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equipment solution provider.

The YIZUMI Magazine for Customers  
VOL.33 ▶ 2023



## LEAP7000 Delivered to Changan Auto

As a vanguard in automotive manufacturing, Changan Auto has always set up the integrated die-casting in its strategic development of lightweight, with the boomer development of NEVs.



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# PREFACE

Dear readers,

Welcome to the latest issue of <DIE CASTING>, we are excited to discover the charm of die casting with you. In this dynamic and innovative field, we will focus on the superb skills of YIZUMI in die casting machines, providing insights into the key force that sets trends in manufacturing.

As one of the backbones of the modern industry, the die casting machine is a product of science, and a masterpiece of art, other than being a piece of machinery. By injecting high-temperature molten metal into dies, it casts a wide range of precision parts, providing strong support to the development in various fields around the world. In the current issue of <DIE CASTING>, we will present the recent extraordinary achievements of YIZUMI while demonstrating the subtleties of die casting technology and discussing its wide applications in new energy vehicles, electronics, construction, home appliances, and innovative progress in ultra-large integrated die casting.

Due to the rapid development of technology, die casting machines are experiencing unprecedented changes. A new generation of intelligent LEAP series die casting machines is emerging to bring more efficient and accurate production to the manufacturing industry. In this issue of <DIE CASTING>, we will present to you the development trend of YIZUMI's most cutting-edge die casting technology - LEAP series, revealing the future development direction of the die casting machine industry.

Thank you for reading <DIE CASTING> and joining us in keeping up with the times. Let us explore, grow, and create a bright future together.

# YIZUMI

YIZUMI Was on the Shortlist of the 2023

## "China Quality Award" Nomination Award



# THINK TECH FORWARD

On September 22nd, Yizumi Holdings Co., Ltd. (hereinafter referred to as YIZUMI) was on the shortlist of the China Quality Nomination Award, as a result of its outstanding achievements in quality management and excellence in performance management. This recognition comes through a vote by the Evaluation Sub-Committee of the China Quality Award and highly recognized by the secretariat of the China Quality Award Selection and Commendation Committee. The award signifies that YIZUMI's quality management has reached a national-level pinnacle.

China Quality Award is the highest quality-related award organized by Chinese government authorities, known for its authority and fairness. It was proposed by the former General Administration of Quality Supervision, Inspection, and Quarantine (AQSIQ) and established with the approval of the State Council. The selection process involves voluntary application, formal review, document evaluation, expert review, presentation and defense, on-site assessment, a vote during the Evaluation and voting by the selection and commendation committee at its plenary meeting, and final approval by the AQSIQ Director's Office, among other steps.

As the highest national honor in the quality field in China, China Quality Award consists of China Quality Award and China Quality Nomination Award, which are evaluated every two years. The purpose of China Quality Award is to recognize organizations and individuals who have achieved significant innovative achievements in the fields of quality management models, management

methods, and management systems. It serves as a benchmark for quality management in various industries in China.

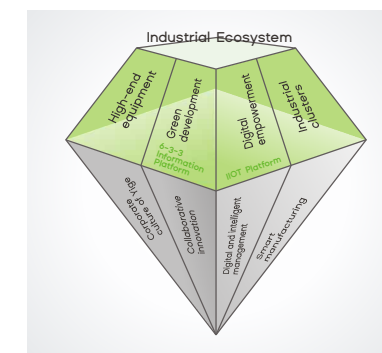
YIZUMI has a mission of "Global expertise - Solutions for the world", with quality being regarded as the lifeline of YIZUMI. Since the introduction of the Excellence in Performance Management model in 2012, YIZUMI has developed the "Yi" turnkey solution quality management model. Through years of practical experience and refinement of the Excellence in Performance Management system, it has evolved into the "Digital and Intelligent Management" industrial ecosystem quality management model.

The model is based on the "6-3-3 Information Platform", which consists of 6 major operational platforms, 3 integrated platforms and 3 global infrastructure platforms and the "Molding Equipment IIOT Platform". It applies the principles of Porter Diamond Theory, integrating people,

capabilities via YIZUMI Corporate Culture, Collaborative Innovation, Digital and Intelligent Management, and Smart Manufacturing driving for high-end equipment, green development, digital empowerment and industrial clusters. It aims to achieve symbiosis and interdependence in the industrial ecosystem along the entire value chain under the framework of digital intelligent operations.

As a chain leader in the industrial chain, YIZUMI has consistently been proactive in building a closed-loop data system for the industrial chain and supply chain, creating a green integrated supply chain system. The company has implemented the "Digital and Intelligent Operation" industrial ecosystem quality management model, achieving key performance indicators result at an internationally leading advance level. YIZUMI continuously introduces intelligent products, to promote the downstream intelligent process.

Being shortlisted for the China Quality Nomination Award of the 5th China Quality Award is the recognition of the Chinese government for YIZUMI's achievements in quality management. In the future, YIZUMI will continue to make persistent efforts, actively implement the policies and measures of the government under the national goal of "Manufacturer of advanced and quality products". In its future development, YIZUMI will persist in quality management, independent innovation, continuously enhance its technological capabilities, and aspire to become a world-class enterprise in the field of molding equipment.



■ "Digital and Intelligent Operation" industrial ecosystem quality management model

the ecological environment, and industrial in depth. It builds internal

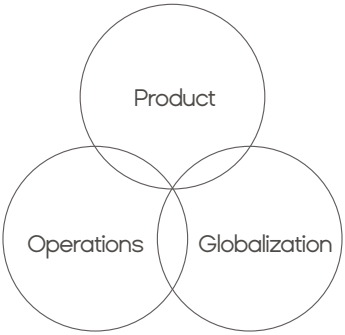


YIZUMI was founded in 2002 and listed successfully on the A-share market in 2015 (Stock Code: 300415). As a benchmark in the field of molding equipment, it establishes several business divisions covering injection molding machines, die casting machines, rubber injection molding machines, high-speed packaging systems, and robotic automation systems, etc.

In line with its development strategy, YIZUMI uses the "Global Innovation Center" as a platform to gather talent and R&D resources from both domestic and international sources. It combines European and Chinese technologies and consistently adheres to the concept of independent innovation. YIZUMI vigorously researches and develops core technologies with independent

intellectual property rights, such as the 8500T ultra-large injection molding machine and the LEAP9000 ultra-large die-casting machine, which are industry-leading advanced manufacturing equipment. It continuously achieves breakthroughs in new products and new technologies, thus realizing rapid and substantial development.

Following its global operation strategy, YIZUMI now has built manufacturing bases in China and abroad with a total area of around 600,000m<sup>2</sup>, including factories in Gaoli, Wusha and Wujiang in China, Gujarat in India and Ohio in USA, to achieve a digital factory capable of 24-hour continuous production, similar to a flagship factory.



Relying on its three major strategies of "product, operations, globalization", YIZUMI has successively earned various honors and titles, including being designated as a national-level Torch Program project implementation unit, a national demonstration enterprise for intellectual property rights, a recipient of the National Patent Award, a national green factory, and a national green supply chain management enterprise. Additionally, the company has received recognition such as the Guangdong Science and Technology Progress Award, the 2017 Guangdong Provincial Government Quality Award, Forbes Asia's Best Under A Billion 2018.



# LEAP—Die Casting Technology

## World Class Die Casting Technology Solutions from YIZUMI

### The future looks bright

Aluminium- and Magnesium alloys offer considerable design benefits. With their advantageous weight to strength ratios and easy recyclability these great materials contribute significantly to light-weighting efforts, especially in the automotive industry, worldwide.

The die casting process offering competitive manufacturing cost and its unique ability to integrate functions to reduce down-stream cost ensures attractive growth in our industry.

YIZUMI's amazing success story over the last 20 years is a clear indication it is in an ideal position to take full advantage of the attractive growth in the die casting industry in the foreseeable future.

Reflecting our confidence is our aggressive growth plan that includes our aim of becoming a Top3 die casting solution providers in the next few years.

### Successful die casting operation

At YIZUMI, the last few years have been dedicated to developing state-of-the-art die casting machines as well as developing great expertise and technical capabilities within our workforce. Both areas in which significant progress was achieved are indispensable to our dedication to delivering the best cost-effective solution with leading technology to our customers worldwide.

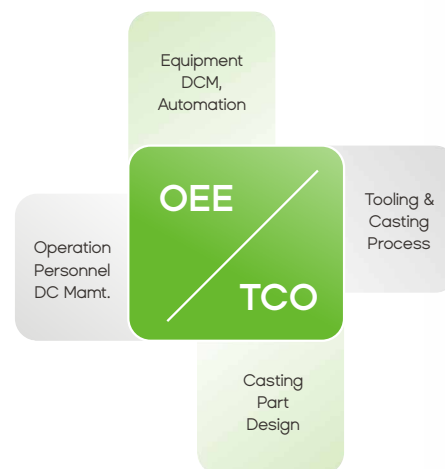
We understand that a meaningful manufacturing solution provides our customers with a competitive Overall-Equipment-Effectiveness (OEE) at very attractive Total-Cost of Ownership (TCO). In other words, an installed die casting cell, offered at a fair price, first and foremost needs to allow its operator

to enjoy a high equipment availability without high cost of operating the equipment. The total cost of operation is heavily dependent on well-trained personnel and on a suitable preventive and increasingly also predictive maintenance plan.

To achieve a competitive OEE, only concentrating on the die casting machine and the automation, however, would be very short-sighted.

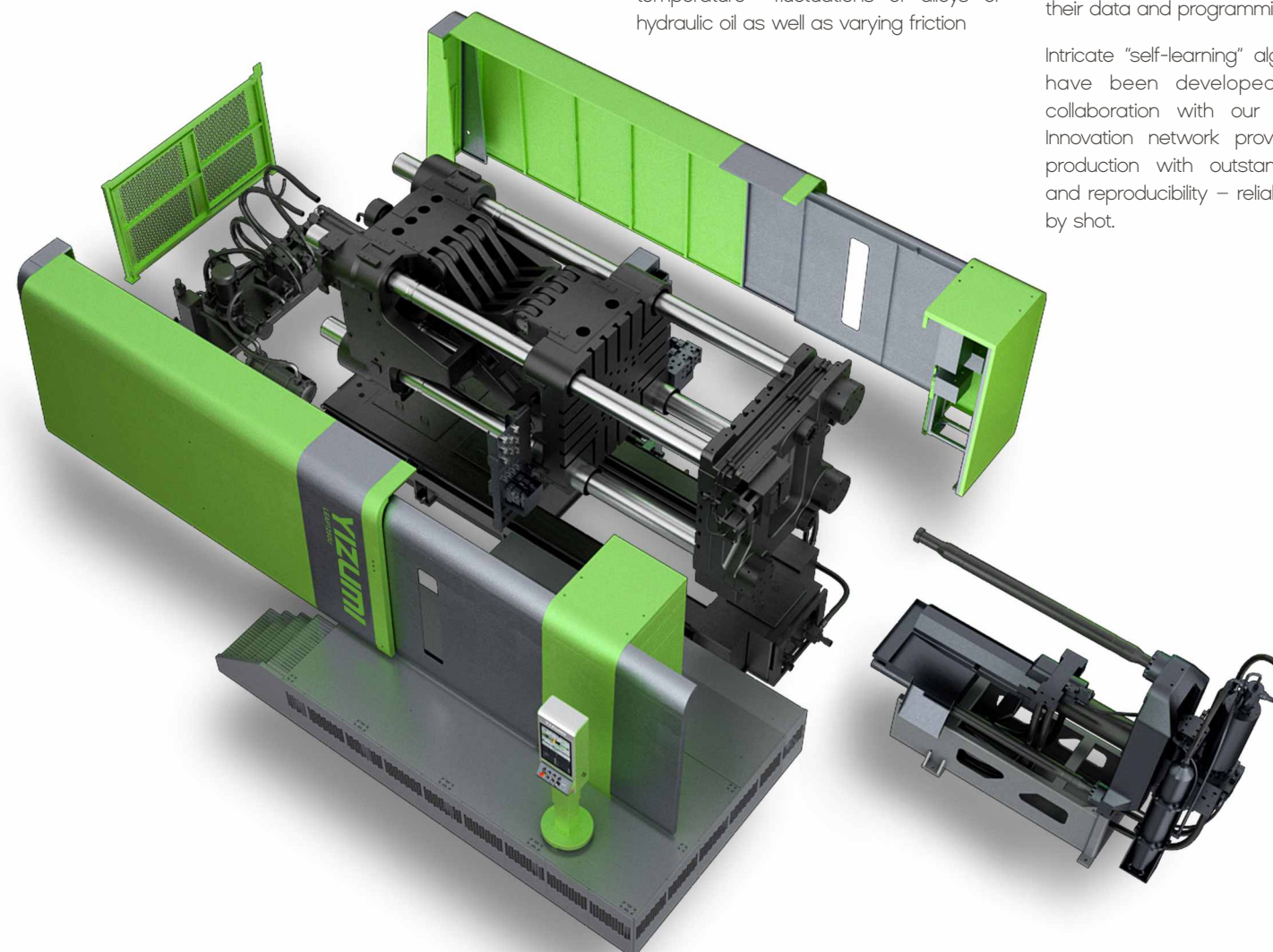
Successful and profitable die casting production is only possible with a thermally balanced die casting tool avoiding or at least minimizing any cavity cooling requirements executed by external spraying.

Highest levels of productivity can be reached if the casting part design is greatly optimized for the die casting process in a way that tool-aging effects are considered. This reduces die maintenance cost and allows the casting production to maintain a high OEE throughout the entire die life.



■ Picture: factors that ensure a highly productive die casting production.

### ORCA



### YIZUMI supports its customers

The YIZUMI team is totally dedicated to providing the best-cost effective solutions to our customers worldwide. We understand that providing true value to our customer entails delivering reliable and productive die casting equipment.

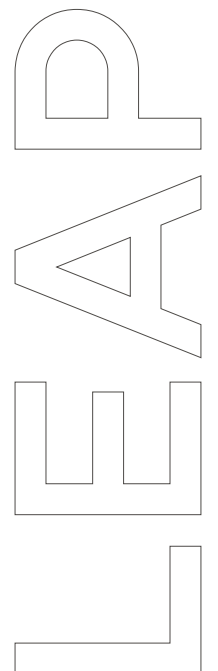
With the LEAP series of die casting machine YIZUMI offers a state-of-the-art system with a modern, easy to use control HMI, ensuring reliable casting production.

The real time closed loop injection control is based on a proprietary servo valve technology offering highest flowrates and extraordinarily precise speed and pressure control. Negative casting process influences from possible temperature fluctuations of alloys or hydraulic oil as well as varying friction

forces within the shot sleeve are quickly compensated and adjusted to the nominal settings. This allows the LEAP die casting machine to maintain extremely high process stability and repeatability in any casting application.

Our ORCA control system featuring high performance electronic hardware offers a well-conceived HMI providing an effective and transparent interaction with system operators and process engineers. A large programming screen with interactive, intuitive graphical displays and multi-touch functions ensures high ease of use and effective programming with a minimum of training. A well-structured menu allows the different system users such as operators, process engineers and quality managers, etc. easy access to their data and programming sections.

Intricate "self-learning" algorithms which have been developed in-house in collaboration with our Sino-European Innovation network provide any LEAP production with outstanding precision and reproducibility – reliable quality shot by shot.





As YIZUMI is focused on sustainability, we have developed various energy saving features for the LEAP series of die casting machines. While an innovative two-stage hydraulic drive unit saves up to 40% of electrical energy compared to conventional systems, it also substantially extends the service life of the pump by a much-optimized "feeding oil management". Differential hydraulic in the pre-filling phase of the injection reduces overall electrical energy usage by a further 20%.

The LEAP die casting machine is without doubt a highly competitive product

aimed at providing substantial benefits to our customers.

Above all, YIZUMI's support of our customers includes all relevant service support efforts. Our competent after-sales service team in combination with an efficient worldwide spare parts service ensure that our customers achieve a high equipment availability.

We educate more than 500 trainees in relevant topics yearly at YIZUMI training facilities as well as at customer plants worldwide.

We round off our customer service capabilities with expertise drawn from our international network in the areas of tooling design along with casting process simulations which include excellent interpretation and accurate conclusions of said simulations.

High quality casting cell solutions with high performance enhanced with our YIZUMI customer service packages provide our customers with effective best-cost solutions.

### Continuously adding value for our customers

YIZUMI's LEAP series of die casting machines are an asset for any die casting operation, adding value by providing an extraordinary casting performance.

However, especially in the field of thin-walled large-surfaced die casting components like structural castings the LEAP technology proves especially beneficial with its high-performing injection capacity (P/Q2) paired with its unmatched precision and process repeatability. Highest injection speeds ensure the short filling times needed for such parts while a highly precise braking of the injection speed reduces flash and protects the tooling.

Since the LEAP series of machines is available in all machine sizes up to 90,000 kN of locking force this machine technology is perfectly suited to produce Ultra Large Casting applications.

YIZUMI is a reliable partner dedicated to providing cost effective die casting solutions to our customers worldwide. We will continue to leverage our local resources and our network of international experts to build up relevant know-how to contribute to our client's competitiveness.

▼ The die casting cell of LEAP9000



LEAP9000



# LEAP7000 Delivered to Changan Auto

The highly anticipated delivery of two LEAP7000 ultra-large die casting machines by YIZUMI to the revered Changan Auto had great excitement throughout the industry on August 28.

YIZUMI has achieved another significant breakthrough in the realm of ultra-large machinery after the delivery of the 8500T ultra-large injection molding machine. It's a pivotal milestone for YIZUMI in the field of metal forming.

The LEAP7000 ultra-large die casting machines, a culmination of relentless research and innovation by YIZUMI, were poised to meet the demand of integrated die casting in NEV manufacturing.

## Empowering the Future of Integrated Die casting for Changan Auto

As a vanguard in automotive manufacturing, Changan Auto has always set up the integrated die casting in its strategic development of lightweight, with the boomer development of NEVs. The 7000T machines will be applied to produce front and rear floor panels for new NEVs. It further strengthens Changan's competitive edge in the realm of integrated die casting.



## YIZUMI ultra-large die casting machine were well recognized by customers

Focusing on the new strategy, the LEAP series die casting machine was mutually developed by international R&D team with decades of experience in die casting. To integrating advanced technologies from China and Europe, YIZUMI has conducted independent research and development in an all-round way and owned completely independent intellectual property rights. LEAP series not only can satisfy the higher requirement of the rapid development of die casting industry on the performance, function and complete die casting process, it could also provide smart solutions to better understand demands from customers. It adapts different types of complicated die casting process and makes die casting easier.

When the LEAP series debuted to public since July 2021, YIZUMI has developed die casting machine size from medium to ultra-large of the LEAP series ranging from 380T to 9000T.

The delivery of the LEAP7000 to Changan Auto not only heralds a momentous achievement for YIZUMI but also signifies its rising prowess in the global manufacturing arena. With development of integrated die casting,

ultra-large die casting machines remains the ineluctable trajectory of global manufacturing. The symbiotic collaboration marks the passage into a new era of NEV manufacturing and has laid the groundwork for the development of NEV revolution.



LEAP7000



## Sinyuan ZM

# Embrace the Magnesium Era and Lead the Lightweight Die Casting Parts in Automotive Industry

Ningbo City is well-known in China as the home of businessmen. Due to its long-standing value, customs, and social atmosphere for business, local businessmen have had an entrepreneurial cognition and spirit of "dare to start from scratch" for thousands of years.

We interviewed Mr. Qiu Zhuoxiong, Chairman and CEO of Ningbo Sinyuan ZM Technology Co., Ltd. (Sinyuan ZM), during the YIZUMI 2023 Advanced Metal Forming Technology (AMFT) in Ningbo, China. Let's find out how he tackles business difficulties and challenges, and feel his sublime emotions and determination.



■ Mr. Qiu Zhuoxiong, Chairman and CEO of Sinyuan ZM, was interviewed

Many people in Ningbo are familiar with Sinyuan ZM. In the automotive lightweight industry, it shines like a star.

The letter "M" represents Mg, the company's major business. The letter "Z" appears not only in Mr. Qiu Zhuoxiong's name, but also as the first letter of the Chinese for Excellence, which is his biggest goal. He hoped that Sinyuan ZM can become an outstanding hidden champion in the field of magnesium alloy.

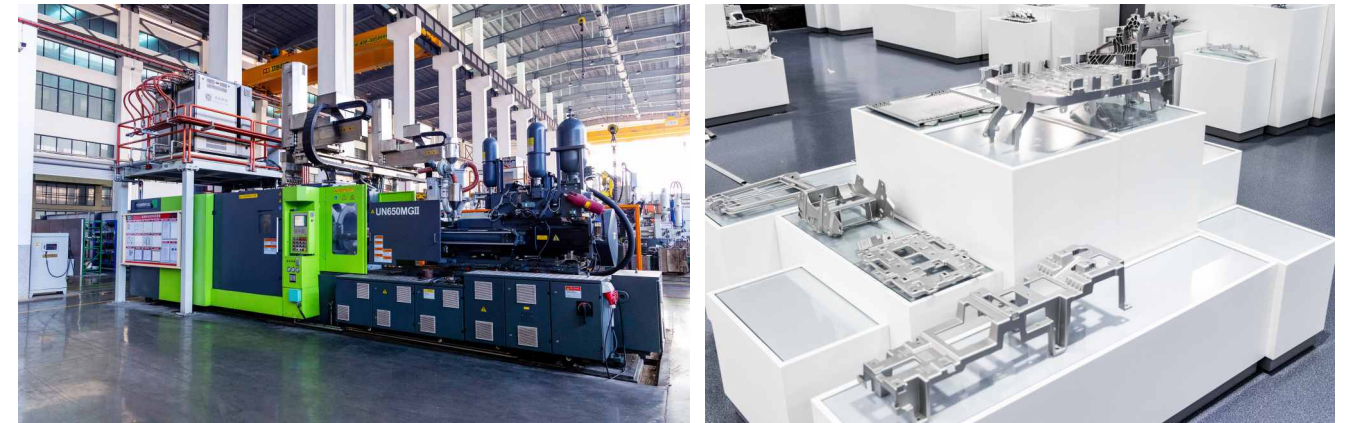
Sinyuan ZM, founded in 2003, was mainly engaged in the R&D, production and sales of automotive die casting molds. Since 2006, it has extended its business to include downstream aluminum alloy die casting. In 2009, it shifted its business to the production and R&D of magnesium alloy products.

In the past two decades, it has grown into a national high-tech enterprise specializing in development, design, and production of magnesium alloy and aluminum alloy die castings. Mr. Qiu

Zhuoxiong stated that his business operations withstood numerous tough times by refusing to give up.

Quality used to distinguish one company apart from the rest, and now it determines whether a company can survive in the market. Mr. Qiu Zhuoxiong clearly recognizes that high-quality die castings require proper and well-performing equipment.

As a result, Sinyuan ZM has boosted its investment in equipment and purchased die casting machines from YIZUMI many times. Sinyuan ZM signed a strategic cooperation agreement with YIZUMI in June at GIFA 2023 in Dusseldorf, Germany, to order a 3200T Mg-Thixomolding machine, which is also the largest tonnage in the world so far.



After signing a contract with YIZUMI for two Mg-Thixomolding machines UN650MGII and UN1500MGII in December 2021, the two companies have reached a deep cooperation again after only 18 months.

Mr. Qiu Zhuoxiong said of the operation with YIZUMI, "We have been working closely with YIZUMI for 17 years since 2006, from aluminum alloys to magnesium alloys, from small machines to heavy-duty machines, from cold chamber machines to Thixomolding machines, and now to the world's leading 3200T Thixomolding machine.

I have seen YIZUMI's continuous commitment in technological development over the years, which coincides with our development philosophy. I believe that with our strengthened cooperation, we will be able to achieve more goals in the metal forming fields in the future."

In terms of the company's core strengths, he introduced, "We shifted our focus to the R&D and market expansion of magnesium alloy casting technology early on and have accumulated many technological capabilities in the development of magnesium alloy casting molds, die casting, post-processing, precision machining, and other processes throughout the entire business chain. We also have an integrated capacity for mold development and manufacturing, die casting, precision machining, surface treatment, and quality testing."

Furthermore, Sinyuan ZM has focused its strategic planning on the steady development of its main business and continues to improve its core competitiveness in R&D, innovation, lean manufacturing, market expansion, service capability, and team building to enhance its business performance.

Nowadays, the rise in new energy vehicles has stimulated the development of automotive lightweighting. How to maintain a company's core competitiveness in a changing environment and ensure the stability and ambition of core teams have become the challenges that managers must face.

As the company's senior executive, he offered unique insights into the future market prospects of the industry, "Automotive lightweighting is an inevitable trend in the industry's development. We are dedicated to providing downstream automakers with lightweight automotive structural components. In the course of exploring lightweight materials, we chose to switch from aluminum alloy die casting to magnesium alloy die casting. And now we have been a pioneer in the industry by utilizing magnesium and aluminum alloys as the "dual-drive" in the way to automotive lightweighting."

In the future lightweight competition, Sinyuan ZM will continue to orientate itself towards magnesium alloy lightweight applications, strive to integrate with the overall layout of the high-end magnesium alloy product processing industry, expand its magnesium alloy business applications through continuous product innovation, seek growth of its products, and seize the historical opportunity of the automotive industry's reform and upgrading to propel its further development.

### Introduction of Sinyuan ZM

Located in Beilun, Ningbo City, the "hometown of die-casting molds in China", Sinyuan ZM specializes in the development, design and production of magnesium alloy and aluminum alloy die casting parts. It is dedicated to lightweight applications and the promotion of magnesium alloy die casting in structural components, interior parts and other automotive parts, such as lamp cooling frame, seat armrest skeleton, etc., providing more customers with higher-quality magnesium alloy die casting solutions.



## BIAN

## Sailing Smoothly Across the Sea With Excellent Products



Foshan Nanhai Bian Metal Product Co., Ltd (Bian) specializes in die casting for all kinds of industries, including automotive components, LED lighting fixtures, kitchenware, construction hardware, medical accessories, telecommunication hardware and so on. Bian offers one-stop solution for die casting manufacturing, from the mold design to feasibility analysis, from mold building to production, from secondary operations to surface treatment, from prototype to mass production.

Bian strives to ensure customer satisfaction by providing castings that meet or exceed customers' expectations. After more than 10 years in die casting, Bian understands that it's not one department that gives them the ability to provide quality parts on time. It's the collected knowledge, experience and fluid communication between the experts that make Bian a superior die casting manufacturer.

Bian is well-known for the high quality of its products, with over 70% of them

exported to countries and regions such as Italy, France, the United Kingdom, Germany, Japan, and the United States, etc.

### To expand its North American markets by its Mexican production base

In Chinese, "Bian" refers to the land on the other side of the water, which implies the desirable state. When Mr. Fu Xianhe, general manager of Bian, founded the company, he considered that the name "Bian" contained the company's vision - to strive for a desirable goal despite challenges.

Bian was founded in 2013 and specializes in the design and manufacture of precision die casting molds. In 2014, it set up die casting production lines, becoming a manufacturing enterprise that combines precision die casting and mold making. In the same year, it established "Bian (HK) Metal Product Co., Ltd." and began entering the global market.

Based on its operational strategy, Bian intends to rent a factory in Mexico for production and sales in 2023. Thanks to its unique geographical location, the Mexican production base can not only meet the needs of the local market, but also those of neighboring countries and regions, driving the development of other North and South American markets.

Mr. Fu Xianhe said, "The layout of overseas production bases can not only retain profits but also effectively avoid various barriers. The Mexican production base will increase our local production capacity, allowing us to be more adaptable in the face of rising international transportation costs and logistics challenges, shorten supply cycles, and speed our entry into the global market."

### To develop both the main business and the new energy business

Mr. Fu Xianhe has over 20 years of mold experience, giving him a wealth of industry expertise, leading Bian to grow into an industry leader.

He said, "Love what you do and steep yourself in it. As a traditional manufacturer, we must first consolidate our main business, which is design, development and production of outdoor light casings. Meanwhile, we must focus on global development trends and policies, and then plan accordingly."

In recent years, new energy vehicles (NEVs) have seen a significant increase in market size and development. Bian has also closely followed the development and application of new energy, and actively sought entry points to eventually take a large market share.

"Companies, like people, should develop with a long-term strategy. The new energy development is both sustainable and competitive. And in the next years, we will strive to gain a foothold in the automotive industry to ensure our long-term development." Mr. Fu Xianhe said.

Now, Bian is well prepared for the production of new energy products in terms of talents, equipment, organization, and other aspects. In addition, it has steadily promoted its global layout and

introduced several sets of HII series cold chamber die casting machines to produce core components of NEVs such as OBC, DC/DC converter and PDU, helping it develop better.

### To revitalize production lines with new equipment

As soon as you step into Bian's tidy workshop, you'll see dozens of die casting machines with robots producing electronic control units and motor casings and orderly placing them onto the conveyors while operators inspect and pack finished products.

Mr. Fu Xianhe introduced, "Most of our products are currently exported to countries including the United States and Japan through both offline distribution channels and online international trade sites like Alibaba. Notably, manufacturing facilities from YIZUMI and other partners contribute to our successful market promotion."

The production of electric units for NEVs demands great mechanical performance. For example, there are some complex products with many slides and wall thicknesses range from 3 mm to 5 mm, which will bring more risks for shrinkage during die casting process. To pass airtightness testing, the products must meet strict quality standards and demand carefully die maintenance.

The upgraded HII series die casting machines have improved casting performance, including enhanced injection force and 30% increase in pressure build-up time, allowing process engineers to control speed switching in the fast injection stage with more precision and repeatability. Die opening and closing time has been reduced by more than 10%, greatly reducing cycle time and improving production efficiency.

Mr. Fu Xianhe added, "The stable and efficient performance and easy operation of YIZUMI HII series die casting machines greatly save cycle time and improve production efficiency, significantly increasing our on-time delivery rate and credibility."

Over the last decade, BIAN has had a challenging entrepreneurial journey to achieve its current success, indicating that it has moved with the times with a foresighted and innovative development footprint. In the future, it will stay with its original aspiration and continue to export high quality products to global markets.



## Set Sail on a New Voyage YIZUMI Presents at EUROGUSS 2024

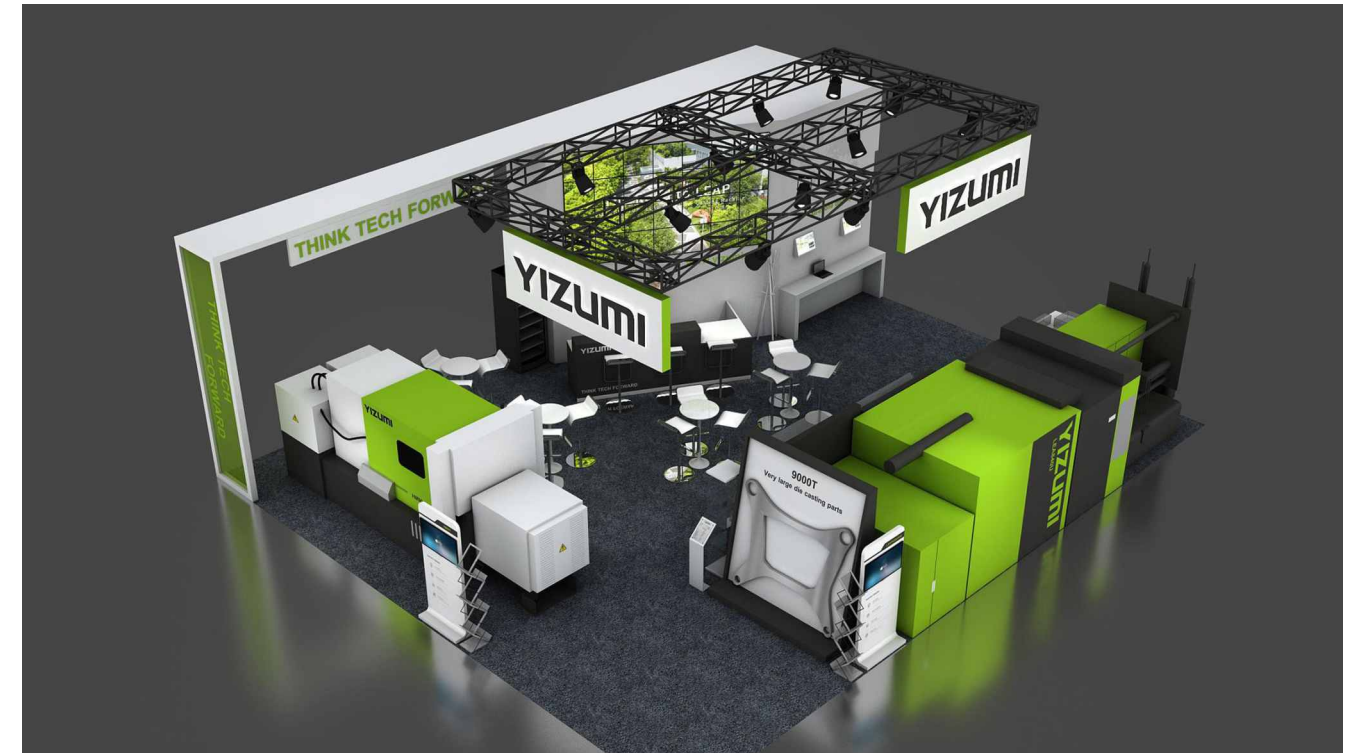
The biennial die-casting event EUROGUSS is held at the Nuremberg Exhibition Center in Germany from January 16 to 18, 2024.

Organized by the NürnbergMesse Group, EUROGUSS is currently the world's biggest professional trade fair for the die-casting industry. It is also an excellent platform for die-casting industry insiders to learn international market trends, show their own strengths, and develop their international market.

YIZUMI, a global enterprise deeply engaged in multiple areas of molding

equipment manufacturing, debuted at EUROGUSS in 2022, showcasing the injection system and control system of LEAP series machines. At EUROGUSS 2024, it will present LEAP series 530U die casting machine, high-performance HM90T hot-chamber die casting machine, and advanced die casting technologies.

Seven months after YIZUMI presented its LEAP series 840U model at GIFA in June 2023, the LEAP series machine will make its second appearance at an international trade fair.



## Solutions

01

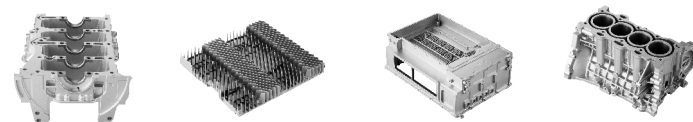
### LEAP series die casting machine

The LEAP series is a brand-new series launched by YIZUMI in July 2021, fully benchmarked against the world's first-class die casting machines. Its great performance has earned it global acclaim. Integrating the advanced technologies of China and Europe, the LEAP series die casting machine is aligned with the world's top die casting machines in terms of injection system, control system, clamping system, energy-saving innovation, and operating safety. It is one of the leading products that supports YIZUMI to access the high-end customers and market.

The original LEAP series die casting machine easily connects any peripheral equipment allowing to establish highly productive die casting cells. This flexibility makes the LEAP system ideally suited for any type of die casting production from complex and large structural castings via traditional ICE components to all types of telecom parts.



■ LEAP series die casting machine



02

### HM series hot chamber die casting machine

The HM series hot-chamber die casting machines offer more efficient, precise, and stable die casting performance. Three value advantages for better die casting performance:

**Better performance:** The injection system is optimized for high-quality die casting production to ensure an accurate and stable injection process.

**Higher efficiency:** Equipped with the rapid clamping system, the production efficiency is significantly improved compared with the ordinary models.

**Easier operation:** The Siemens PLC control system with a high-end human-machine-interface allows high convenience and flexibility.

Focusing on high-quality die casting production, the HM series hot-chamber

die casting machine has become the most efficient machine in the YIZUMI hot chamber series, which has been widely used in the 3C, bathroom, clothes, hardware, and house furnishing fields.

YIZUMI is committed to providing global customers with better cost-effective solutions with cutting-edge technologies. We are excited to meet you at EUROGUSS (Hall 9 - 528) in Germany.



■ HM series hot chamber die casting machine



# Hot Runner Technology Makes Digital Zero Labor Workshop Possible

In YIZUMI's future digital workshop for magnesium alloy lightweight parts, we achieve unmanned production across the entire process from raw materials to final products with automatic production in a smooth flow. In a normal production state, operators just need to monitor remotely rather than direct interfere, greatly improving production efficiency, reducing manual workload, and ensuring employee safety.

In comparison to the traditional magnesium die casting workshop with hot air, frequent litten magnesium, and back and forth technicians/operators, this futuristic workshop appears to be a dream workplace.

In 2009, YIZUMI started its development in Thixomolding machine. And in 2015, we officially launched our Thixomolding machine to the market, and by now, our machines in the market have achieved up to 3 million shots. It significantly benefited from issues in traditional die-

casting operation such as molten magnesium alloy's exposure and transfer, excessive carbon emissions by flame retardant gases, and a high-temperature and flammable working environment.

Furthermore, due to the ignition caused by the occasional leakage of magnesium liquid from the nozzles extraction frequently stops the operation, operators place a high value on machine inspection and problem solving, which also bothers Thixomolding workshop managers. At the same time, the high cost and complexity of maintaining imported long nozzles put buyers in a dilemma. Our R&D team is not satisfied to these conditions. We conducted continuous research and analysis to address the pain points and obstacles.

Thixomolding technology originates from injection molding. After years of development of injection molding

technology, YIZUMI quickly focused on hot runner solution. However, die casting has a temperature that is 300 °C higher than injection molding and each shot has a speed of up to 5 m/s. Difficulties like die casting mold factories lacking experience in hot runner manufacturing, repetitive tests, as well as conclusion and improvement after failures make hot runner technology development more challenging. Finally, in 2019, the hot runner technology was officially launched, allowing us to feed raw materials straight into the die cavity without pulling back of the injection units.

# MG



■ Thixomolding machine

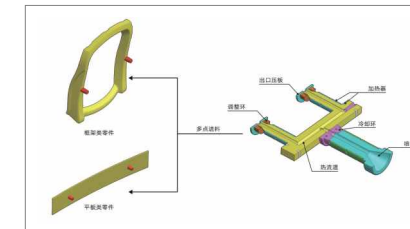
The hot runner technology keeps the magnesium molten through the heating bands surrounding the runner. The heating bands keep the entire runner's temperature consistent from the nozzles to the gate. The hot runner system is an extension of the nozzles that saves the need to remove the melt from the runner after machine shutdown. The next shot just needs to reheat the runner to the proper temperature, and the machine is ready to run. The technology is ideal for mass production when raw material prices are high and users have high product quality requirements.



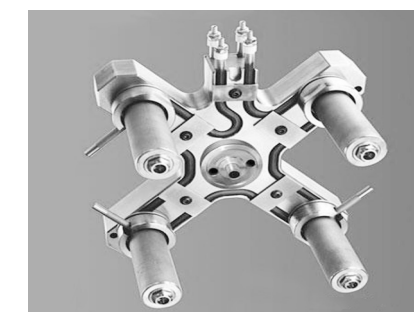
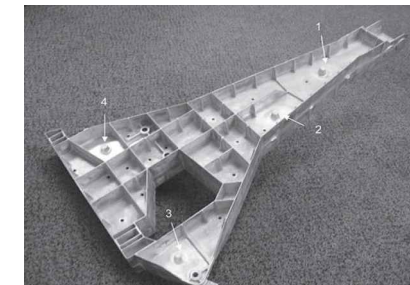
■ Single point hot runner technology  
(Scooter deck)

In comparison to current spherical sealing nozzles, YIZUMI Thixomolding machine avoids the risk of magnesium leakage at the nozzle when the injection unit pulls back, resulting in up to 85% material can be used and remove the process of cutting the biscuit. It achieves single gate injection without the use of a three-platen mold. Furthermore, the uniform temperature and pressure within the die cavity reduces deformation of big thin-walled castings. Reduced flow length ratio of the die cavity makes filling easier and reduces insufficient injection of the product end. The temperature is accurately managed to effectively control the semi-solid melt's liquid-to-solid ratio. And lastly, thanks to its standardized and modular design with a

variety of specifications, the equipment is highly adaptable to diverse products.



■ Multipoint hot runner technology



■ Multipoint gating system

As the demand for large lightweight parts grows, the flow length of magnesium and the injection volume of a single shot will be challenges to cast large lightweight parts with thixomolding. However, one of our inventions, Multipoint Hot Runner Technology, can deal with this challenge perfectly.

Even though the complexity of hot runner system raises the difficulty of mold installation and adds learning content for new customers, it still becomes one of the most popular technologies in YIZUMI if the customers are well trained, so far we have achieved 1.8 million shots with the use of hot runner system.

As digital and intelligent technology advances, the criteria and requirements for intelligent manufacturing become stricter, requiring more innovation in equipment design, business processes, management systems, industrial internet applications, etc. Intelligent manufacturing is a brand new ecosystem characterized by rapid market response, innovative operating models, and green development practices.

We equipped varieties of quality components, including Austria B&R IPCs (Industrial Personal Computers), hot runners, different kinds of sensors, high-precision and fast-responding servo motors, and servo valves. Coupled with precise process mathematical models, and proficient and powerful industrial programming capabilities, we create a safe and comfortable workspace for the manufacturing of lightweight magnesium alloy parts, as well as a digital workshop with simple quality feedforward management, efficient production speed, and precise digital twin technology.

YIZUMI Thixomolding machines provide managers with a panoramic view of the whole production, helping middle managers with ability to see problems and make decisions from a broader perspective and therefore truly strengthening manufacturing's systematic ability. For example, in the summary and review, team leaders can easily collect segment statistics such as yield, speed, and single equipment performance. And those in charge can attach greater importance to improving the efficiency of their sections.

This is an organizational transformation that blends digitalization into the smallest unit of manufacturing to achieve lower costs and higher quality. YIZUMI's hot runner technology saves the need for human monitoring and processing, enabling digital zero labor workshops.

In the future, YIZUMI will help more manufacturers build new lightweight manufacturing modes to accelerate manufacturing progress.

# New Application of Digital Technology in the Molding Manufacturing

Digitalization has become a global trend due to its development and application in various industries.

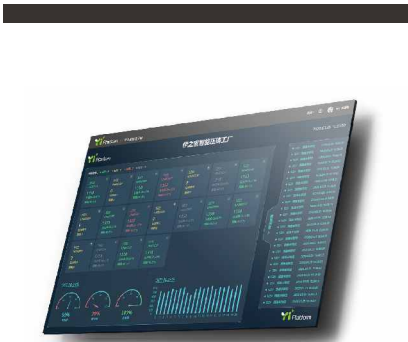
Digital technology is increasingly helping to solve complicated challenges in the real world. Mr. Zhang Yanfei, Chief Software Architect of Global Innovation Center of Yizumi Holdings Co., Ltd. (YIZUMI), shares "Innovative Digital Technology Application in Molding Manufacturing" with four application scenarios, including intelligent control technology, equipment predictive maintenance, process intelligent optimization, and manufacturing operation management.

To begin, AI algorithms comprehensively empower sensor technology, servo control technology, and Internet of Things communication technology, especially in the field of intelligent control technology such as molds, temperature, oil temperature, automatic molds, and flow control, assisting in the upgrading and intelligentization of equipment.



■ Mr. Zhang Yanfei, Chief Software Architect of Global Innovation Center of Yizumi Holdings Co., Ltd.

Smart locking force, for example, has been partially regulated on some models, altering the prior linear and single control technology. Manufacturers can benefit from the use of online optimization algorithms and real-time balance detection technology for locking force, including reduced equipment and mold damage, extended machine lifespan. In addition, smart locking force management helps reduce equipment energy consumption.



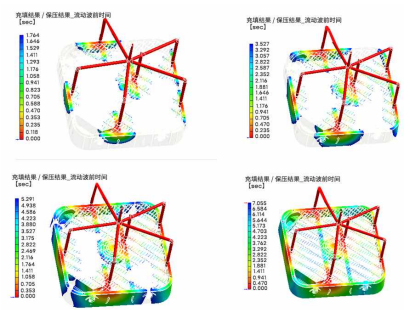
Next, the core of equipment predictive maintenance is tracking the trend of key equipment performance parameters and setting up a mathematical model of performance parameter trends and equipment failures to evaluate the health status of equipment, including lifespan prediction and remaining life evaluation of key components, and predictive maintenance recommendations for equipment, achieving equipment health management.

In the monitoring of hydraulic oil in equipment, for example, the equipment wear state and degree can be predicted by monitoring the moisture and impurities in the oil, allowing us to determine the ideal oil change time. It also allows us to predict the key component lifespan of molding equipment, like screws in the injection molding machines.

Furthermore, we could use some assistive technologies like remote collaboration and virtual reality to improve the effectiveness of equipment operation and maintenance. When a machine fails, the equipment operators can contact our customer service center via the remote assistance function. With advanced AR technology and spatial static markers of AR, our experts and operators may collaborate to execute component maintenance and resolve equipment failures, achieving remote diagnosis and collaboration.

Then, moving on to process intelligent optimization, there are different technologies like digital technology-based process simulation technology, online quality diagnosis and self-optimized parameter control technology, and process adjusting assistants. People frequently associate this topic with massive data. However, it is not always necessary in practice. We could employ

priori process knowledge to narrow down the problems and achieve good application results on small sample datasets.



For example, the design and manufacture of integrated die casting parts has become more complex and difficult in recent years. In the absence of sufficient experimental data, CAE simulation-based priori knowledge has irreplaceable advantages.



At last, let us focus on manufacturing operation management. We have discussed intelligent control technology, equipment predictive maintenance and process intelligent optimization, which are all the segments of intelligent manufacturing technology. However, they all require a digital system to fulfill the transformation and achieve a new business management-decision-operation mode by integrating intelligent systems and digital process tools. On this basis, with MES as the fundament, we horizontally integrate PLM, APS, WMS, EAM, etc. and vertically connect IT and OT to informationize manufacturing

businesses and empower digital and intelligent operation.

The digitalization and intelligence of manufacturing operations should primarily focus market and order forecast, and delivery time forecast within the restrictions of existing production factors. These two forecasts are based on the digitization and informatization of manufacturing operations, which may accurately depict the value of digitization.

In sum, digitization has combined automatic and intelligent operations and remote collaboration and virtual reality technology to realize flexible manpower or even unmanned operations. Compared with informatization, digitalization holds employees to a higher standard. It requires companies to improve their business models with digital technologies, and integrate digital technologies into every business process, including marketing, R&D, manufacturing, management, and decision-making, radically changing how businesses run and providing value to customers.



## YIZUMI Celebrated Successful Sale of the LEAP Machine at GIFA



The International Foundry Trade Fair with Technical Forum (GIFA) was held from June 12 to 16 in the International Exhibition Center in Düsseldorf, Germany. Hosted by the world-famous Messe Düsseldorf GmbH, the event is held every four years. It is currently the world's leading international metallurgical casting industry exhibition in terms of both scale and influence.

YIZUMI presented itself at GIFA with its new brand image that inherited the existing classic corporate elements. The new logo features a modern design to highlight the new concept of "Sustainable, innovative technology for

humankind" – values that YIZUMI greatly supports. YIZUMI looked forward to engaging in interesting discussions with customers and partners throughout this event, connecting global intelligence, and driving the industry forward together.

As a global enterprise deeply engaged in multiple areas of molding equipment, YIZUMI presented its LEAP series 840U die casting machine at GIFA. It is the first time that YIZUMI LEAP series die casting machines are introduced in Europe in the form of a complete machine to launch its journey in international markets.



On the third day of GIFA, we were thrilled to announce a resounding success for YIZUMI, as we proudly sold our revolutionary LEAP840U during its much-anticipated European debut! This momentous achievement marks a significant milestone for YIZUMI and reinforces our commitment to delivering cutting-edge casting technologies to the global market.

The LEAP series die casting machine has been comprehensively benchmarked against the performance and functionality of international first-

class die casting machines. It marks YIZUMI's significant breakthroughs in core technology and confidence in accessing high-end customers and markets.

In the future, YIZUMI will continue to innovate in technological development, production, and market expansion, bringing new contributions to promoting the high-quality development of the industry.

# GIFA



## Congrats to FAW for Winning the Gold Award at CHINA DIECASTING 2023

On July 12th 2023, CHINA DIECASTING 2023 & CHINA NONFERROUS 2023 were held at the same venue - Shanghai New International Expo Center.

This CHINA DIECASTING exhibited with the theme of "Step into the Era of Mega Casting" and embedded the elements of "integrated die casting" to present the vigor and vitality of the Chinese die casting industry, but also to bring another wonderful event for the industry in 2023.

At the exhibition, YIZUMI drew a lot of attention with its integrated die casting solution for ultra large structural parts, as well as LEAP series die casting machine, HII series cold chamber die casting machine, Mg-Thixomolding machine, and Yi+Platform.

LEAP series die casting machine is the key new product brought to you by YIZUMI according to its new development strategy. In mid-June this year, the LEAP840U die casting machine made its international debut and shone bright like a star at GIFA 2023. Just a month later, it appeared again at the CHINA DIECASTING.

LEAP series die casting machines can meet the higher requirements of the fast-developing die casting industry on the performance, functionality and

production processes. In addition, the systematic intelligent solution with the LEAP series die casting machine as the core can better understand the customers' needs and adapt to the complex die casting process of different products, making casting easier. They can fulfill the demanding die casting requirements of magnesium alloy and aluminum alloy and are widely used in diverse industries like automotive, 3C and home appliances.



FAW FOUNDRY CO.,LTD.



On the same day, Casting Carnival, a concurrent event of CHINA DIECASTING & CHINA NONFERROUS 2023, had been upgraded once again, covering "Best Die Casting Competition", "High-quality Casting Appreciation", "Non-ferrous Casting Display" and "Excellent Casting Company Recommendation" among other activities. 145 high-quality castings from 91 local and foreign enterprises participated in the carnival, demonstrating their manufacturing capability.

Best Die Castings Competition originated in 2012. And after years of development, it has grown into one of China's most influential event in the die casting industry. Furthermore, it has also become the industry's most widely concerned and participated selection event as the centerpiece of the Casting Carnival.

This year, 59 castings from 40 enterprises were shortlisted for the prizes. After the rigorous on-site assessment by the appointed expert group of Foundry Institution of Chinese Mechanical Engineering Society.

The integrated rear chassis from FAW Foundry Co., Ltd. was awarded the Gold Award Casting/Mold, which demonstrates FAW's high level of manufacturing capability for die casting parts, and promote the high-quality development in the industry.

Its external dimensions are 1875x1617x736 mm, which currently is one of the largest known integrated rear chassis of the car. It is made of aluminum alloy and its shot weight exceeds 100 kilograms, and the average wall thickness is only 3 millimeters, making it a huge challenge for the die casting process.

Thanks to the powerful dynamic injection performance of the LEAP series die casting machine, the molding process with a maximum filling distance of over two meters could be managed well. The

workpiece was made by the LEAP9000 ultra large die casting machine with a locking force of over 100,000kN, fully demonstrating the strength of "Made in YIZUMI" and validating the capability of the LEAP series die casting machines to fulfill the most demanding needs of large integrated die-casting structural parts for new energy vehicles.

"Technology Innovation" has always been the foundation of YIZUMI's business. YIZUMI has always adhered to market-oriented and innovation-driven development for years, and continuously expanded our business to achieve a diversified product coverage. In the future, we will rely on our international technology development platform with our tagline "Think Tech Forward" to propel us to the next level.





# YIZUMI at 2023 Die Casting Congress & Tabletop

From September 19 to 21, local time, the Die Casting Congress & Tabletop was held in Grand Rapids, USA. Many North American entrepreneurs and industry experts attended this great event, where YIZUMI presented its latest technological achievements in die casting machines, as well as crucial die casting processes and applications. Its technological capabilities and product quality have won high praise from visitors.

At the event, YIZUMI showed a variety of technical information and the sophisticated parts of LEAP and Hll series die casting machines.

The LEAP series die casting machine is a new model launched by YIZUMI in 2021. It is YIZUMI's high-end flagship that

fully benchmarks with the world's top die casting machines. LEAP's state-of-the-art injection technology, control and locking units, offer an efficient and energy-saving casting performance. In addition, its self-developed Yi-Cast real-time closed-loop injection control technology enables it to achieve highest precision and process repeatability contributing to a high OEE for our customers. So far, YIZUMI has developed the LEAP series die casting machines in sizes ranging from medium to ultra-large, with tonnages ranging from 380T to 9000T.



The Hll series die casting machine is the second generation of H series. It employs a newly designed locking and injection system based on European technology, which provides benefits such as stability, easy operation and low energy consumption. Under standard casting conditions, the deviation between setting and actual injection values is  $\leq 5\text{mm}$  with a repeatability of  $\leq 3\text{mm}$ . With its optimized hydraulic

system, the injection acceleration of small and medium-sized machines is  $\geq 50\text{G}$ , and that of heavy machines is  $\geq 40\text{G}$ , which meets highest customer production needs.

YIZUMI, as an advanced industrial molding equipment system- and service-provider, strives to create value for global customers through a strategy of globalization. In the future, we will

continue to innovate relentlessly, offering customers more technological breakthroughs, exceptional products, and customized solutions to meet the evolving market demands.





# YIZUMI Was Deeply Involved in the 4<sup>th</sup> Diecasting CEO Summit



From November 23 to 26, the China Foundry Association hosted the 4th Diecasting CEO Summit & High-level Forum for the Lightweight Nonferrous Casting in Zhuhai, Guangdong, China.

More than 1000 participants attended the summit, including leaders from industry associations, experts from renowned universities, and outstanding industry entrepreneurs.

As a vital link between the upstream and downstream of the die-casting industry, the China Foundry Association has always served as a bridge of communication and a driving force in propelling the industry's upgrading and development. YIZUMI, as a special support unit, was deeply involved in this summit.

## YIZUMI Night

On November 24th, YIZUMI Night, reception dinner of the summit, was grandly opened with happy cheers and loud applause.

Mr. Richard Yan, Chairman and CEO of YIZUMI, presented at the event and delivered a speech. He also formally introduced Dr. Zhou Jun, Chief Technical Officer of YIZUMI and General Manager of YIZUMI Die Casting Machine Division, who will be fully in charge of our die-casting business next year. Dr. Zhou Jun will lead our team in better connecting the upstream and downstream of the industry chain, and creating greater value for our partners.

At the dinner, YIZUMI was awarded the honorary title of "Special Support Unit",

which marks the organizers' recognition of our comprehensive power and special contributions.



## Summit Forums

The summit features the main forum and eight concurrent sub forums. The main forum is aimed to address the pain points and hot topics that worry CEOs and senior executives. The sub forums host technical discussions in the areas of die casting, low-pressure die casting, squeeze casting, semi-solid, and Mg Thixomolding industrialization.

On November 25th afternoon, Mr. Larry Wang, Product & Marketing Management Department Manager of YIZUMI Die Casting Machine Division, and Mr. Chen Yong, Thixomolding Department Marketing Manager of YIZUMI Die Casting Machine Division, were invited to give keynote speeches at the congress. Mr. Larry Wang presented <Application of LEAP Self-Learning Technology in Ultra-Large Die Casting> at the Advanced Die Casting Technology Sub Forum and Mr. Chen Yong gave a speech <Embracing the Magnesium Era through the Mastery of Thixomolding> at the Thixomolding Technology Sub Forum.



## Factory Tour

On November 26th, a delegation from the 4th Diecasting CEO Summit & High-level Forum for the Lightweight Nonferrous Casting visited YIZUMI.

The guests were guided on a tour of the YIZUMI i-Factory and the Ultra Large Die Casting Machine Factory, and explored the road connecting advanced casting and digitalization.

At YIZUMI i-Factory, guests experienced the future direction of equipment manufacturing technologies. The i-Factory is a digital factory built with the concepts of "green manufacturing" and "digital intelligence", with features of high efficiency, flexibility, intelligence, and sustainability.

Later, the guests also had a close look at the 9000T and the 7000T die casting cells of YIZUMI's new LEAP series ultra-large die casting machines and felt the robust manufacturing capabilities of our LEAP and H II series machine production lines.



In the future, we will continue to pursue our strategic goals, focus on the metal forming development trend, and strengthen our R&D capabilities in new technologies, processes, and products. We hope to work with all parties to drive the industry upgrade and achieve a win-win situation!