

Welcome to the World of Die Casting Technology

RANGE OF SERVICES | EN

BETTER TOGETHER

"Tradition is also a quality. And the company that has repeatedly been the first in its industry since 1949 has a very special quality – innovativeness."

Wolfgang Frech

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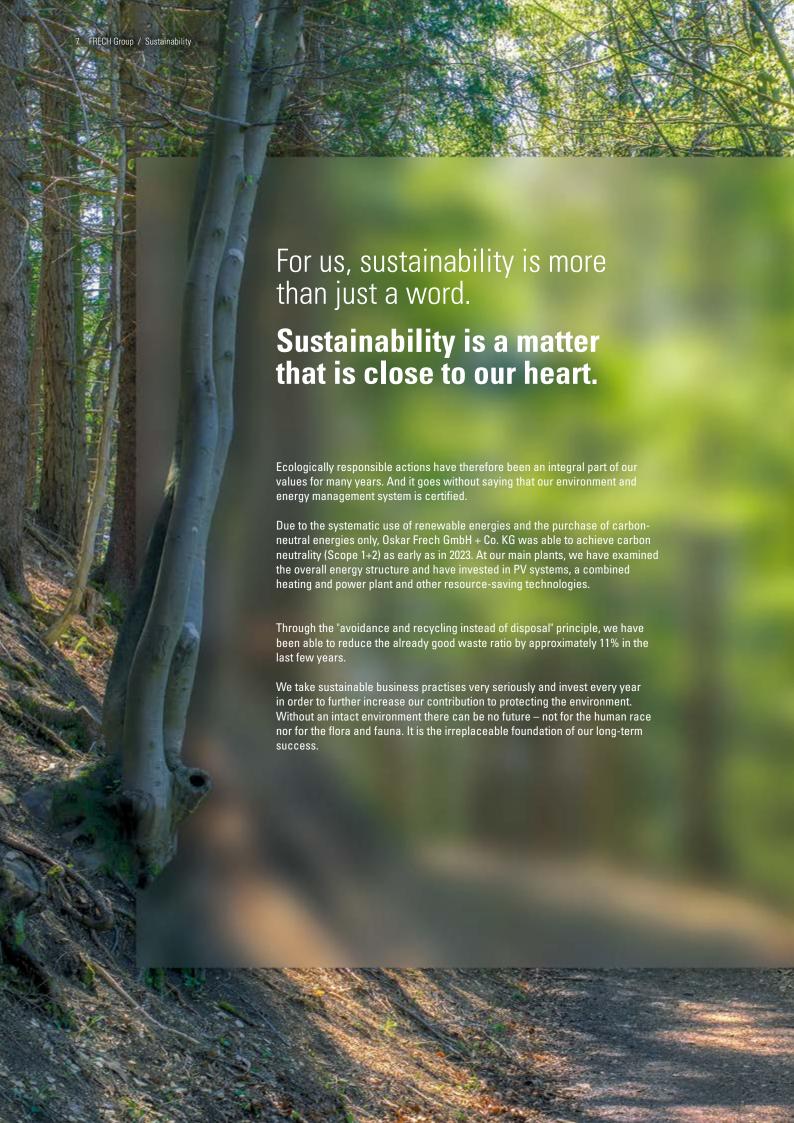


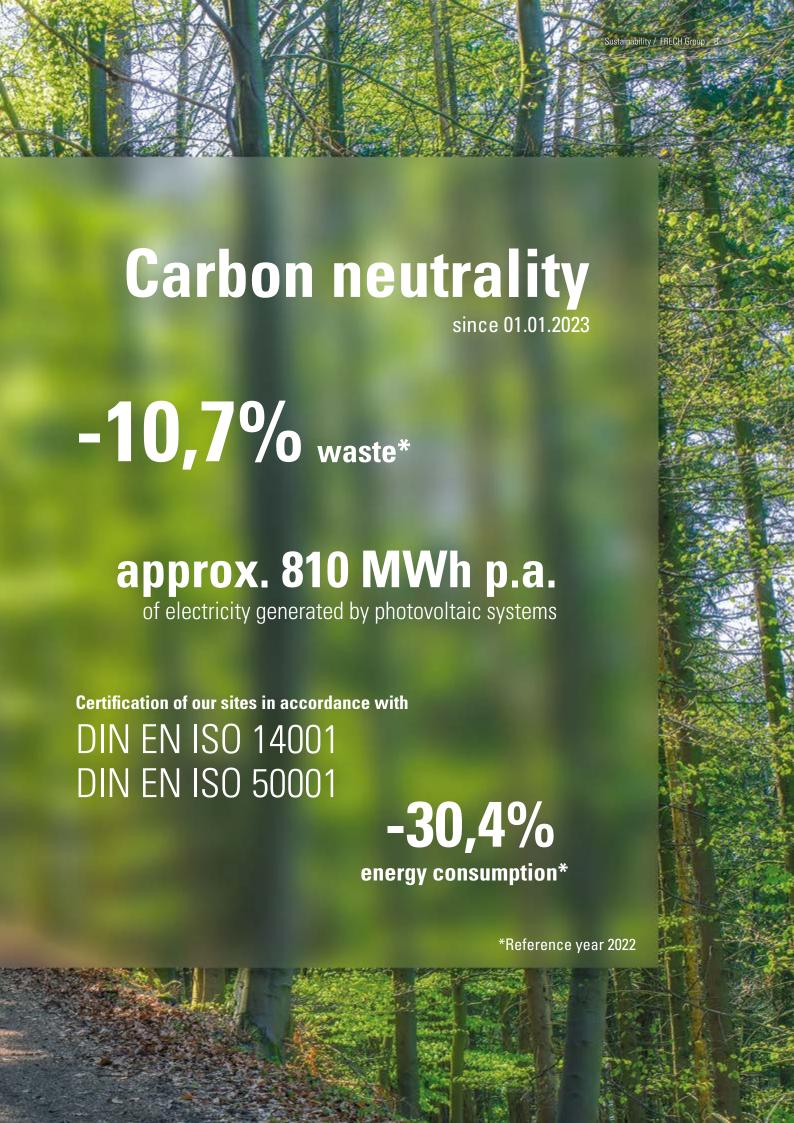


Our story begins in 1949 with the foundation of the company for the production of casting dies and plastic injection moulding dies. From the very outset, the FRECH values have been based on respect, hard work and the desire to find the best solution — without making any compromises. And it is these very virtues that were and still are the key to success. The newly-formed company was thus able to evolve from the small die-making workshop to a machine producer in just a few years. The driving force behind this was Wolfgang Frech, the son of the company's founder, who joined the firm in the 1950s. Wolfgang Frech developed the first hot-chamber diecasting machine; this was the cornerstone that enabled FRECH to grow into a technology company. Later, cold-chamber diecasting machines were added to the product portfolio. From this point onwards, FRECH, with numerous game-changing developments and achievements, set standards on the international market as well, and thus rapidly made a name for itself.

Wolfgang Frech took over the entire responsibility for the company from his father in 1965 when he became its managing partner. In the following decades, he set the company's systematic course towards globalisation. International assembly plants in the USA, China and Poland as well as more than 20 branches in many countries throughout the world now provide consultation and training services for our business partners, interruption-free spare parts supply and rapid-response customer support on site. The takeover of the diecasting division of Müller-Weingarten AG resulted in large-volume cold-chamber machines with locking forces of up to 48,000 kN being added to the already extensive product portfolio.

The FRECH management team has always been visionary, meaning that the need to offer complex diecasting cells was identified at an early stage. The FRECH Group thus has an unparalleled product portfolio alongside its expertise in the construction of technically unbeatable diecasting machines. Die technology with the associated engineering as well as excellent training in machine and process technology to ensure systematic knowledge transfer are the starting point. We can supply diecasting machines and complex, customized diecasting cells from a single source. To do this, we use the products from our subsidiaries Robamat and Meltec, who supply efficient furnace and temperature control technology. FRECH ZPF supplies state-of-theart central melting furnaces for next-level recycling. Thanks to VDS, vacuum systems are included in the FRECH Group product range and Spesima contributes automation solutions. The portfolio is rounded off by the complete digitalization of entire foundries by insightfabrix solutions, and the 100% FRECH service, which includes machine overhauls in addition to the traditional services, such as customer support, spare parts and replacement parts.





ARE YOU LOOKING FOR A KNOWLEDGEABLE PARTNER? YOU'VE FOUND ONE!

Complex processes, dynamic challenges and structural change. These are all things that confront us daily. That's why it's more important than ever to convey knowledge and to integrate it into your own business.

From entry-level to expert-level training, we provide assistance with custom-tailored, practical training for process, technology and engineering.

Your benefits at a glance

- 1. Practice-based knowledge transfer provided flexibly at our sites throughout the world or directly on-site at your premises – global component consultation and design
- 2. Top-class training quality and highly-qualified trainers
- 3. Support for all current FRECH series as well as their predecessor models
- 4. Training in small groups with a practical focus
- 5. Modern training facilities
- 6. Pleasant, quiet learning environment
- 7. FRECH Technology Center with the latest product technology for training sessions in the foundry environment



,Knowledge knows no limits" –

On the basis of this motto, we train several hundred that you can work quickly and productively with the new technology at your own plant. We will bring you up to speed with the increasingly complex components and processes, as:

FROM PRODUCT IDEA TO PRODUCTION-READY.

The former cornerstone of the company is still a fundamental component of our product range today. With the continued development of die construction into a highly modern technological field, we now cover all aspects: the latest die technologies, industrialization and transfer into diecasting, as well as traditional high-end die construction, create an unbeatable combination for absolute top quality.

Our services:

- Component consultation and design
- State-of-the-art simulation options
- Small-series kits for simulating series production using a minimum of resources
- Perfected die construction state-of-the-art technology, mechanical finishing, assembly and quality control
- · Decades of experience of die design, development and consulting

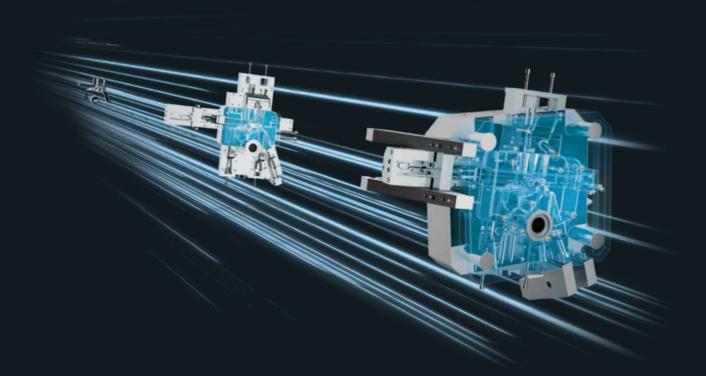
Perfect symbiosis with diecasting machines

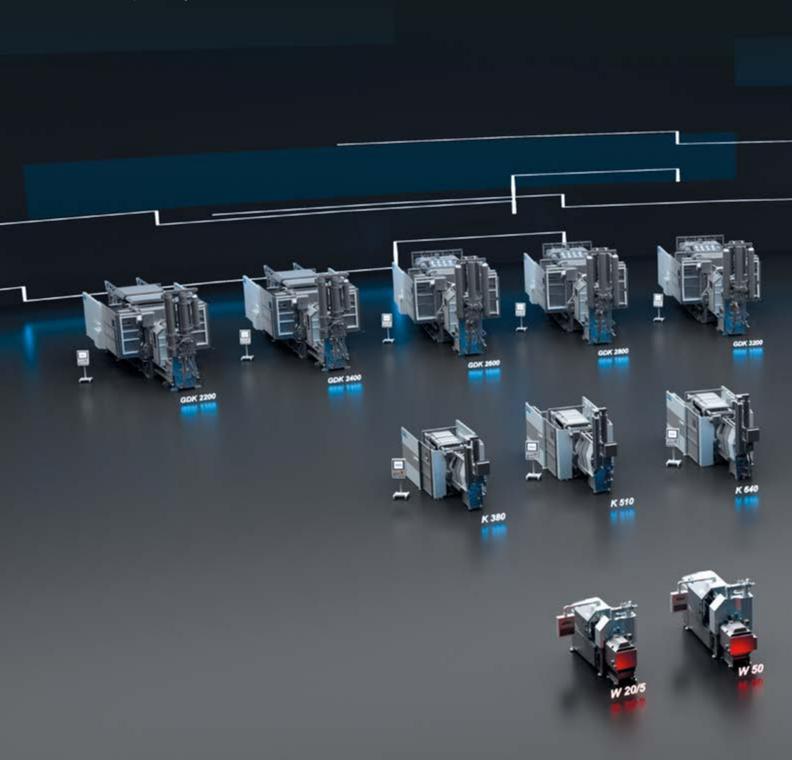
FGS® hot-channel die system in ombination with the FDS® active prefill system

- · Improved productivity
- Reduction of recycle material
- Energy efficiency
- Improved quality
- Maximum transparency of all parameters due to machine graphics

Perfectly calculated and designed close-contour FRECH laser-melted die modules – FLM®

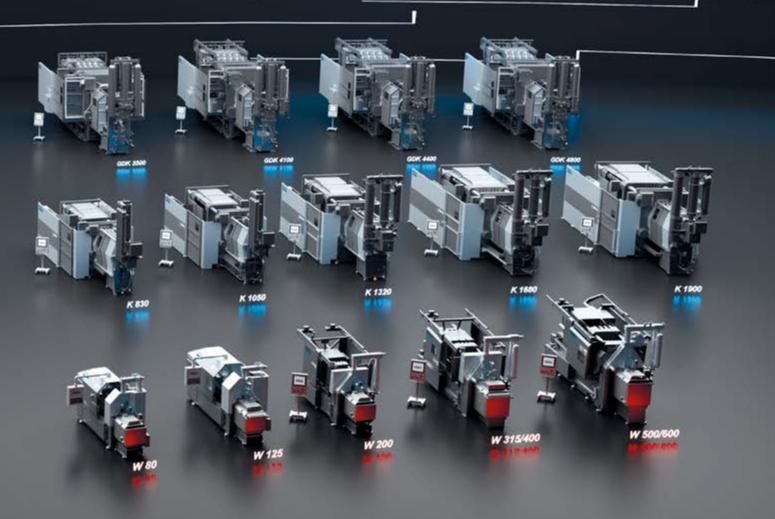
- Close-contour temperature control
- Reduction of cooling and spraying times
- Significantly longer die service life
- Active control and shortened solidification process to optimise the quality





OUR PORTFOLIO: IMPRESSIVE THROUGHOUT





THE ENTIRE RANGE.

STRONG PERFORMANCE FOR EVERY DIMENSION.

FRECH Cold Chamber Die Casting Machines focus on top levels of availability and are known for using resources sparingly. With locking forces from 3,800 kN to 48,000 kN and perfected mechanical 3-plate technology, we provide outstanding production systems that do exactly what they should – help our customers to become market leaders. **GDK**next

- + Robust design for many years of service
- + Selected top-quality standard hydraulic/control components for maximum reliability and fast supply options worldwide
- + Modular and highly-accessible mechanical/hydraulic machine component construction for easy/fast repair in the event of a failure
- + Excellent transparency and in-depth diagnostics with regard to control systems (hydraulic diagrams, scopes, control workflow chart, diagnostics texts) for rapid error detection in common languages
- + Minimal use of hydraulic components for low TCO, mechanical 3-plate locking unit for 99.9% availability



Technical data

AVAILABILITY

Secures your production operation!

SPEED

Secures a high yield!

QUALITY

Secures and increases your ratio of good parts!

- √ Fully automatic locking force setting: monitoring with few inputs
- ✓ Casting unit concept without check valve: reduced downtime
- Innovative hydraulics concept: low-maintenance with reduced number of valves and hoses
- Top quality components: mechanical, electrical and hydraulic
- √ Fast diagnostics: scope function, service pages with interactive hydraulic and wiring diagrams
- ✓ Detailed monitoring functions: with informative warnings and failure messages
- √ Comprehensible information: for resolving failures quickly

- ✓ Cycle time reduction: through shortened opening stroke
- ✓ Dynamic movements: through energy-efficient hydraulic drive
- ✓ Cycle time optimization: through analytics of detailed time and trend diagrams
- ✓ Speed: when opening and closing the die
- ✓ Multi-cavity dies and structural components: through large clamping surfaces
- Optimized processes: through interactions and synchronous movements of participating peripheral devices
 - Early dosing process
 - Early sprayer start
 - Synchronous movement of die and core pullers
- · Early release for start of removal
- · Cast part pre-monitoring
- ✓ Short starting times: through dynamic starting program

- ✓ Highly dynamic casting unit: realtime controlled with self-optimized intensifier
- ✓ Adaptation of casting capability: through possibility to select from different casting unit sizes
- ✓ Very short pressure rise times: as a check valve is not needed
- Top repeatability: through highquality components and systems with top production quality
- ✓ Machine and process monitoring: through extensive sensors
- ✓ Diverse monitoring of process parameters: by means of quality table, trend diagrams and SPC analysis

- ✓ State-of-the-art service concepts: online spare parts catalog and remote service with FRECH Eye for extremely fast assistance and excellent availability
 - ✓ High level of availability: through stocks of spare parts and wearing parts
 - ✓ Skilled team of experts: from knowledge transfer to production support

OEE = availability x speed x quality

STANDARDS CAN BE COMPLIED WITH OR REDEFINED.

Our Hot Chamber Die Casting Technology has been setting standards in the industry from the very outset. So that it stays this way, we always go one step further.

With technologically sophisticated machines, equipped with state-of-the-art assistance systems for semi-autonomous operation, we enable your staff to produce products of absolute top quality. You can rely on the proven FRECH quality - excellent reproducibility and dynamics, coupled with customization across the board, mean every requirement can be met.

AVAILABILITY

Secures your production operation!

Assistance systems: the optimal machine settings with just a few

- Innovative hydraulics concept: low-maintenance with reduced number of valves and hoses
- Top quality components: mechanical, electrical and hydraulic
- Fast diagnostics: scope function, service pages with interactive hydraulic and wiring diagrams
- **Detailed monitoring functions:** with informative warnings and failure messages
- **Comprehensible information:** for resolving failures quickly
- SensiLock*: fully automatic locking force and die protection setting with precise monitoring
- √ "Technology" ejector function package: the intelligent and precise program for protecting the ejector

SPEED

Secures a high yield!

Cycle time reduction:

- through shortened opening stroke
- Synchronous ejector and die opening movements
- FDS° (FRECH-Dosing-System°) facilitates casting practically without the 1st phase
- Stationary spraying
- ✓ Dynamic movements: through energy-efficient hydraulic drive
- Cycle time optimization: through analytics of detailed time and trend diagrams
- ✓ Speed: when opening and closing the die
- **Multi-cavity dies:** through large clamping surfaces
- With FGS° (FRECH-Gating-System°) dies and reduced runners for maximum cavity count
- ✓ Optimized processes: through interactions and synchronous movements of participating peripheral devices
- Early sprayer start
- Demolding control using camera system
- ✓ Short starting times: through dynamic starting program

QUALITY

Secures and increases your ratio of good parts!

- ✓ Top repeatability: through highquality components and systems with top production quality
- ✓ Highly dynamic casting unit: realtime controlled or as ShotStop variant with deceleration phase
- ✓ Machine and process monitoring: through extensive sensors
- Innovations: FDS° (FRECH-Dosing-System®) with actively switched valve in the gooseneck for top surface finishes and extremely high density
- Diverse monitoring of process parameters: by means of quality table, trend diagrams and SPC analysis
- Assistance systems: the best possible quality with just a few clicks

✓ State-of-the-art service concepts: online spare parts catalog and remote service with FRECH Eye for extremely fast assistance and excellent availability

- ✓ High level of availability: through stocks of spare parts and wearing parts
- ✓ Skilled team of experts: from knowledge transfer to production support

- + The standard: the benchmark amongst the hot-chamber machines
- + Robust, sophisticated and extremely durable machine portfolio from 90 kN to 6,500 kN
- + Unique combination of high-tech and patented process innovations for the most demanding requirements
- + Intuitive, 1000-times trialled control system with revolutionary user assistance systems
- + Well-conceived energy concept from the furnace to the casting system, FRECH hot-chamber machines already meet the requirements of the future



Technical data



TEAMWORK AND PASSION

COMETOGETHER.

High-quality, aluminum central melting systems for the large furnace sector have been part of the FRECH Group since 2022, thanks to FRECH ZPF. As the ideal complement to Meltec and with a focus on high levels of energy efficiency, substantial reductions in carbon emissions and efficient recycling management, FRECH ZPF plays a significant part in ensuring the 'green foundry' green&clean. Precision work from Siegelsbach -FRECH ZPF is the melting pot of expertise.





The foundry industry deals with air and gas porosity every day. This is exactly where the highly-experienced Swiss vacuum specialist comes into its own. Since 2013, VDS has enriched the product portfolio of the FRECH Group with vacuum systems of the highest level. Designing, constructing and adapting in line with specific requirements and always thinking one step ahead – these are the strengths of VDS.

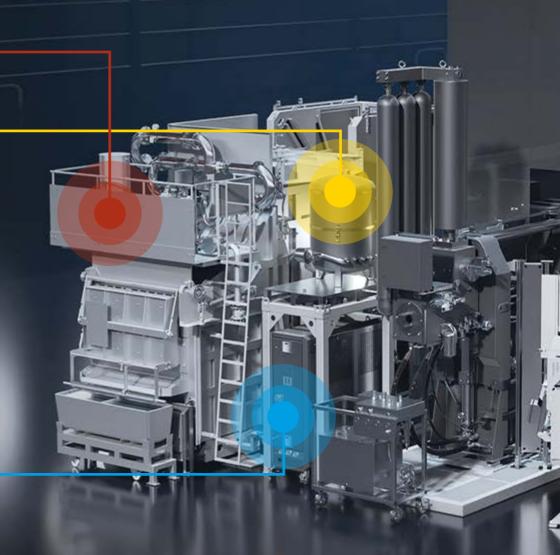




As a specialist for all temperature control needs, Robamat, headquartered in Austria, has been part of the FRECH Group since 1997. From the single-circuit system through to complex multiple zone temperature control systems for mega and giga casting, the perfect temperature can be found for every application. High-tech, high spirits, high quality and more than 40 years of experience – this is Robamat.

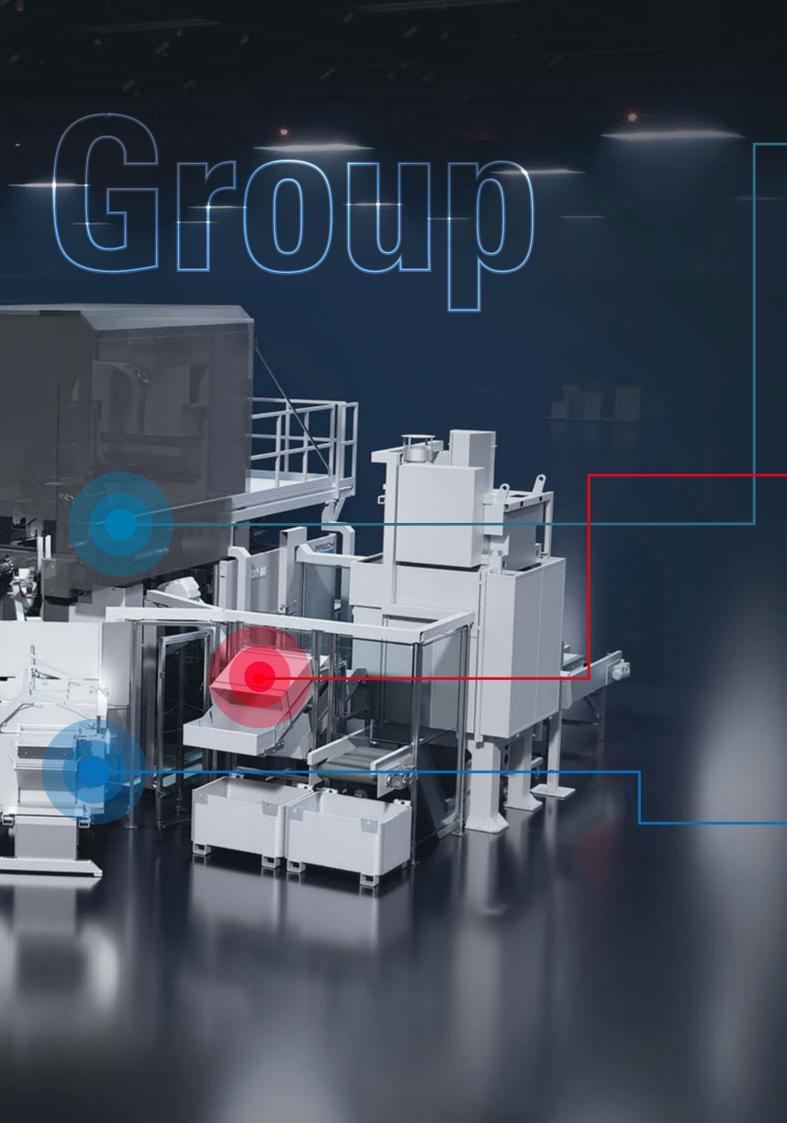






We're better together. And we are particularly proud of that. The FRECH Group is the only company in the die casting industry that can offer everything from a single source, with products from its own corporate group. The benefits for our customers: clearly defined contact persons, no external

interfaces and, in particular, no shifting responsibilities. With the most innovative products in the industry, we offer next-level turnkey casting cells. All of this comes with the superior quality promise of the FRECH brand.







At FRECH, everything started with the production of dies. Today, FRECH TOOLS POLAND is the die builder for exacting aluminum, zinc and magnesium components. Specializing in die sizes of up to 1.5m x 1.5m and a die weight of up to 10 tons, the company excellently meets the requirements of the foundry industry.



SPESIMA

The customized products from Spesima take diecasting cell automation to the next level. As part of the FRECH Group since 1997 and headquartered in Bulgaria, Spesima offers everything from robots and conveyor belts through to highly-customized solutions. Ingeniously simple and simply ingenious - this is where Spesima has made its name.



Meltec, one of the world's global leaders in producing furnace technology and headquartered in Austria, became part of the FRECH Group as early as the year 2000. Meltec rightly maintains this position through highly modern products and global innovations such as the aluminum vacuum dosing furnace. With intelligent solutions for the melting process, we strive to meet the global challenges and are not satisfied with merely talking about sustainability; instead, we put it into practice. Only those who do not settle for what has already been achieved will attain a better outcome. This is what Meltec is all about.



EXPERTS IN CUSTOM-TAILORED FURNACE AND DOSING TECHNOLOGY.

Meltec is one of the world's global leaders in producing furnace and dosing technology for the die casting industry and offers the melting technology for the three main alloys: aluminum, magnesium and zinc.

Meltec rightly maintains this position through highly modern products such as the aluminum vacuum dosing system. With intelligent solutions for the melting process, Meltec strives to meet the global challenges and is not satisfied with merely talking about sustainability and energy efficiency; instead, it puts it into practice. Only those who do not settle for what has already been achieved will attain a better outcome. This is what Meltec is all about.

- + Excellent dosing accuracy due to precise weight measurement
- + Melt collection under the surface of the bath
- + Excellent melt quality due to less air contact during transport
- + Improved component quality due to a reduction of oxides
- $+ \, Less \, temperature \, loss \, as \, the \, container \, is \, closed$
- + Energy efficient and economical process







RECYCLING AT A **NEW LEVEL.**

Furnace systems from FRECH ZPF combine the greatest economic benefits with exceptional product quality. We set the standards for efficient technology through optimum aluminum output, low energy consumption and compliance with stringent environmental requirements.

This includes chip/wheel recycling systems for process recycling with integrated waste heat recovery. The focus is on energy efficiency and carbon neutrality. This system enables both the energy-efficient processing of aluminum chips, made of process recyclate, for example, as well as the mixing of different secondary materials such as wheels, scrap or shredded material, for example. The passive exhaust cleaning additionally ensures compliance with air quality control regulations ("TA Luft") without the use of additional filtration systems. The system thus not only makes a substantial ecological contribution on the way to the "green foundry," but also sets new standards for process recycling in the aluminum industry.

Installation time is shortened because all completely assembled melting systems are sent out as turnkey systems after being tested in the production halls, together with the control systems. Assembly and service are carried out exclusively by our experienced specialists. With us, you always have a competent partner who is at your side with advice and support.

- + Closed recycling loops
- + Turnkey systems with short installation times
- + Simple operation, cleaning and maintenance
- + Hydraulic tilting device
- + Low-emission through exhaust gas post-combustion
- + Low particle emissions, no filter required (air quality control regulations ("TA Luft"))
- + Continuously variable burners and controllable exhaust flap
- + Weighing system including evaluation software
- + Worldwide sales and service network
- + High energy efficiency through combustion air pre-heating
 - 15 20% energy savings
 - Amortization period of 1 1.5 years
 - Carbon savings of approximately 800 t/a







CUSTOMIZED SOLUTIONS FOR THE DIECASTING INDUSTRY.

Robamat Automatisierungstechnik GmbH has offered an extensive portfolio of highly modern temperature control solutions for the diecasting industry since 1979. Our product range includes oil and water units, heating and cooling systems, and die cleaning units.

A particular highlight is the advanced MZT multi-zone system that facilitates even heat istribution and a high level of process stability through precise temperature management. This concept improves the efficiency and quality of your production systems significantly. Also, the integrated leak detector ensures a safe production process.

With our expertise and innovativeness, we help you to take your production processes to the next level. Put your trust in Robamat – your partner for reliable and future-focused temperature control technology.



- + Better and consistently reproducible quality
- + Longer die service life
- + Reliability and efficiency
- + Less spraying agent consumption
- + Shorter cycle times
- + Less risk of core overheating
- + Standardized casting process
- + Precise temperature management
- + Worldwide sales and service network
- + Innovative technology through continuous research and development
- + Customer-specific solutions
- + Sustainability and cost effectiveness







VACUUM TECHNOLOGY PAR EXCELLENCE.

VDS SA offers the diecasting and injection moulding industry innovative vacuum solutions that combine excellent flexibility with efficiency. The modular ProVac® systems can be optimally adapted to various cast part sizes. Excellent process reliability is ensured through durable, specially-developed valves and stable vacuum tanks. Thanks to integrated control solutions and IoT interfaces, VDS facilitates precise control and trouble-free integration into Industry 4.0 environments, meaning that downtimes are reduced and efficiency is increased.

Swiss precision ensures that all systems comply with the stringent quality standards and thus support sustainable production. From installation to maintenance, you benefit from individual service and the many years of experience of the VDS specialists.



- + Modular vacuum systems for maximum flexibility thanks to ProVac® FLEX vacuum systems that facilitate flexible adaptation in line with various production requirements through modular tanks from 200 to 1,000 liters
- + Innovative valve technology for increased efficiency through ULTRA SONIC valves with the largest evacuation cross section coupled with very small dimensions
- + Integrated maintenance solutions for reduced downtimes thanks to the all-in-one maintenance system
- + Simple integration into existing production lines
- + Expert customer service and global support





SPESIMA"

TURNKEY AUTOMATION SOLUTIONS.

Spesima stands for high-performance automation solutions that meet the most exacting industrial demands. With a comprehensive portfolio of innovative extraction robots, spraying and dosing devices, conveyors, cooling systems and other customer-specific peripherals, the company offers cutting-edge technology for the diecasting industry and much, much more. Focusing on technical excellence and customization, Spesima is a valuable partner for optimizing production processes. The core areas of expertise are in the development of robust and flexible systems that meet the increasing demands of modern industry. Spesima is dedicated to empowering its customers to stay competitive



- + Ready to use solutions with immediate integration into production lines
- + High reliability and long-lasting durability
- + Intuitive operation and low maintenance design
- + Customer-specific design with excellent precision and flexibility
- + Practice-focused training
- + Remote support
- + Worldwide sales and service network







VISION BECOMES REALITY -**INNOVATIVE DIE TECHNOLOGY.**

We are a rapidly growing company with 20 years of experience in manufacturing dies for die casting aluminum, zinc and magnesium. From the beginning, we have focused on innovation, precision and the highest quality of our products, providing customized solutions for customers in various industries. Our die construction is a combination of modern technology and extensive engineering experience.

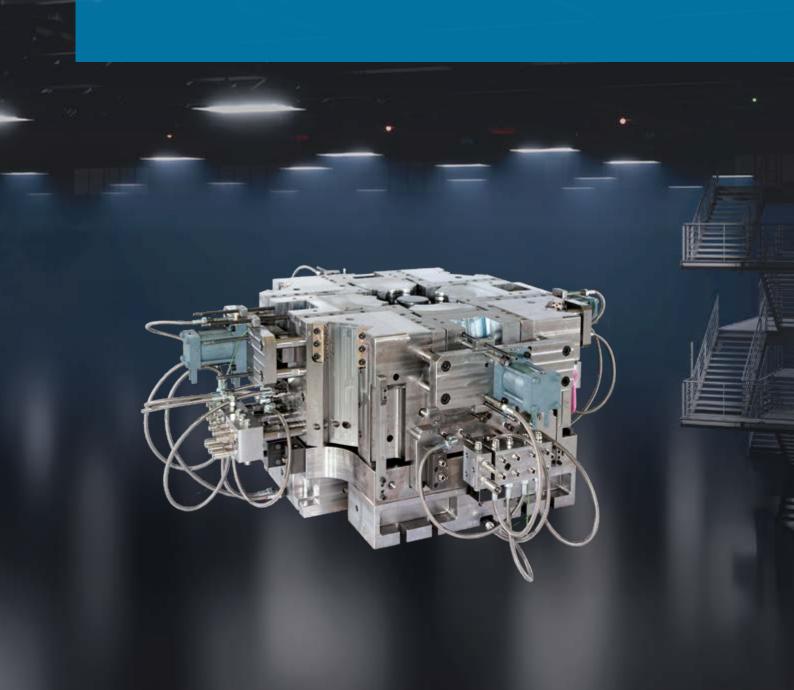
In the production process, we use advanced design and simulation systems which we implement in cooperation with our design department in Germany. As a result, we are able to optimize the designs of the dies and guarantee their reliability in operation.

We believe that the key to success is continuous development. That is why we invest in modern machines, CAD/CAM systems and the training of our team to meet the growing demands of the market. As a partner to our customers, we always strive to provide a comprehensive service – from the design stage, through prototyping, to commissioning



- + 20 years of experience extensive know-how and stable market position
- + Specialization in diecasting dies extensive expertise in aluminum, zinc and magnesium
- + Innovation use of the latest technology and CAD/CAM tools for maximum precision and efficiency
- + Complex service offerings from design to commissioning of the die
- + Team of specialists qualified engineers with a passion for continuous improvement
- + Flexibility and customized approach solutions matched to individual customer needs
- + Precision and reliability the highest quality standards at every stage of production







TAILORED DIGITALIZATION-SOLUTIONS FOR FOUNDRIES.

With smartfoundry solutions powered by insightfabrix solutions, our customers are given matching digitalization solutions to enable them to improve efficiency in their foundry.

smartfoundry.solutions are modular software applications, services and industry-ready hardware solutions developed by diecasters for diecasters. The range of services includes the operation and administration of the system components, maintenance of the hardware and software and the management of IT security. The product and service portfolio ranges from the individual sensor, through interfaces with the production systems and hybrid database systems, to the cloud components and the intuitive applications. Due to the modular structure of the product and service range, it is possible to respond to the specific requirements of the individual foundries.

The product and service portfolio is completed by training and consulting offerings to facilitate successful foundry digitalization and to ensure that, together, the highest possible level of efficiency, agility and sustainability can be continually achieved.





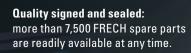
We love service!

For us, service is not a faceless endeavor. There is no waiting in line or constantly changing contact persons. Service means trust. Your personal contact persons with their high level of technical expertise provide you with customized support. Our Service department is closely involved as early as during the assembly of your discasting machines and cells. We will be at your side from the delivery of the new FRECH technology to your plant, through commissioning and many years of production, to the last production cycle.

This is 100% FRECH service that makes all the difference.









Ready for the second life cycle: facilitated by FRECH modernization.



Expert repairs:

economically expedient and ecological valuable.



First-rate customer service, the way you want it: any time, anywhere and with rapid response.



Starting off into the high-tech world of FRECH: top-quality second-hand machines, available immediately.



Spare parts

availability & quality signed and sealed



Irrespective of whether you need original spare parts or wearing parts - our global logistics network means that the FRECH spare parts service is your reliable partner when it comes to ensuring maximum machine availability.

You also receive customized solutions to optimize your machine workflows as far as possible.

Your benefits at a glance

- Comprehensive availability: more than 7,500 spare parts available immediately from inventory
- Individual delivery: minimized downtimes due to flexible shipping options
- Top quality: FRECH original parts – always state-of-the-art
- 12-month guarantee: on all FRECH original spare parts

Modernization

more than just standard solutions



With customized adaptations and optimizations, FRECH modernization opens up new potential for your foundry. Instead of focusing on standardized solutions, we concentrate specifically on your individual requirements - for maximum efficiency and the optimum performance of your existing machines, ready for the coming years:

- Adaptations and optimizations to specific components or assemblies
- Individual consultation, customized concepts and in-depth expertise
- Machine conversions directly on site at your premises or at our FRECH plant

Your benefits at a glance

- More potential for your production processes
- Individual solutions matched perfectly to your specific needs
- Complete service provision from the initial idea through conversion to the successful approval of your machine

Repairs

Benefit from expert service



The FRECH repair team provides economically expedient repairs of virtually all viable components in order to ensure long-term production support. You can thus minimize downtimes and maximize efficiency. We also offer repair exchanges for many high-value machine components, such as valves, pumps, controls and generally overhauled parts.

Your benefits at a glance

- Sustainable reconditioning:
 efficient repairs for the economic
 operation of your machines
- Top quality:
 the use of original spare parts and extensive quality tests ensure that the components and assemblies are completely functional
- Short cycle times: optimized processes ensure fast repairs

Customer service

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comprehensive service provision for your products



Our top priority is solving your problems and meeting your needs. We thus respond quickly to your issues and offer suitable solutions. Our qualified team has extensive know-how that is used to provide expert support. Thanks to our proven remote service, we solve cases quickly and at low cost – without long waiting times. Our experts analyze your issues online and provide immediate assistance. With a high level of technician availability and a global service network, we are there for you wherever you are - onsite or online. From commissioning through maintenance and inspection to repairs, we accompany you throughout the entire life cycle of your machines.

Your benefits at a glance

- Fast solutions
- Easy-to-reach
- Fast and low cost troubleshooting through our online service
- High level of service technician availability
- International service network
- Modern service concepts

Second-hand machines

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FRECH secondhand machines are a great choice



Well-served with FRECH second-hand machines. It is possible to start off into the high-tech world of FRECH even with a small budget thanks to original FRECH second-hand machine technology. Due to our many years of experience, we know exactly which machines meet your requirements. With our extensive range of second-hand machines, we can respond quickly and thus provide rapid assistance for virtually every requirement.

Your benefits at a glance

- Energy and material efficiency
- Low cost solution
- All-round support
- Customer-specific needs can be met
- Extensive stocks mean short delivery times

