Zone, there are more than forty enterprises producing automobile parts and components, and the high-tech and high value-added industry of automobile parts and components is centralized to be developed there. In Foshan, Guangdong Province, the market of automobile fittings is very prosperous. In 169 enterprises producing automobile fittings, the total investment was 6.878 billion yuan RMB, and thus the auto fittings bases of Nanhai, Shunde and Shanshui have been preliminarily founded. In 480 enterprises of Chongqing mainly producing parts and components of automobiles and motorcycles, the total output value in 2004 was 21.3 billion yuan RMB. For instance, the sales revenue of Chongqing Yujian Die-Casting Co. Ltd. in 2004 was up to 580 million Yuan RMB. In Wuhan, Hubei Province, merely in the year of 2004, over three billion USD investment was absorbed from the multinational automobile groups of France, USA, Japan, etc. In 29 industrial projects of Xiangfan City, Hubei Province relevant to automobile fittings in 2004, the total amount of investment was 2.23 billion yuan RMB, and the annual output value was beyond 600 million yuan RMB. In more than 140 enterprises producing automobile parts and components of Liaoning Province, the asset is over 12 billion yuan RMB, among them, there are more than thirty joint-venture enterprises, which are distributed in the areas of Shenyang, Dalian and Yingkou. In Shandong Province, the export value of automobile parts and components was up to USD 460 million in 2004, and the growth rate was 69% compared to the same period of last year.

During the new-turn investment of the multinational magnates of automobile parts and components in our country in 2005, merely in June were there more than ten new investment projects. Visteon Corporation, USA, constructed three joint-venture companies in China at one blow. Qingdao Automobile Fittings Co. Ltd. was established by APM Automobile Parts Co. Ltd., USA. After four hundred million yuan RMB was invested by TRW Automotive Holdings and China South Industries Group Corporation (CSGC), CSG TRW Chassis Systems Co. Ltd. was set up in Bishan, Chongqing City. Changchun Delta Fawer-Johnson Hi-Tech Co. Ltd. is a joint venture company established by Changchun Fawer-Johnson Controls Automotive Systems Co. Ltd. and Japan Delta Industry Co. Ltd. Such companies as Delphi Corporation, USA, Honeywell International, USA, Bosch GmbH, Germany, Denso Corp., Japan, and so on, all of them are roundly accelerated to enlarge their markets in China to make fully use of the opportunity that China automobile market is expanding at a high speed.

3.5 The hot real estate industry promotes the rapid development of hardware industry

The strong and powerful development of real estate industry effectively promotes the development of building hardware and household hardware.

In Yuhuan, Zhejiang Province, there are approx. 800 enterprises producing valves and sanitary hardware with an annual output value of about 7.5 billion yuan RMB, and the export value of about 2.5 billion yuan RMB, and the valves produced account for approx. 60% of those in the whole nation. A batch of scientific research, production and export bases have been set up. In Wenzhou, Zhejiang Province, there are more than 400 enterprises producing locksets with an annual output value of over 6 billion yuan RMB, the export value is over 2 billion yuan RMB, and Wenzhou is praised as “the capital of locks”.

As the die casting of aluminum alloy elevator pedals has been rapidly developed, a great number of g manufacturers have been founded, including Suzhou Schindler Elevator Co. Ltd., Suzhou Jiangnan Elevator Group Co. Ltd., Wuxi Shenling Elevator Accessories Co. Ltd., Suzhou Esca Step Co. Ltd., Wuxi Ouya Elevator Equipment Co. Ltd., Qiqihaer Jianhua Elevator Factory, Tai’an Jinshankou Elevator Accessories Co. Ltd., Zhangjiagang George Fisher Moessner Nonferrous Die Casting Co. Ltd., Jiangyin Xinda Aluminum Products Co. Ltd., Guangdong Hungtu Technology (holdings) Co. Ltd., Shanghai Xinyi Nonferrous Casting Factory, and so on.
The continuous development of hardware, light fittings, toys and auto model industries provides the large market for zinc alloy die castings. In 2005, the output of zinc alloy die castings was up to 218 500 tons, accounting for 25.2% of the total output of die castings. The market of zinc alloy die castings mainly lies in the coastal provinces and cities, among these Guangdong Province ranks at the first place, the followings are Zhejiang, Jiangsu, Shanghai, Tianjin and Fujian. Especially after the returns of Hong Kong and Macao, the business of approx. 100 thousand tons of zinc alloy die castings and hundreds of fully automatic zinc alloy die casting production lines have been transferred to the coastal regions of China such as the Pearl River Delta Region, etc., further promoting the prosperity of zinc alloy die casting market.

3.6 The die casting of magnesium alloys are rapidly developed at a high growth rate of 20% annually

The magnesium resources in our country are very rich. In 2005, the output of original magnesium was up to 469.6 thousand tons. On the other hand, there are great potential demands for magnesium alloy die casting products. This advantaged condition of supply and demand certainly inspires the enthusiasm of magnesium alloy die casting production in China.

In recent years, the number of manufacturing enterprises and scientific research units of magnesium alloy die casting has been rapidly developed from the former several to approx. one hundred. Shanghai Cosmopolitan Automobile Accessory Co. Ltd. was the first to produce large quantities of magnesium alloy transmission housings. Subsequently, magnesium alloy shells of notebook PCs, cell phones, digital vidicons and cameras become the hot point of die casting production, and a great number of high-level enterprises have been set up, such as Qingdao Magtech Co. Ltd., Nitek Technology (Qingdao) Co. Ltd., Catcher Technology (Suzhou) Co. Ltd., Taicang Jingde Technology Co. Ltd., Fuyu Precision Components Holding (Kunshan) Co. Ltd., Ka Shui Holdings Co. Ltd., Dongguan Meida Hardware Products Co. Ltd., Meida Industry Co. Ltd., Oriental Pan Pacific (OPP) Metal Products (Shenzhen) Co. Ltd., Dongguan Dongyun Magnesium Co. Ltd., Huanyu Magnesium & Aluminum Alloy Die Casting Co. Ltd., Huangjiang Jingcheng Technology Co. Ltd., Dongguan Kengli Hardware Products Co. Ltd., Foxconn Technology Group, MG Technology (Shenzhen) Co. Ltd., Changzun Huayu Magnesium Co. Ltd., Ningbo Naito Magnesium Tech. Development Co. Ltd., and so on. At present they are still growing rapidly. In particular, Chongqing Loncin Group successfully manufactured the motorcycles with the concept of all magnesium in 2003. The magnesium alloy die castings in China Mainland was close to 9 000 tons. Therefore, the situation of great development of magnesium alloy die castings in China has basically come into being. Our expectations that the advantages of magnesium resources be transformed into economic advantages and the desire for the industrial leap forward development will gradually come into reality.

4 The Clustering Characteristics of Die Casting Production in China

The annual output of die castings in our country is over 860 thousand tons, and the annual output value is close to 40 billion yuan RMB. The industry clusters have been constructed all over the country (see Table 3).

4.1 The die casting industry clusters in six provinces and one city of East China

The six provinces and one city in East China include Shanghai City, Jiangsu, Zhejiang, Fujian, Anhui, Shandong and Jiangxi provinces. The annual output of die castings in East China is approx. 320 thousand tons, accounting for 37.7% of the total output in the entire country. At present, Shanghai is the largest production base of cars in China, where there are more than fifty world first-class joint-venture companies of automobile parts and components. In Jiangsu Province, there are many
backbone enterprises such as Nanjing Fiat Automobile Co. Ltd., Chunlan Group Corp., SAIC Yizheng Automotive Co. Ltd., Zhejiang Geely Holding Group, Wanxiang Group, Huaxiang Group, etc. In addition, there are Zhejiang Wanfeng Auto Group, Fujian Tsann Kuen Group in East China. These large-sized enterprises facilitate the development of die casting industry clusters in East China.

4.2 The die casting industry clusters in six provinces of central south China

The six provinces in central south China include Guangdong, Guangxi, Hunan, Hubei, Henan and Hainan provinces. The annual output of die castings in central south China is approx. 300 thousand tons, accounting for 34.4% of the total output in the entire country. Large quantities of important enterprises such as Guangdong Hongtu Technology (holdings) Co. Ltd., Guangdong Wencan Die Casting Co. Ltd., Guangzhou Dongfeng Honda Engine Co. Ltd., etc. are located in central south China. The joint capitals of Guangdong province and Hong Kong region more effectively promote the development of die casting industry clusters in the Pearl River Delta region.

4.3 The die casting industry clusters in three provinces of North-east China

The annual output of die castings in North-east China is approx. 70 thousand tons, accounting for 8.5% of the total output in the whole country. The die casting industry in the old northeastern industrial base has a long history, there are such large-sized enterprises as China FAW Group Corporation, BMW Brilliance Automotive Co. Ltd., Jinbei GM Automotive Co. Ltd., Harbin Hafei Automobile Industry Group Co. Ltd., etc. These backbone die casting enterprises include Special Foundry Plant of FAW Foundry Co. Ltd., Changchun FAW United Die Casting Co. Ltd., Changchun Sanjia Carburettor Co. Ltd., and so on. The enterprises producing automobile parts and components include FAW-FAWER Automotive Parts Co. Ltd., FAW-KOYO Steering Systems Co. Ltd., FAW-TOKICO Shock Absorber Co. Ltd., Changchun Hella Automotive Lighting Co. Ltd., Changchun Fawer-Johnson Controls Automotive Systems Co. Ltd., FAW Kaier-Haisi Automotive Parts Co. Ltd., Changchun TGR Jinhuang Automotive Product Co. Ltd., Siemens VDO Automotive Changchun Co. Ltd., Jinlin North Jieki Driving Shaft Co. Ltd., Shenyang Aerospace Mitsubishi Automotive Engine Co. Ltd., Dalian Yaming Automotive Parts Manufacturing Co. Ltd., and so on. These enterprises constitute the powerful die casting industry clusters in Northeast China.

4.4 The die casting industry clusters in three provinces and one city of Southwest China

The three provinces and one city in Southwest China include Chongqing City, Sichuan, Yunnan, and Guizhou provinces. The annual output of die castings in Southwest China is approx. 100 thousand tons, accounting for 12% of the total output in the entire country. Chongqing is the largest production base of mini-cars in China, where Chang’an Automobile Co. Ltd. is located. Other backbone enterprises producing commercial vehicles include Chongqing Changan Suzuki Automobile Co. Ltd., Chongqing Yutong Bus Co. Ltd., Chongqing Heavy Vehicle Group Co. Ltd., and so forth. Chongqing Yuyiang Die Casting Co. Ltd. has 80 die casting machines, e.g. the 16 000 kN die casting machine. The daily output of aluminum alloy die castings in the company is approx. 150 tons, and the annual output of aluminum die castings is approx. 30 thousand tons. These enterprises are playing a great role in the development of die casting industry clusters in Southwest China.

4.5 The die casting industry clusters in two provinces and two cities of North China

The two provinces and two cities in North China include Beijing and Tianjin cities, Shanxi and Hebei provinces. The annual output of die castings in North China is approx. 40 thousand tons, accounting for 5% of the total output in the entire country. There are still large spaces left in the development of die casting industry clusters in North China.

4.6 The die casting industry clusters in five provinces of Northwest China

The five provinces in Northwest China include Shaanxi, Gansu, Ningxia, Qinghai and Xinjiang provinces. The annual output of die castings in Northwest China is approx. 20 thousand tons, accounting for 2.4% of the total output in the whole country. The resources in Northwest China are rich, the market is large, and the die casting industry there has great potential to be developed.

5 The Arduousness of Die Casting Production and Management in China

Owing to the reform and open policy, the market in China is so large that the large international companies are competing to occupy the market of China. The demand for automobiles in our country in 2010 will approach over nine millions, and in 2020 China will become the largest market of automobiles in the world. Thus, it is inevitable for multinational magnates to seize the China market of automobile parts and components. This year, as the restriction of import quotas has been cancelled, the domestic enterprises of automobile parts and components are confronting with much more pressure. At present, in the industry of automobile fitting parts in our country, there are large backbone companies, including the automobile parts manufacturing companies of large automobile corporations such as FAW-FAWER Automotive Parts Co. Ltd., SAIC Yizheng Automotive Co. Ltd., Zhejiang Wanfeng Auto Group, Hunan Torch Automobile Group Co. Ltd., China FAW Group Corporation, Dongfeng Motor Corporation, Shanghai Automotive Industry Corporation, etc. However, among thousands of automobile parts enterprises, merely a few has stronger competition power. Hence in this case, the domestic enterprises of automobile parts and components should take the strategy of industry clustering, then will have the scale effects and can take the
advantages of scale effects, to realize win-wins during the cooperation among enterprises of entire cars and automobile parts. It will take China ten years or so to realize that automobile parts and components of China account for 10% of the worldwide automobile trade turnovers, i.e. to complete the export exchange of more than USD 120 billions. In May 2004, Zhejiang Geely Holding Group signed the contracts on the entire vehicles and CKD projects with Malaysia IGC Group. According to the agreement, Geely Holding Group and IGC Group cooperate to manufacture, assemble and export Geely automobiles in Malaysia. In 2006, 10,000 whole-vehicles and 30,000 complete sets of parts and components will be exported to Malaysia by Geely Holding Group. In June 2004, Dadi Automobile Corporation signed contracts with Malaysia LM Star Company, agreeing to assemble and produce automobiles in Malaysia. In October 2004, Shanghai Automotive Industry Corporation purchased 48.9% of the stocks of SSANG YONG Motor Company, Korea. These enterprises have lifted the curtain for China automobile industry going out and exploiting the overseas markets.

On the other hand, the foreign die casting machine manufacturers come into the Chinese market on a large scale. They establish factories in China to produce die casting equipment and sell their products in the country. They aim at producing top grade die casting equipment for the large key projects, key industries and enterprises, and gradually extend to produce the middling die casting equipment. UBE Industries Ltd., Japan, set up an exclusively foreign capital enterprise in Waigaoqiao Free-Trade Zone, Pudong District, Shanghai City, which was put into production in April, 2002. Toshiba Machine Co. Ltd., Japan, established a wholly-owned subsidiary company in Shanghai Xinzhuang Industry Park, which started its businesses in October, 2003. Frech GmbH, Germany, has built factories in Fengxian District, Shanghai City. The production base of Buhler Equipment Engineering (Wuxi) Co. Ltd., Switzerland, was set up in March, 2005. PacMar Machinery Co. Ltd. was established in Huxin City, Liaoqing Province, invested by PacMar Corporation, USA to manufacture die casting machines. DAE HAN Engineering (Suzhou) Co. Ltd. also produces and sells die casting machines and auxiliary equipment.

It is more active for die casting manufacturers in Hong Kong and Taiwan Regions to come to invest in China Mainland and set up factories. For instance, Hong Kong L. K. Group has established the following companies in China Mainland: L. K. Machinery (Shenzhen) Co. Ltd., L. K. Machinery (Zhongshan) Co. Ltd., Shanghai L. K. Machinery Co. Ltd., Shanghai Atech Machinary Co. Ltd., and Shenzhen Leadwell Technology Co. Ltd. Recently, L. K. Group built another factory in Ningbo, Zhejiang Province. These companies of L. K. Group mainly produce series of cold chamber, hot chamber and magnesium alloy die casting machines. The Taiwanese capital enterprises such as Ningbo Zitai Precision Machinery Co. Ltd., Tycoon (Shanghai) Industry Co. Ltd., Seiko Technology Co. Ltd., Reka Technology Co. Ltd., Lufang Machinery Co. Ltd. etc. assemble die casting machines in Yixing, Jiangsu Province. The Hong Kong capital enterprises include Dongguan Pro-Win Machinery Co. Ltd., Foshan Die Casting Technology Co. Ltd., Jiangsu Yancheng City Gangsu Machine Manufacture Co. Ltd., and so on.

While the competition of markets is very severe, the prices of raw materials have been rising since 2004, increasing hardness to the die casting enterprises in our country. Take zinc ingots as an example, the price was 9,650 yuan RMB each ton at the beginning of 2004, then was raised 20% to 11,600 yuan RMB each ton by the end of 2004. By the end of 2005, the price of zinc ingots was rapidly raised to 16,900 yuan RMB each ton with a growth rate of 38%. At the beginning of 2006, the price of zinc ingots broke through the high peak of 20,000 yuan RMB each ton. The severe market competition and inflation of raw material prices are strict tests for the production and management of die casting industry in our country.

6 Summary

The die casting industry in our country has not only the superiority of rich resources of nonferrous metals and human power, but also a professional team being engaging in die casting technology development and production practices for a long time. These provide the important bases for the development of China’s die casting industry. It is certain that China’s die casting industry will continue to grow up in international and national markets.

On the other hand, compared with the advanced industrial countries, the die casting industry in our country has a large gap in the aspects of technological level, product’s quality, management level, enterprise spirit, and so on. Even though the quality of die castings might be improved and kept up with the advanced countries, it is still a very hard and long way for China to become a strong country of die casting. So we must learn the foreign advanced technology and management experiences, and take actively part in challenges, continue to renovate and reform. Only in this way, can we again create the historic brilliance of China casting.

Brief introduction to the author

SONG Cai-fei was born in 1929. In 1954, he went to Germany and studied the specialty of die casting. In 1956, he graduated and came back to China. In 1957, he was assigned to Shanghai and spread the die casting technology. He has been engaging in nonferrous alloy die casting for fifty years. He has ever been Chairman of the Nonferrous Alloy Die Casting Committee of Shanghai Foundry Association, and Vice-Chairman of Die Casting Branch of China Foundry Association.

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