

Moulds

*Francois Pascal: **Investing in Quality***

*Roberto Gonne: **The Inner Surface of Moulds***

*Elena Chechet: **Qeeboo, Emotional Products***

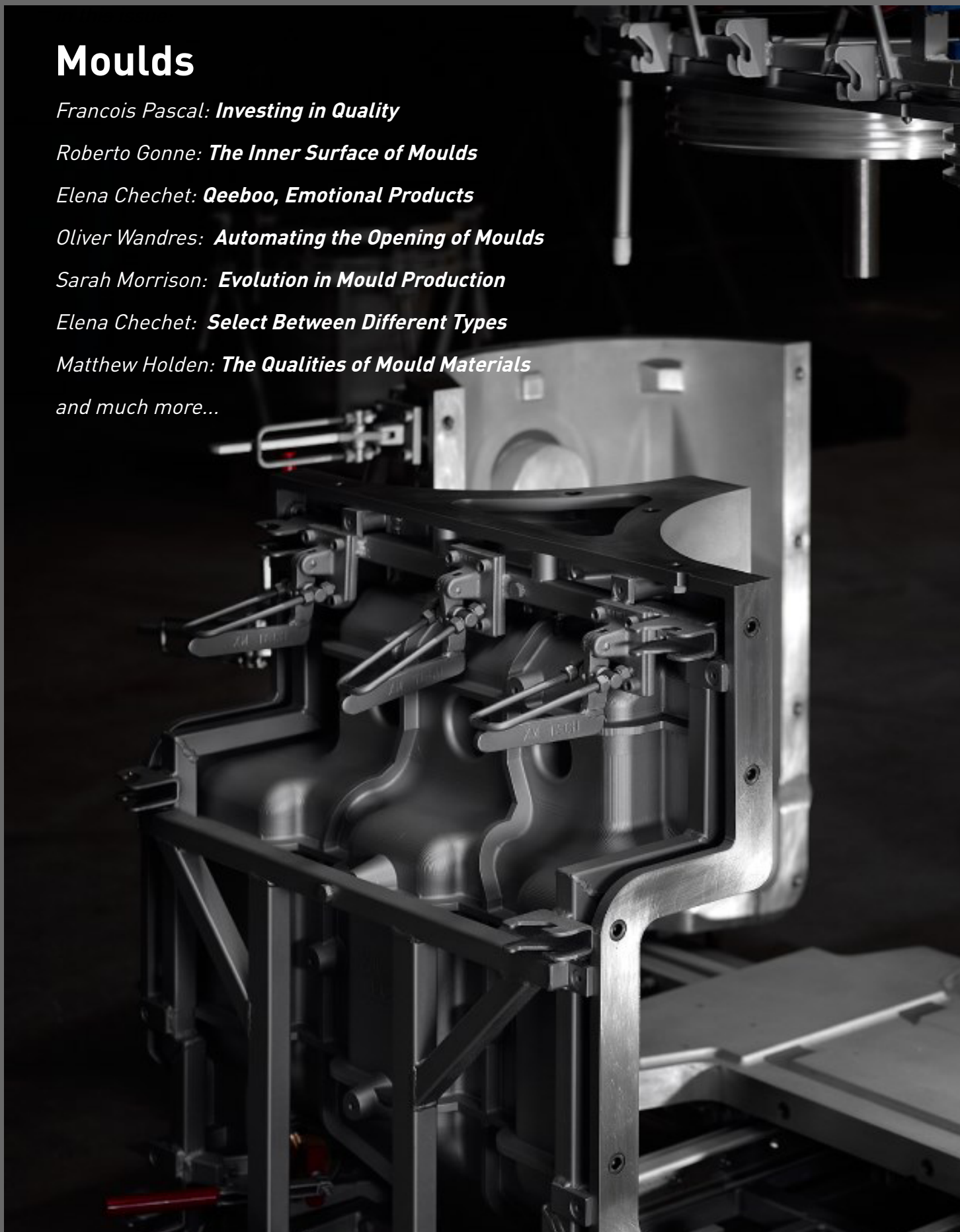
*Oliver Wandres: **Automating the Opening of Moulds***

*Sarah Morrison: **Evolution in Mould Production***

*Elena Chechet: **Select Between Different Types***

*Matthew Holden: **The Qualities of Mould Materials***

and much more...





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Investing in Quality

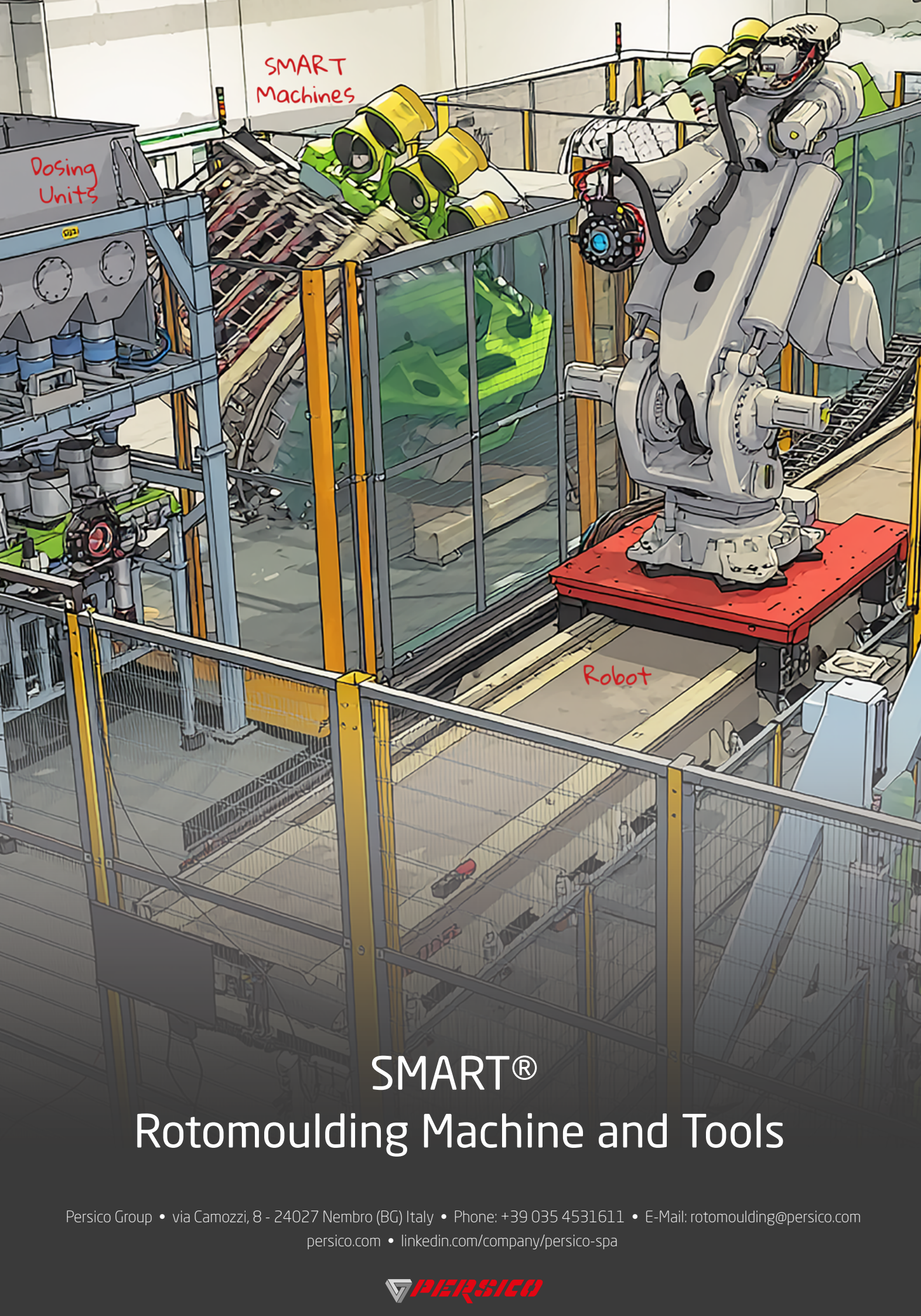
by Francois Pascal - Material Connexion



Rotational moulding is a technology that offers multiple possibilities for the development of small, medium, and large-scale products. The quality of rotationally moulded products is closely linked to the quality of the moulds, which are a key element of the production process. Technological innovation today allows for increasingly high-performance molds, improving both the aesthetic quality and the structural integrity of the final product. This issue of WeRoll is entirely dedicated to exploring the many potentials and characteristics of moulds. Investing in quality equipment is a fundamental step to ensuring optimal performance of the rotationally moulded product. Quality certainly comes at a cost, but it also allows for the creation of new market niches, launching new applications, and, very often, converting products previously made with other materials or technologies.

For industrial designers and companies unfamiliar with the benefits of rotational moulding, this issue of WeRoll offers a moving portrait of a sector that continues to innovate and grow. Rotational moulds offer diverse and flexible solutions, capable of adapting to any type of production, from large-scale runs to limited runs, from small objects to large, out-of-scale products.

Enjoy reading!



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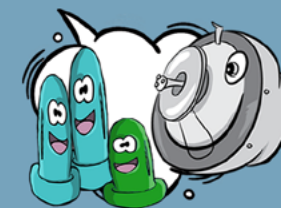
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1. Inside Technology

The Inner Surface of Moulds



Text by Roberto Gonne

Determining the internal finish of a rotational moulding mould is a process that must be carefully considered, taking into account the various possibilities offered by the technology and the desired end result.

From a tactile perspective, the mould finish can be achieved in several ways: first, sandblasting or shot peening allows for a uniform finish that tends to mask any joint lines between the mould parts. Furthermore, a sandblasted finish provides the product with greater adhesion, making it easier to grip and handle rotationally moulded parts. On the other hand, a highly polished finish tends to more clearly highlight any surface marks or scratches. Furthermore, since rotational moulding is essentially a zero-pressure process, highly polished moulds cause problems because the plastic powder does not easily adhere to a very smooth mould. What tends to happen is that the powder pool does not roll inside the mould, but slides along the bottom of the mould. This leads to problems such as uneven temperatures across the powder bed. Furthermore, molten polymer cannot adequately replicate the surface of a highly polished mould. Another way to characterize the surface of a rotationally moulded product in three dimensions is by chemically etching the mould. This allows for faithful replication of natural textures, such as leather, leaves, or fabrics, reproducing very precise surface characterization down to the smallest details.

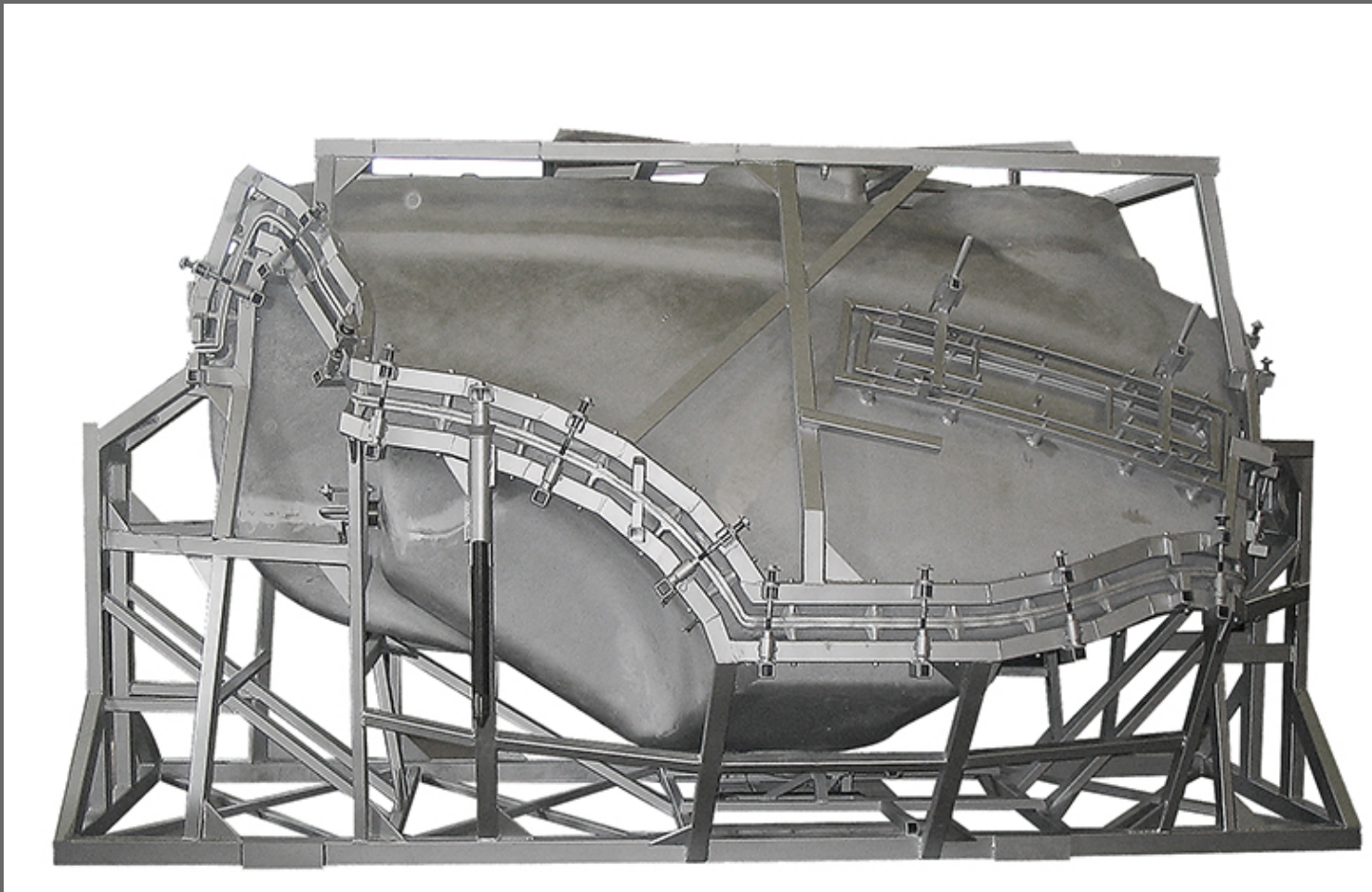
Uniformity of the Internal Finish

Rotationally moulds offer the possibility of achieving a uniform finish in the internal cavity, particularly when the shapes are continuous and without significant recesses. However, with very narrow parts with deep recesses, ensuring surface continuity becomes more challenging, and therefore it is often necessary to introduce areas where the surface finish is not fully formed.



The use of CNC technology opens up a wide range of possibilities for mould surface characterization. It is possible to create complex and intricate designs that encompass the entire surface of the mould, giving the rotationally moulded part a sophisticated three-dimensional appearance.



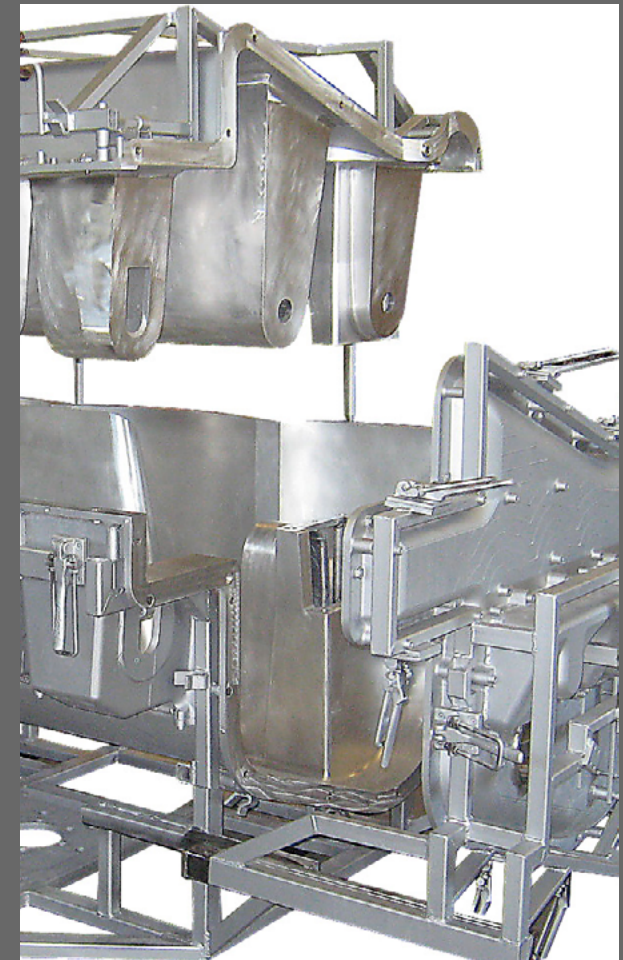


All draft angles must be increased as the depth of the textured surface increases to allow for proper ejection of the moulded part. In some cases, if permanent release agents are present on the mould surface, the textured surface is at risk of undergoing slight changes and alterations that can compromise its uniformity.

The Opportunities Offered by CNC Moulds

The use of CNC technology opens up a wide range of possibilities for mould surface characterization. It is possible to create complex and intricate designs that encompass the entire surface of the mould, giving the rotationally moulded part a sophisticated three-dimensional appearance. Even in these cases, the greater the uniformity of the mould surface, the greater the possibility of extending the textured areas. CNC milling means significantly reduced milling and delivery times, which adds to the high quality of the mould. The tolerances between the different component parts are extremely tight, allowing for the creation of rotationally moulded products with complex geometries that feature excellent surface finishes. Furthermore, the mould obtained by milling the aluminum block achieves a better surface finish than cast aluminum, thus positioning itself at the top in terms of overall quality.

In general, we can say that when dealing with particularly complex moulds from a formal and construction point of view, CNC milling is the best solution. This places this type of machining at the forefront of achieving a surface treatment of the internal cavity capable of replicating even micro details faithfully, precisely, and reliably.



2. Exploring Design

Qeeboo, Emotional Products



Text by Elena Chechet

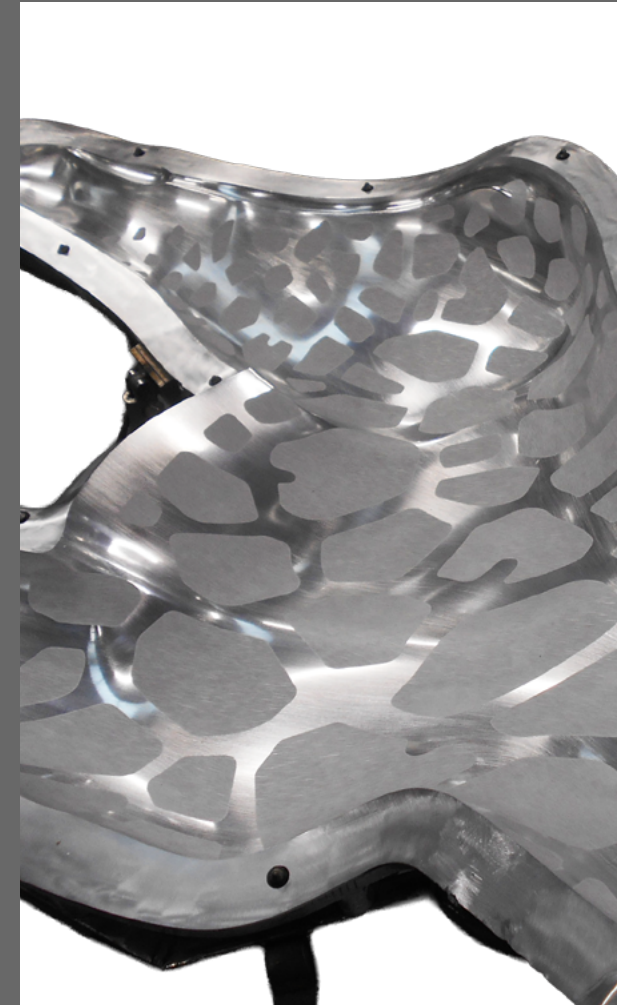
Giving Soul to Creations

Born and launched in 2016 in Milan by Stefano Giovannoni, Qeeboo is an Italian design brand that empowers self-expression with creativity. Its narrative objects are a result of a design culture that combines thought, vision and emotion with the purpose of bringing individuals into worlds in which they feel free to reconnect with their most creative side. Simultaneously, the ideas and products created want to relate to people's stories, populating their lives while giving new meanings to their everyday spaces. With a touch of pop, wonder, and culture, Qeeboo creations are specifically designed to enhance each individual's style, lending originality to the environment and a sense of surprise, always maintaining rigorous attention to detail and a high final quality that extends to every detail of the product, with particular attention to the relationship between shape and surface.

Giraffe in Love

Giraffe in Love is a dreamy giraffe holding a classic Marie-Thérèse style chandelier, designed by Italian designer Marcantonio. It represents irony and lightness as the giraffe is in love but she doesn't know it yet because her heart is far from her head and she lives love light-heartedly. It's available in XL, M, XS and Wall lamp version.

The rotomoulded body of the giraffe features a spotted surface created by the contrast between satin and glossy parts. This unique effect is achieved directly inside the mould, where the walls faithfully reproduce the areas with the dual finish. Persico created the moulds using CNC machining on aluminium blocks, which allowed the texture to be extended across the entire object.



Thanks to CNC technology, rotational moulds achieve a very high level of surface quality, comparable to that obtainable with other plastic moulding technologies.





A mould with three-dimensional decoration: a challenge for Persico

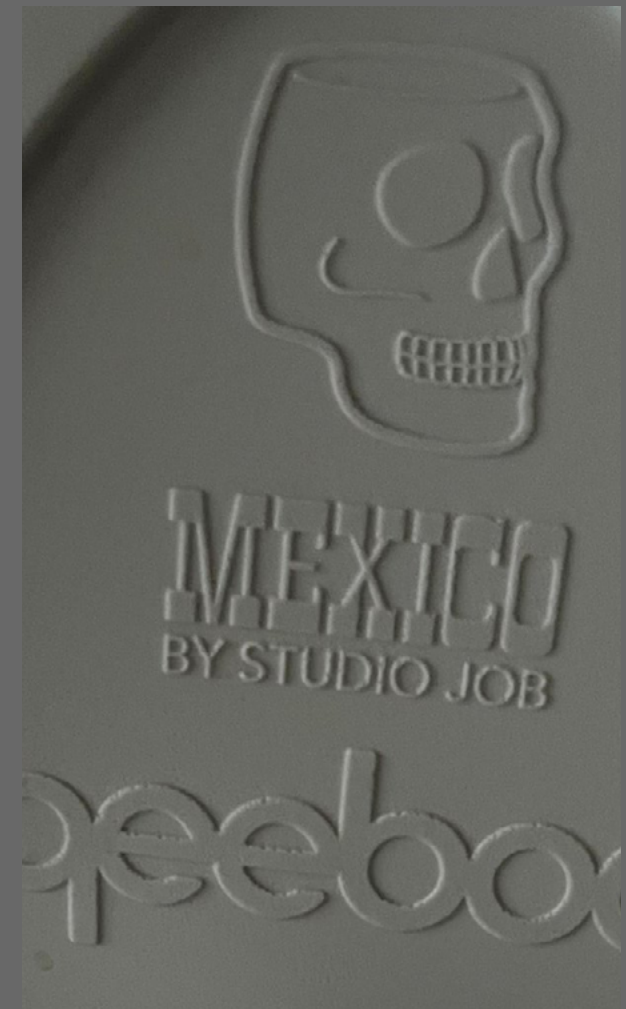
The Mexico chair project, designed by Studio Job and produced by Qeeboo, represented a major challenge for Persico. The main idea behind Mexico is that of a skull-shaped design object with a graphic pattern on the surface, which serves as both a stool and a side table. Reminiscent of the traditional painted skulls of the country of the same name, Mexico is a whimsical reminder of the cyclical nature of our presence on Earth, exorcising death and celebrating life. Rotational moulding is the technology chosen to produce this multifunctional object, which can be used as a seat, pouf or plant pot.

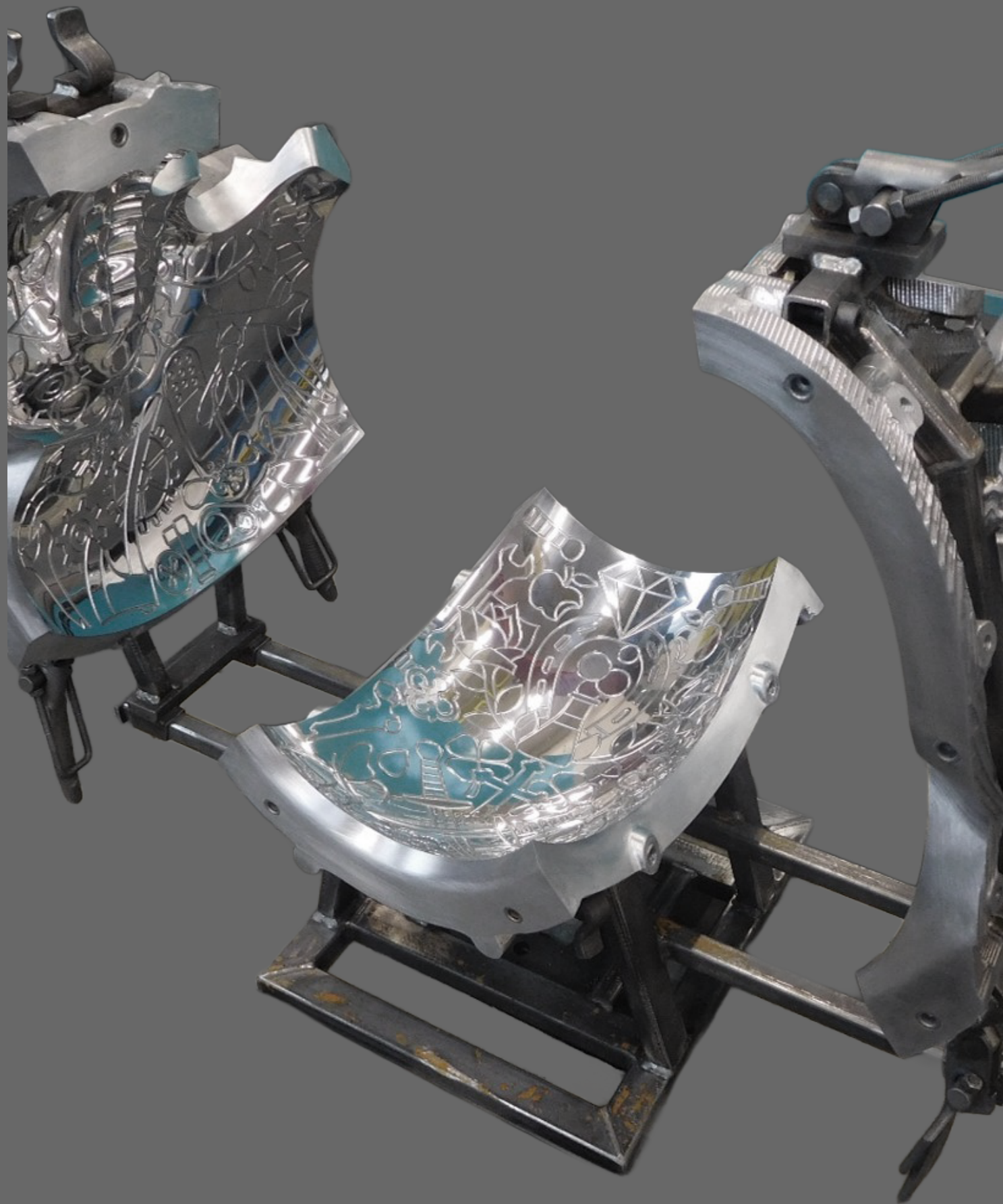
The high precision offered by CNC machining

The presence of a series of relief designs decorating the skull required the use of modern 5-axis CNC milling machines capable of replicating the surface texture in every detail. The creation of the mould from a hollowed-out aluminium block ensured that all components were extremely precise. The relief decoration was designed to allow the parts that make up the mould to be easily opened and closed, even with a slight three-dimensional surface.

A mould born from the encounter between design and production

Thanks to CNC technology, rotational moulds achieve a very high level of surface quality, comparable to that obtainable with other plastic moulding technologies. The collaboration between Persico and Qeeboo was fundamental in achieving a high-level result, and the creation of the final mould was accompanied by careful 3D design of the internal cavity.





Qeeboo gives a soul to its creations with the aim of awakening individuals' emotions, imagination and creativity. It distinguishes from the classic design as it focuses on an innovative vision between objects, people and spaces, that combines reality with fantasy.



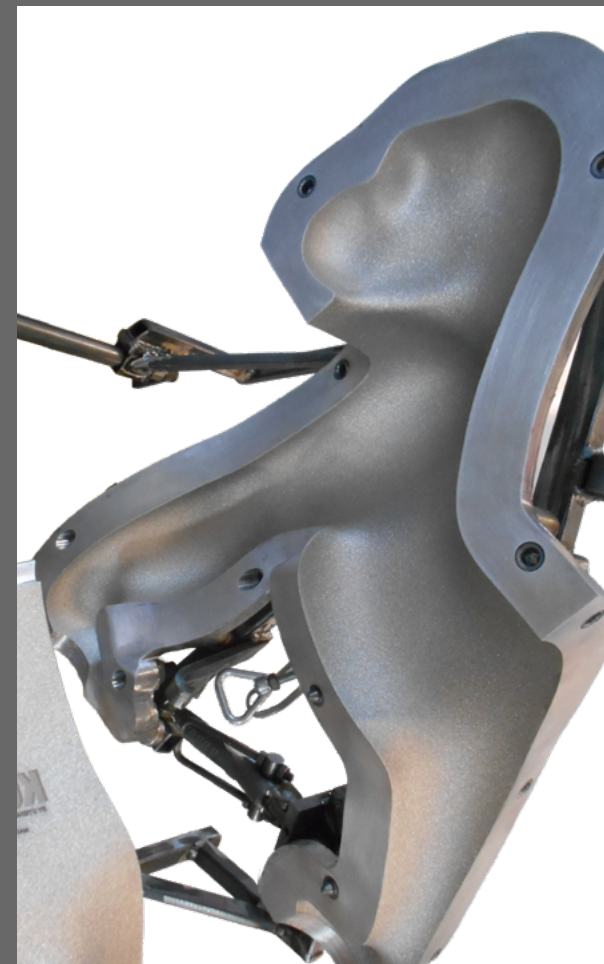
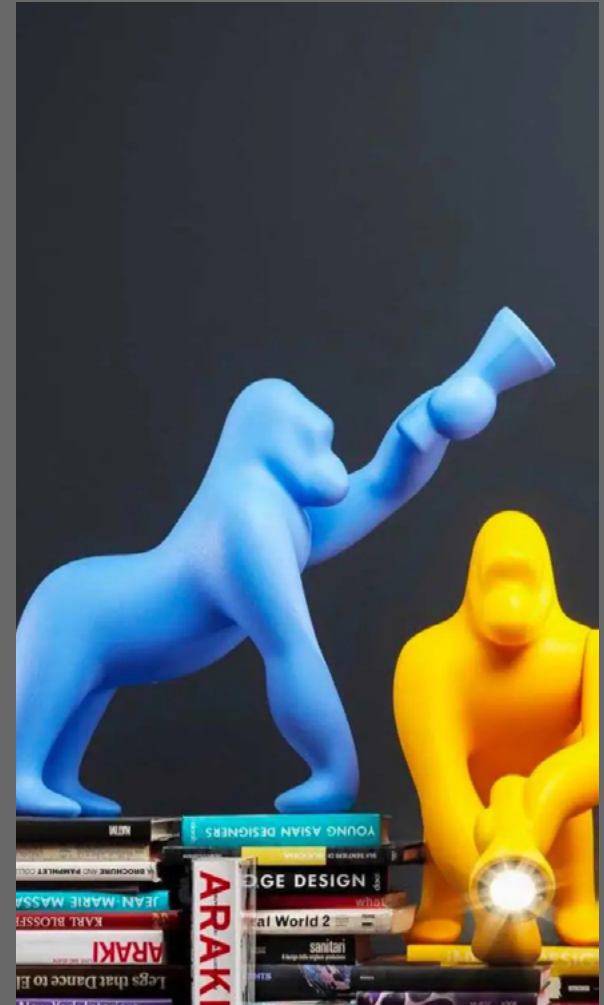
An innovative design vision

Qeeboo imbues its creations with a soul, aiming to awaken emotions, imagination, and creativity. In this sense, Qeeboo products are the result of a careful balance between multiple factors—form and function, but also emotion and creativity—without ever forgetting the provocative and ironic edge that every object must possess. At the same time, its iconic objects create a surprising and unexpected effect, communicating stories that can reach diverse audiences and resonate with everyone. Thanks to rotational molding, its objects are intrinsically multifunctional, allowing them to be used both indoors and outdoors.

An iconic gorilla-shaped lamp

Kong XL, designed by Stefano Giovannoni, is a gorilla-shaped floor lamp with an adjustable arm that directs the light beam at different angles. The XS version becomes an adjustable table lamp with a similar shape but smaller dimensions.

The presence of a rotatable arm that ends with a lamp required the object to be made using two rotomolded parts. The gorilla's surface features a satin finish that extends across the entire polyethylene body. The aluminum molds are crafted with opening lines that follow complex geometries to avoid undercuts and allow for optimal extraction of the piece. With modern CNC capabilities the level of detail possible by some rotomoulding tool makers can be very sophisticated and intricate



3. Constant Innovation

Evolution in Mould Production



Text by Sarah Morrison

Mould production for the rotational moulding industry is a constantly evolving field where small and large innovations combine to optimize production times and costs while achieving ever-increasing quality. The main objectives of mould manufacturers are to continuously improve mould performance, simplify its use by reducing maintenance requirements, and offer a wide variety of solutions for finishing the internal cavity.

A Growing Number of Components

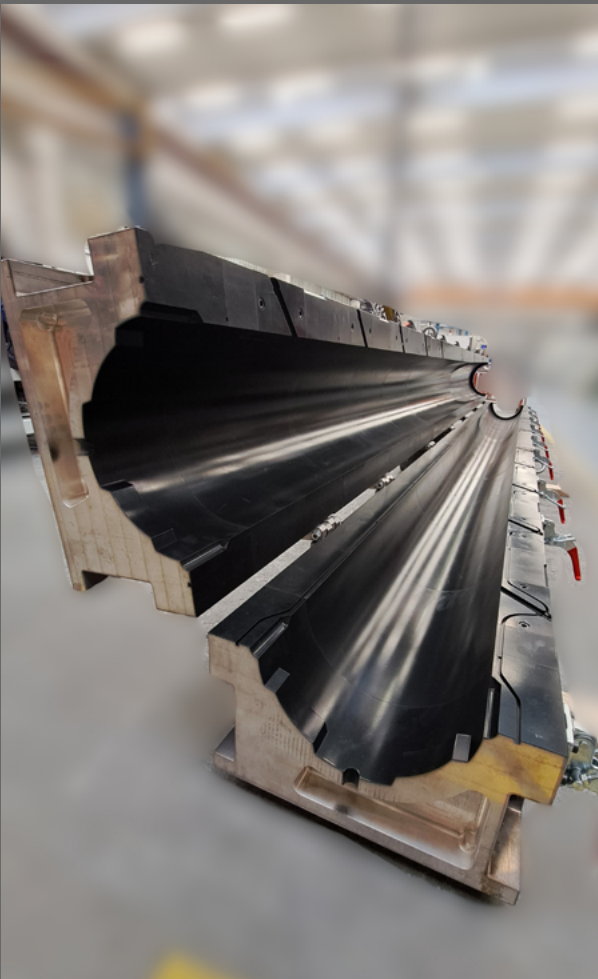
The complexity of rotational moulds follows a growing trend: from two-component moulds, we are increasingly moving toward multi-component moulds composed of three, four, and more parts. In particular, in certain application sectors such as furniture, nautical, automotive, and gardening, products feature increasingly numerous undercuts and increasingly complex shapes. Along with this growing complexity, mould parting lines are also becoming increasingly complex.

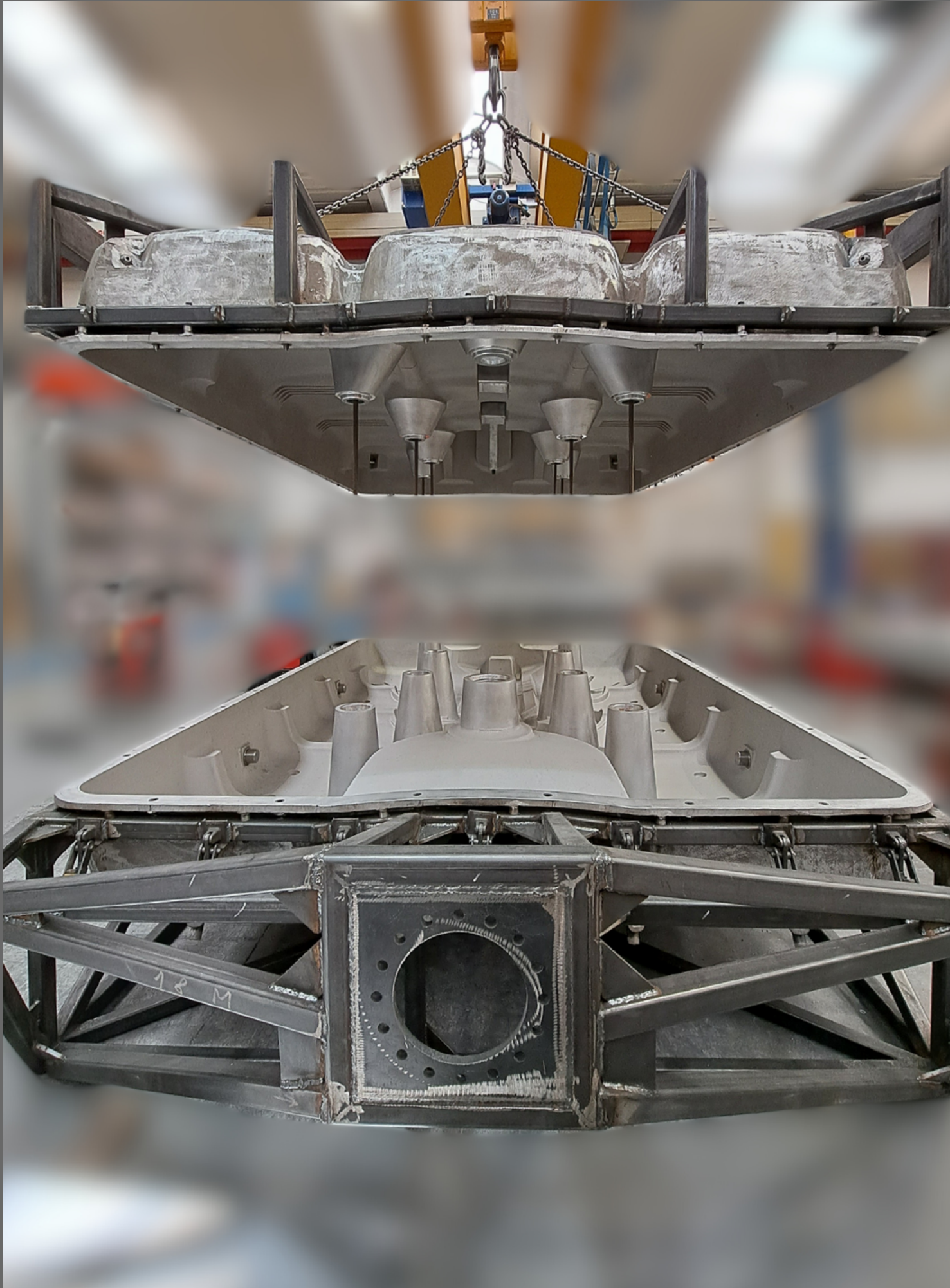
Greater Mould Integrity

Preservation of mould integrity is increasingly important. Mould sections must remain coupled without any planar or vertical movement during the heating and cooling cycle. To minimize parting line damage that can occur when tightening the clamping bolts, moulds are typically spring-mounted on the mould frame. Spring compression can be adjusted via a system of threaded bolts positioned in a non-critical section of the mould body.

Machined Aluminum Mould Frames

Depending on the formal complexity of the product to be rotationally moulded, the option of manufacturing the mould support frame from the aluminum mould block is becoming increasingly popular. This solution allows for a lighter, more manageable frame, ensuring lower thermal





Metal will likely continue to represent the best method for producing rotational moulds, as it offers a combination of qualities that are difficult to surpass with other materials.



mass for shorter cycle times and less thermal distortion between the mould and the mould frame. This innovative structure replaces the conventional one, which typically results in shielding, energy absorption, and unnecessary weight.

Specially designed clamps, installed directly on the flanges, distribute pressure evenly along the flanges, thanks to the reinforcing ribs integrated into the mould shell. Drastic weight reduction and improved heat exchange are the main advantages of this technology.

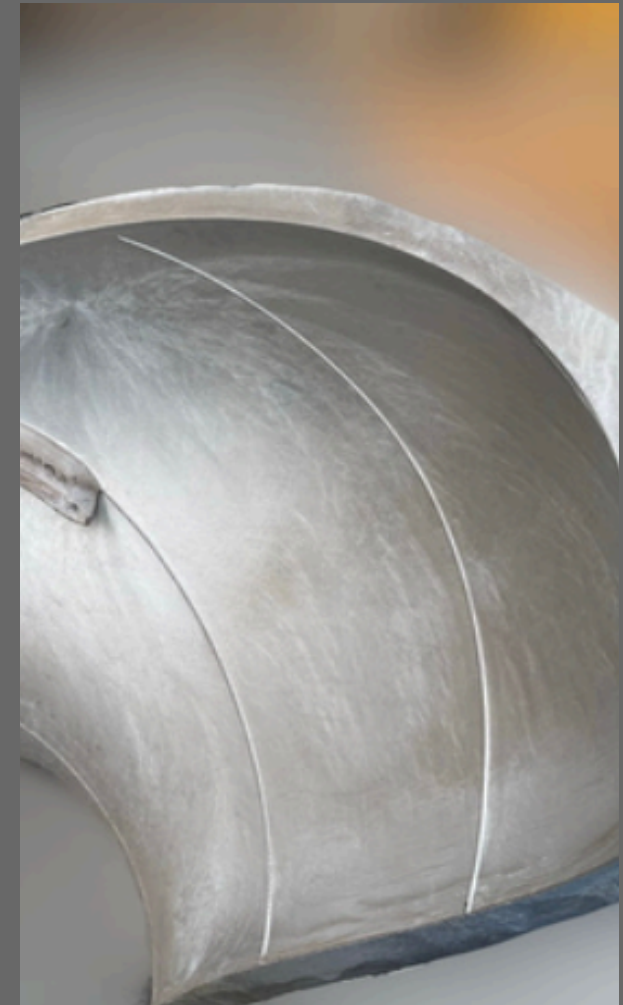
Heating Moulds

Heating moulds with conductive materials remains the most commonly used method in rotational moulding. Furthermore, regardless of how the plastic is heated, conduction to a mould is the primary means of extracting heat from the molten plastic that has taken the mould's shape. It seems likely that conductive heat transfer will remain a key step in rotational moulding, even just during cooling.

Different Materials for Multiple Uses

Any new material used for mould making must offer excellent thermal characteristics. Metal will likely continue to represent the best method for producing rotational moulds, as it offers a combination of qualities that are difficult to surpass with other materials: workability, strength, and high thermal conductivity are, in fact, essential characteristics for mould production.

Moving from high-volume to low-volume production, the possibilities will gradually expand with the introduction of new types of rapid prototyping and 3D printing. These solutions enable the creation of short-run moulds useful for pre-production runs and prototypes. In these cases, the most commonly used materials are expanding, including, in addition to metals, composites, geopolymers, and even ceramics.





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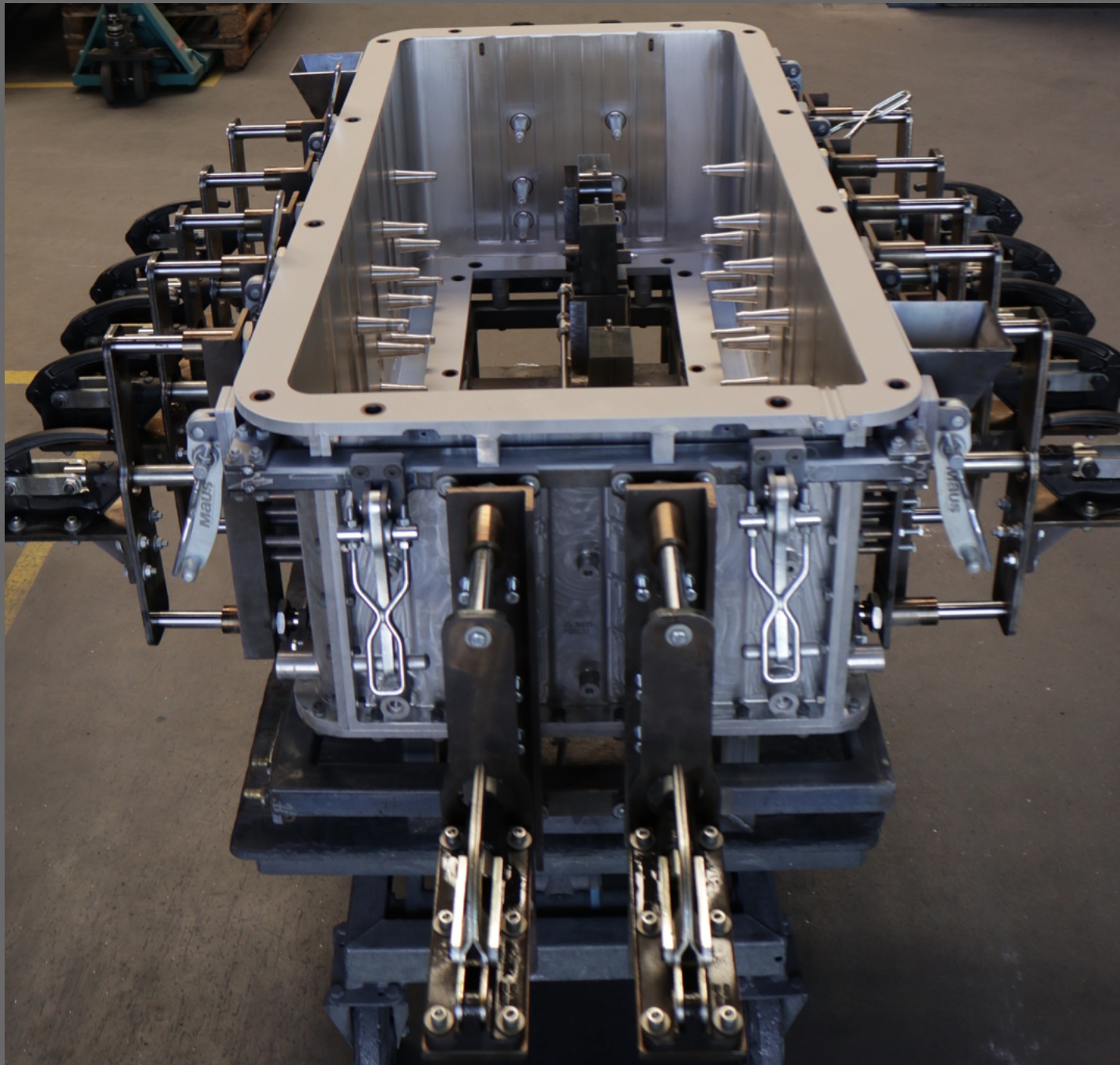
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4. Improving Performance

Automation of Rotational Moulds



Text by Oliver Wandres

In the world of rotational moulding, there is a gradual but important evolution in the way mould opening is conceived, a transition linked to the idea of increasingly replacing manual intervention with automated action.

In other moulding technologies, automatic mould opening and closing is already common practice, and this approach is becoming increasingly widespread in rotational moulding as well. This important innovation offers many advantages, mainly related to the mould parting lines, which are less exposed to the risk of damage during mould opening and closing operations.

A Better Uniformity and Consistency

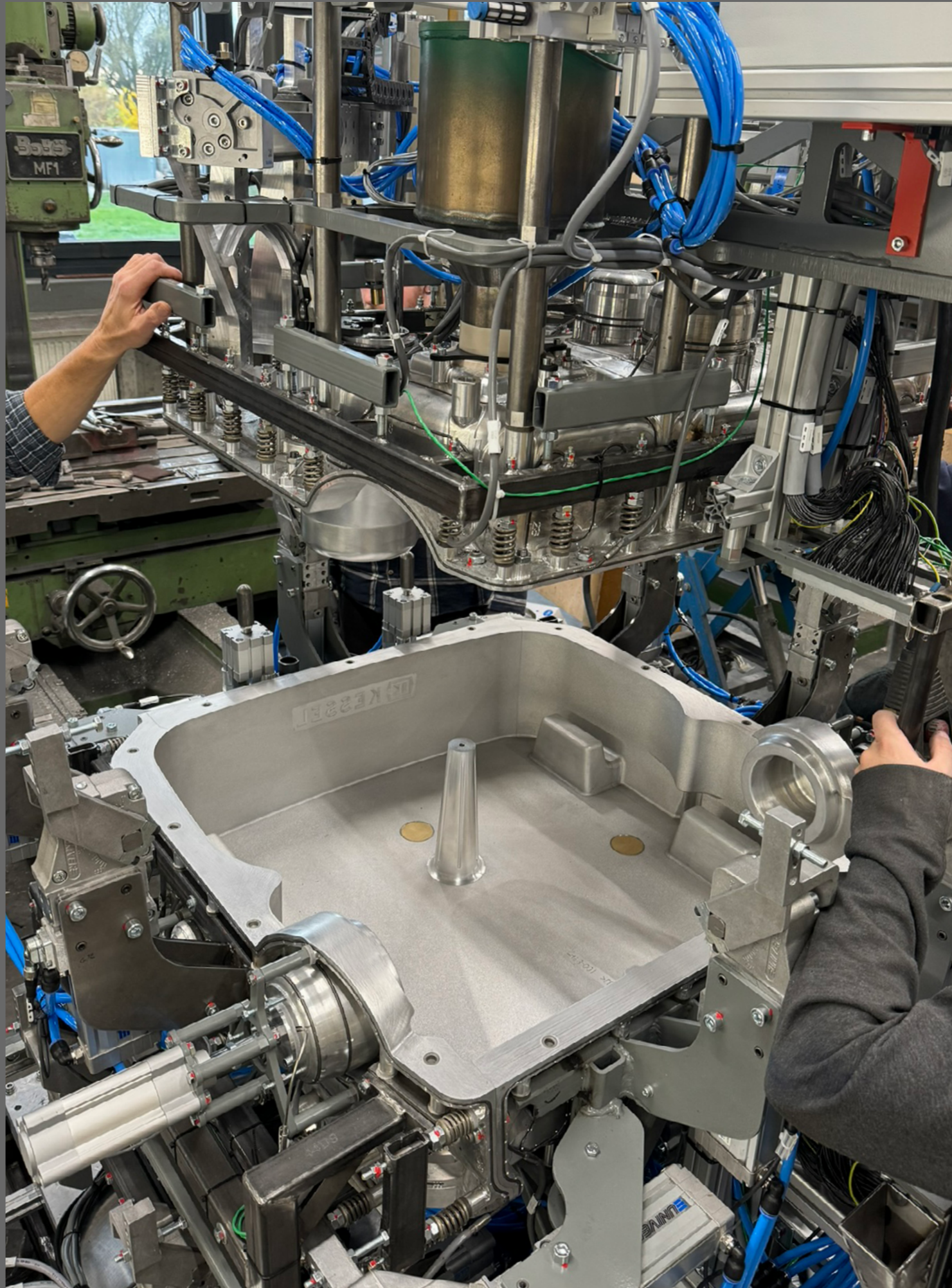
Automatic mould operation also gives greater consistency during the mould handling stages of the cycle. This leads to better cycle times and better quality parts.

The automatic operation of the mould also ensures greater uniformity during the mould handling phases of the cycle. This innovation results in a significant improvement in cycle times and superior component quality. Automated mould opening and closing systems are mainly solved in two ways: either through mechanical structures or through pneumatically operated systems.

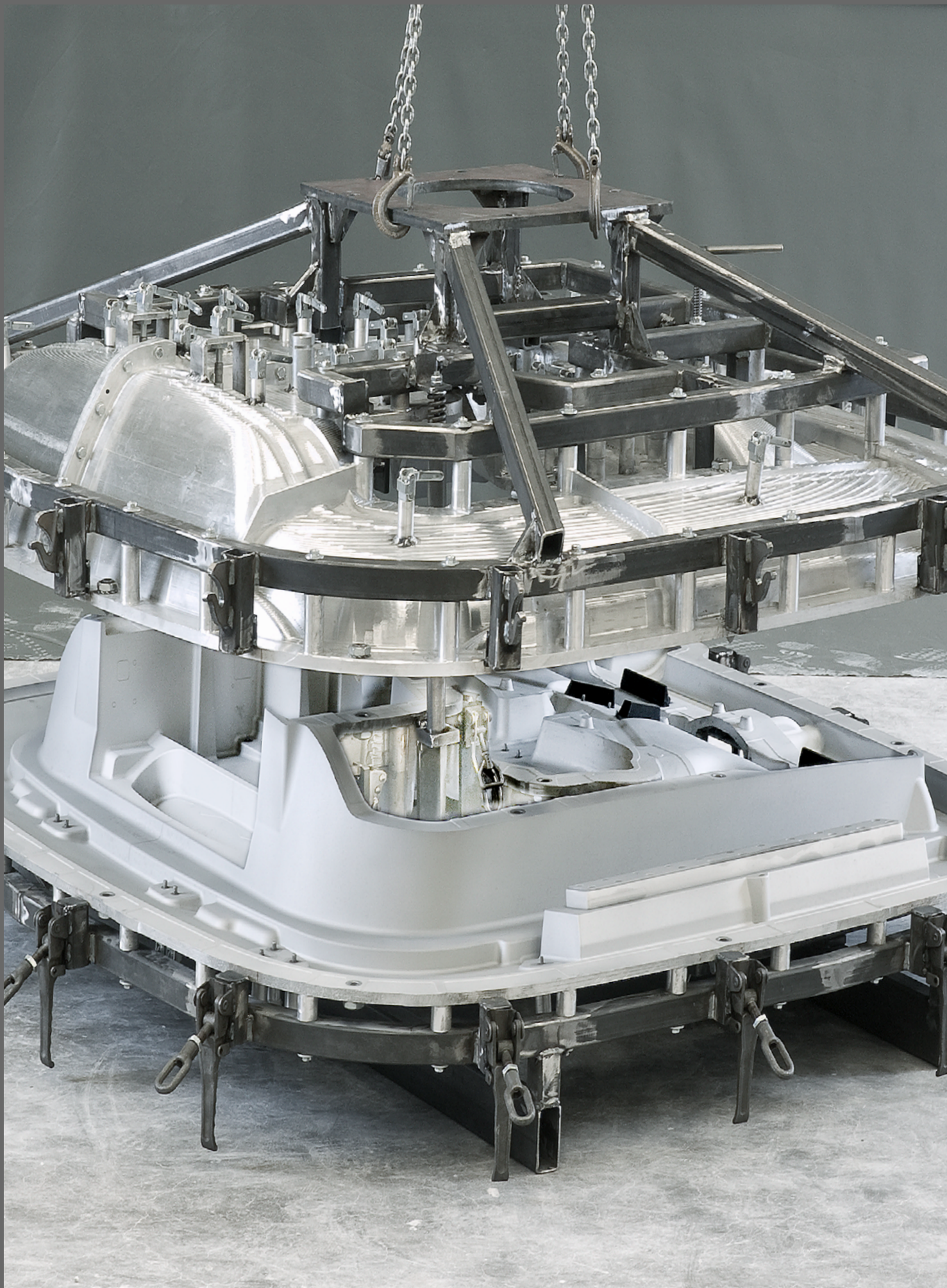
Speed Up the Process

Automatic opening moulds are often equipped with a series of clamps that allow the two halves of the mould to be separated: this speeds up the extraction of the rotomoulded parts and consequently improves the productivity of the mould in relation to the time taken. The automation of the rotational mould can, depending on the case, include the entire mould or only specific parts. In other cases, the automated mould greatly facilitates opening and closing operations, significantly improving certain complex and difficult actions.





Mould automation is a key factor in improving the efficiency and productivity of rotational moulding while preserving the integrity of the moulds over time.

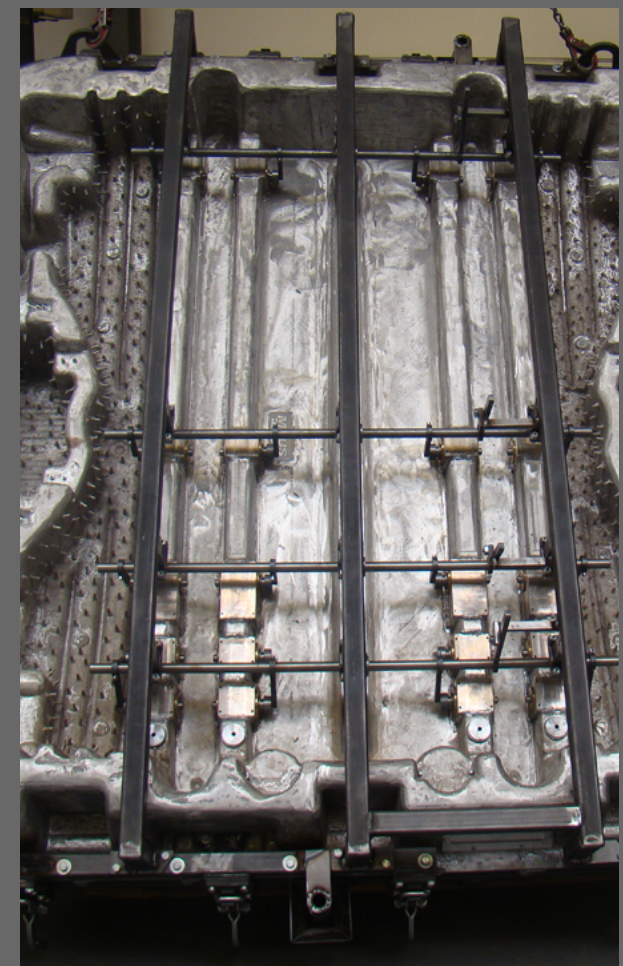
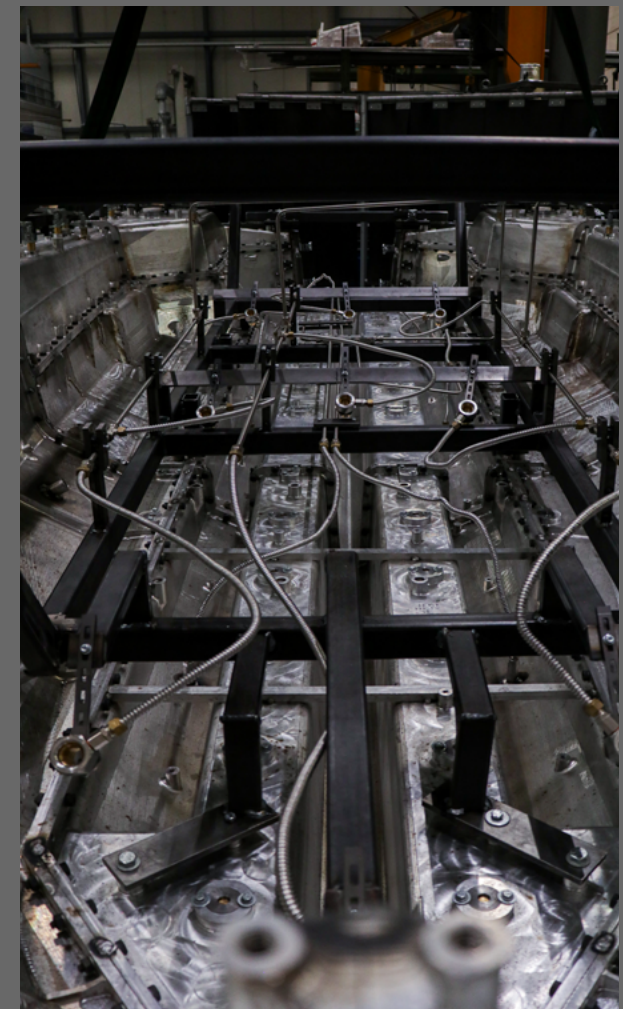


Improving Efficiency and Integrity

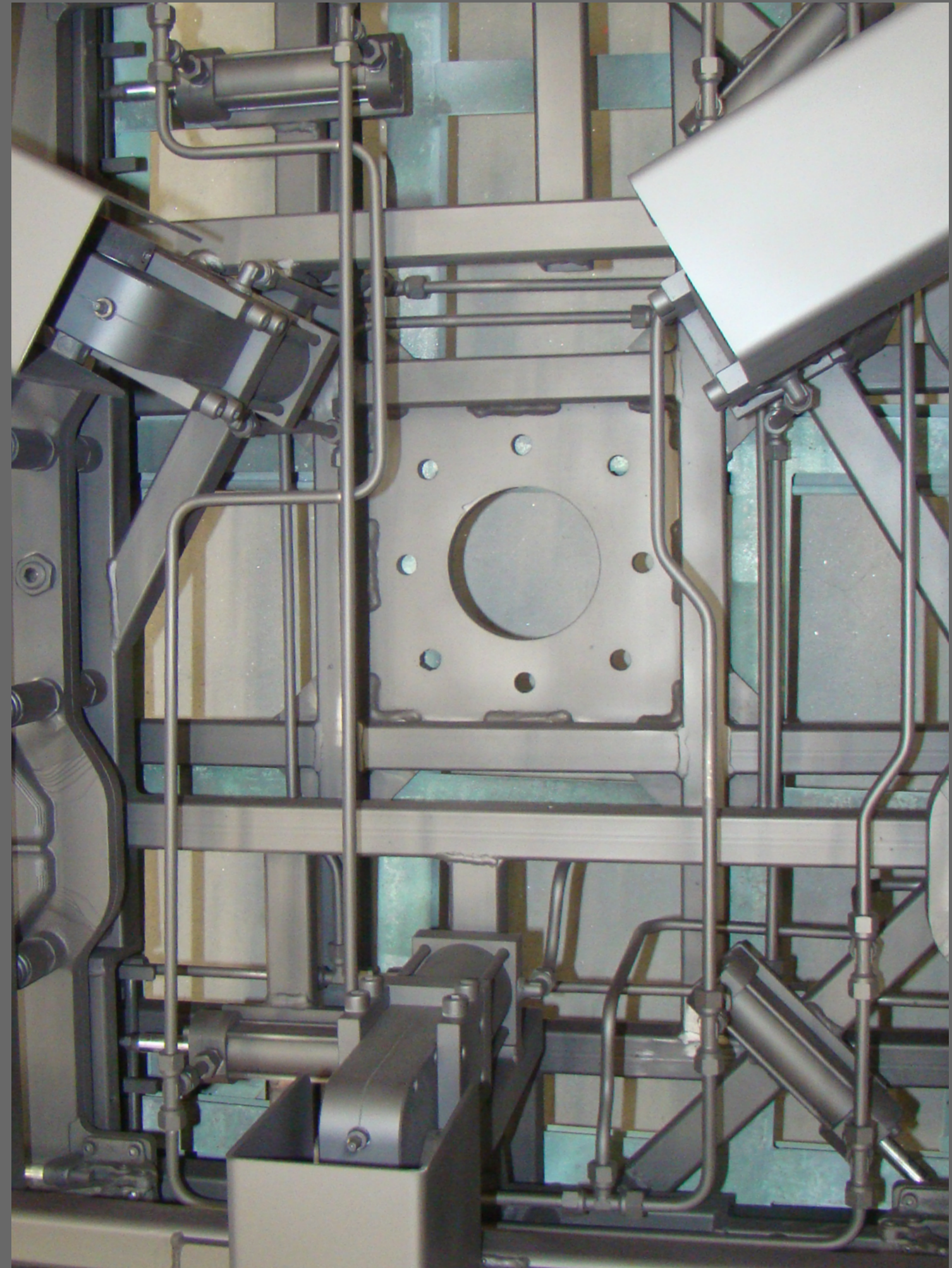
Maus manufactures rotational moulds ranging from simple to highly complex, from very small to extremely large, from prototype moulds to semi- or fully automated systems — for both hot-air rotational moulding or electrically heated Robomoulds. Mould automation is a key factor in improving the efficiency and productivity of rotational moulding while preserving the integrity of the moulds over time. In addition to developing semi-automatic and fully automatic solutions for high-volume products in hot-air rotational moulding, Maus also automates single moulds according to specific requirement profiles. Automation solutions are available for retrofit on existing moulds to upgrade mould performance.

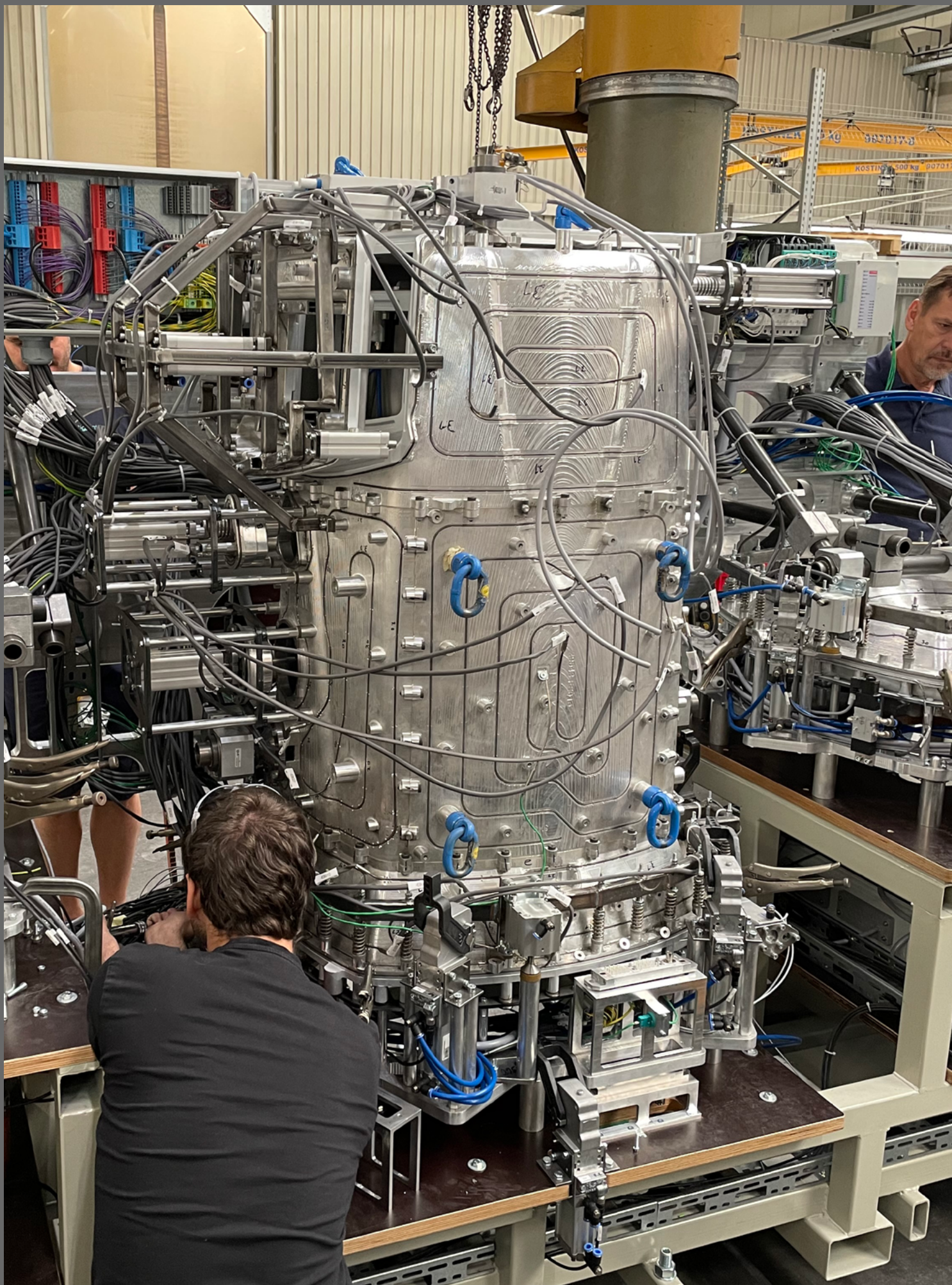
Fully Automated Solutions

Automatic applications include in-house developed pneumatic clamping systems for securing mould halves, opening cylinders for breaking open moulds, ejectors for releasing the moulded plastic parts, single- and double-acting cylinders for moving loose parts and inserts or retracting insert holders, and many other custom automation components. Besides - for the construction of electrically heated Robomoulds - Maus offers fully automated solutions for unmanned rotational production by utilizing its own Multi-Box systems, special guide mechanisms and cylinders, intelligently controlled storage and handling systems, and modern quick-change mould systems.



By reducing manual intervention, companies can create a safer, more ergonomic, and overall more attractive workplace for employees.





Optimising the Working Environment

Another important advantage of automated moulds is the significant improvement of the working environment in rotational moulding production.

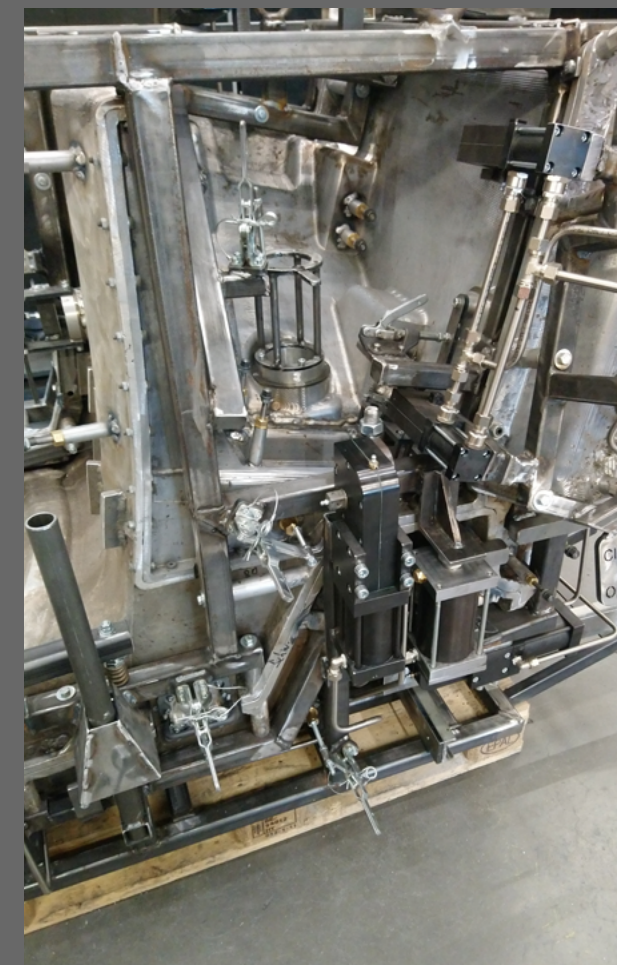
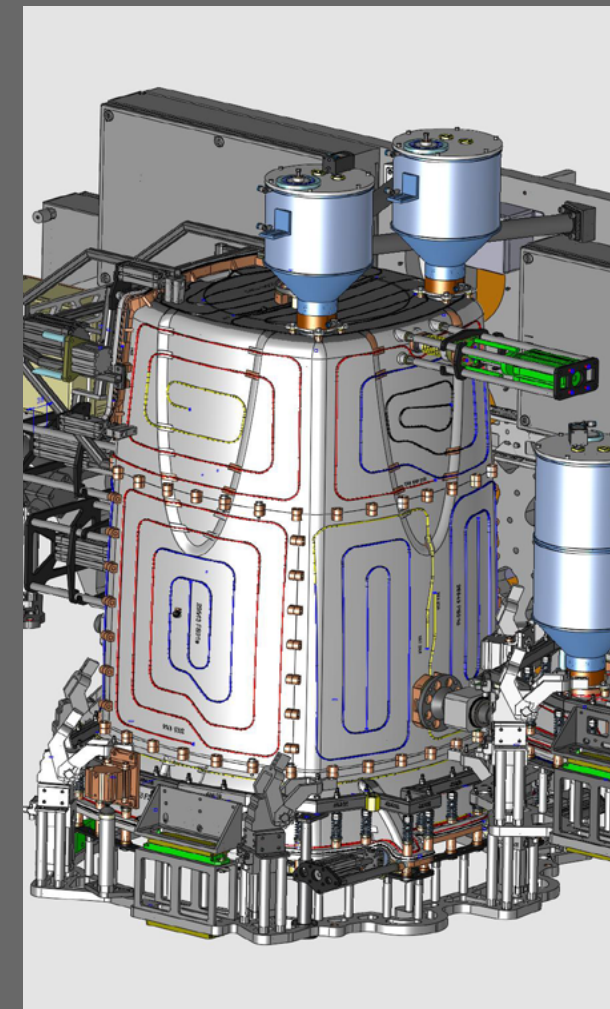
Through the targeted use of automation solutions, manual operations in hard-to-reach areas can be avoided, reducing the need for operators to work in uncomfortable or potentially unsafe positions around hot moulds and machines.

Automation also helps eliminate physically demanding tasks that are traditionally part of mould handling and operation. By reducing manual intervention, companies can create a safer, more ergonomic, and overall more attractive workplace for employees.

Extending the Life of Moulds

In addition to the benefits for operators, automation also contributes to longer mould life. Controlled and repeatable automated processes help prevent operating errors and improper handling, ensuring that moulds are opened, closed, and handled in a consistent and reliable way. This not only protects the tooling but also improves process stability and product quality.

This new level of efficiency is the prerequisite for taking rotational moulding to the next level, increasingly transforming it into a technology where the precision of automated action replaces the potential margin of error of manual operation.



5. Strategic Choice

Select Between Different Types



Text by Elena Chechet

For industrial designers and companies intending to develop new rotationally moulded products, choosing the right mould type is an important decision that depends on several factors. Generally, choosing the best mould type is done following the supplier's instructions, but it's still important for designers to understand the various options available in the world of rotational moulding. This guide is therefore aimed primarily at designers and companies who view rotational technology as an opportunity and need to correctly design their new products from the design stage. The selection of the right mould type depends on several key factors, such as:

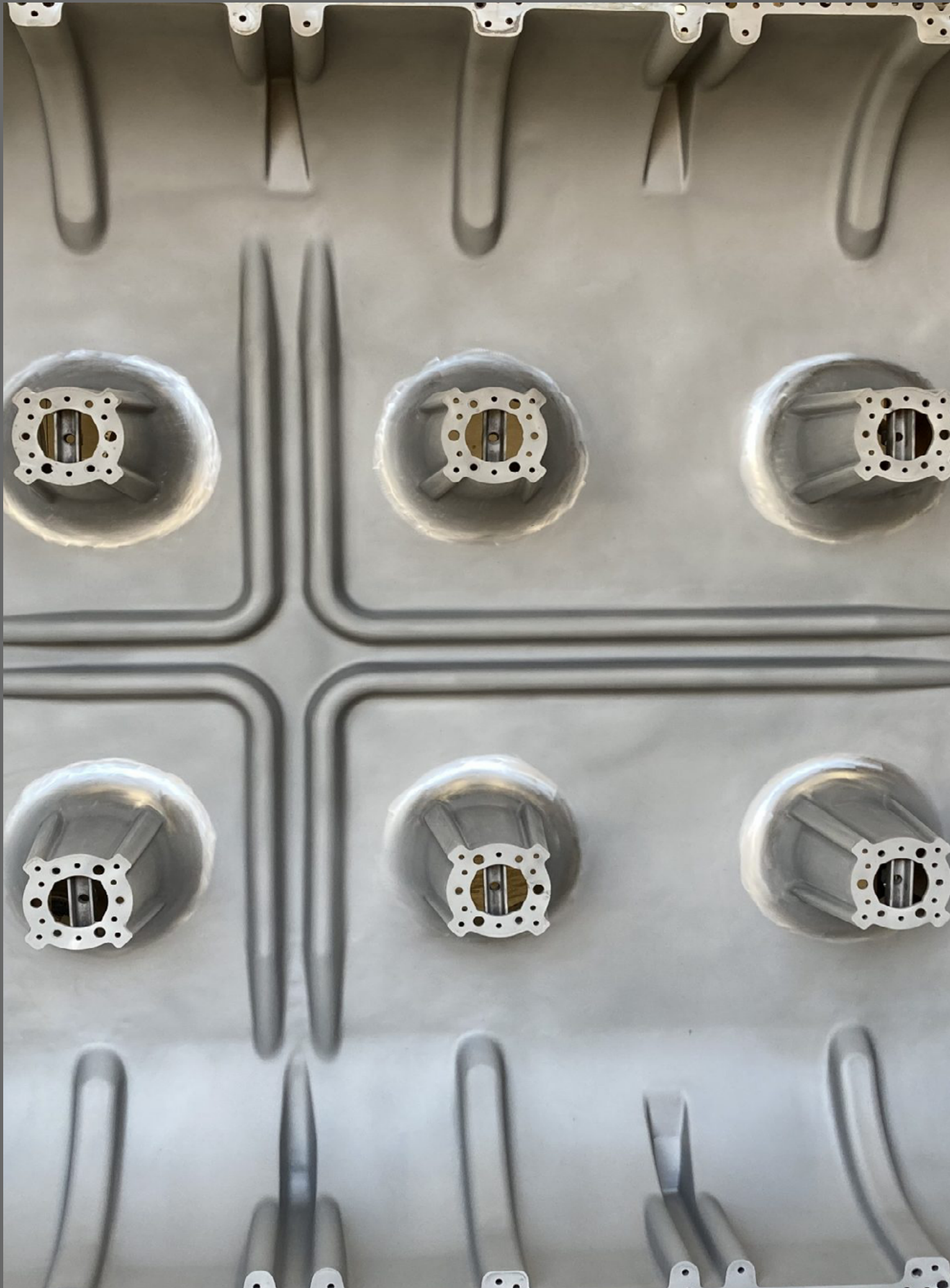
Product Complexity

When designers intend to develop products with highly complex geometry and rich surface details, the most recommended choice is to opt for cast or electroformed aluminum moulds. These production processes allow for a wide range of surface finishes that would be too complex to replicate using sheet metal moulds. Therefore, when creating objects with complex shapes, the preferred approach is to use aluminum or steel moulds obtained by casting or CNC, while for basic and large shapes, sheet metal moulds still represent a valid solution.

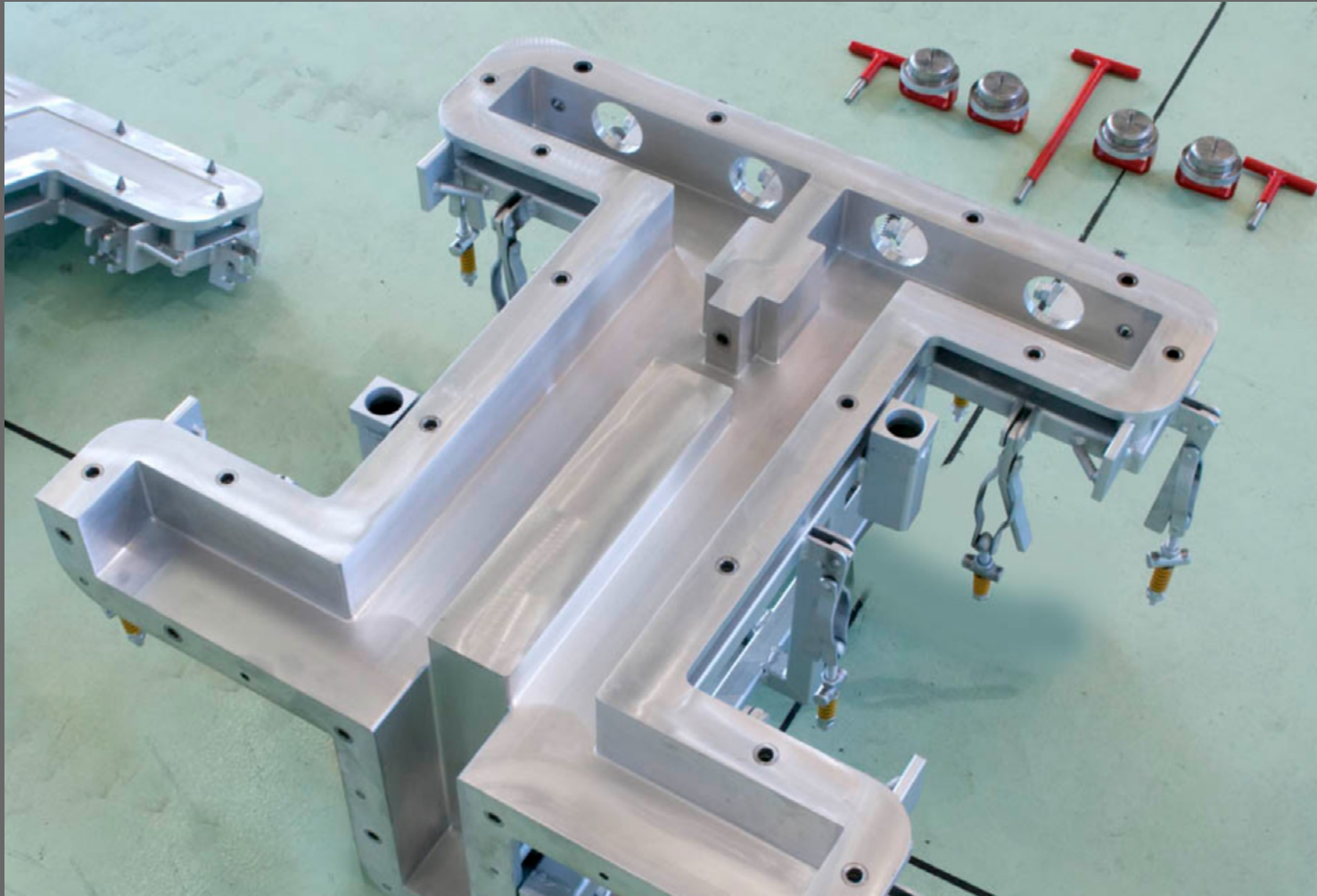
Dimensions of the Rotomoulded Product

The need for large moulds leads to the use of steel sheets when the geometry of the part remains within the confines of regular shapes without particular details. However, when the project includes specific surface features or highly complex geometries, casting or milling from





A flexible technology was needed, capable of interpreting the articulation of forms and translating them into objects that would stand the test of time and be aesthetically pleasing.



an aluminum block certainly represent the best option.

Expected Quantities

An important parameter is the quantities to be produced on an annual basis. If you intend to produce many rotomoulded products consistently, aluminum or cast moulds are preferred, as they guarantee better repeatability on a large scale and allow for greater precision in moulding. Conversely, when the quantities to be produced are more limited and discontinuous, sheet metal moulds can be an alternative, obviously provided that they satisfy the other requirements specified above.

Surface Finishes

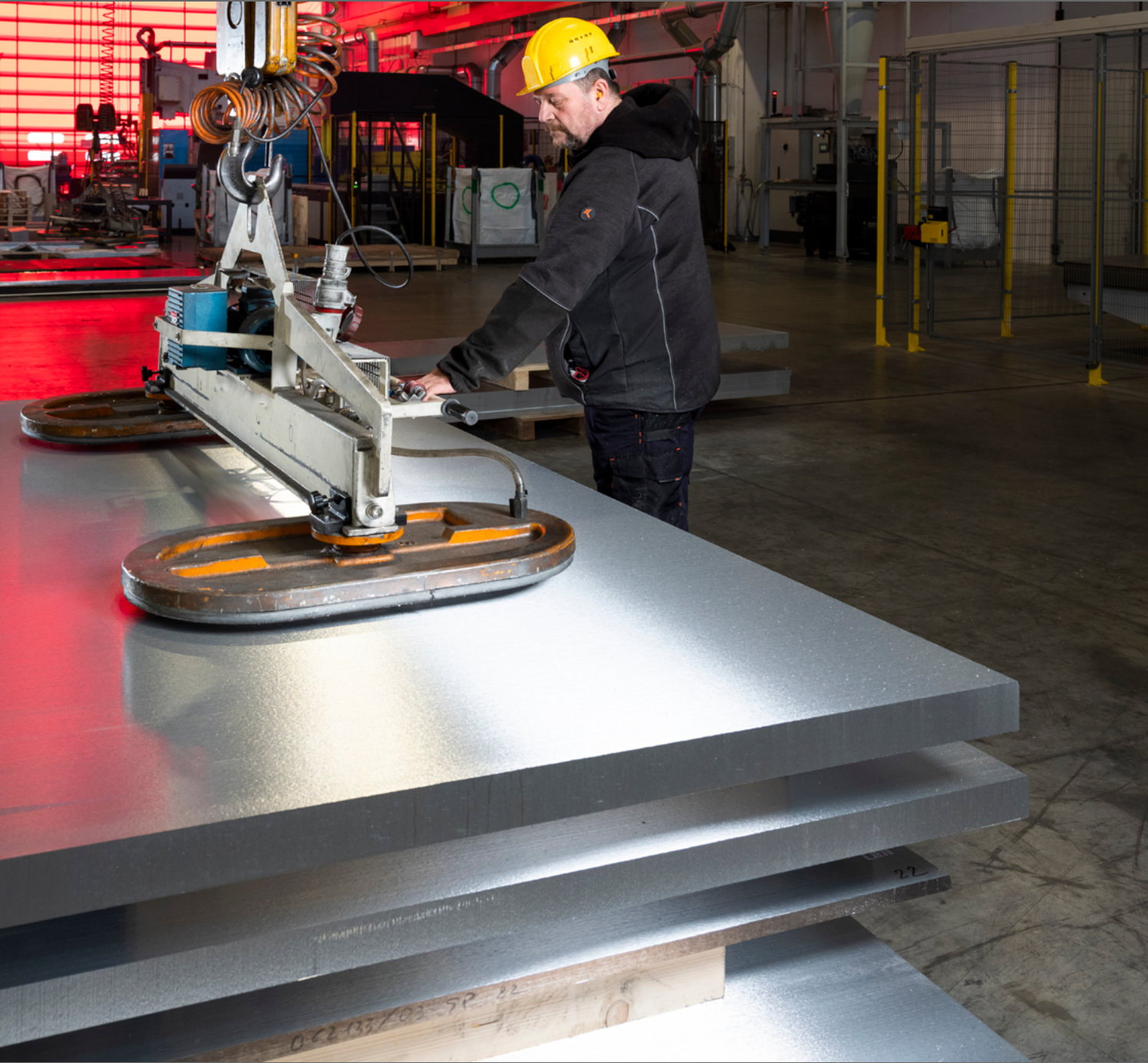
The vast array of surface finishes available makes each rotomoulded product unique: designers can choose from a variety of finishes, each requiring a variety of technologies.

For certain large industrial products, surface finish is not a determining factor, and therefore, if the geometry allows, sheet metal moulds can be used. However, when the rotomoulded product requires highly customized surface texture, aluminum moulds made from a block or cast are the best solutions for achieving precise details at various scales.



6. High-Performing Materials

The Qualities of Materials



Text by Matthew Holden

In the world of rotational moulds, the reference material used to make most moulds is metal, which can be steel sheets, nickel sheets, and especially cast aluminum or CNC-machined aluminum blocks. Choosing which metal to use primarily depends on a formal analysis of the part to be rotomoulded: the more complex the shapes and surfaces required, the more likely it is that milled or cast aluminum moulds will be used, allowing for high-precision finishes and details. Conversely, when the product to be produced is medium or large in size and has more basic shapes, sheet moulds made of carbon steel, stainless steel, or aluminum remain a viable option. Cast aluminum is generally used for small to medium-sized parts with a certain degree of complexity. For parts with micro-details and when liquid vinyl plastisol is used to produce the moulded part, electroformed nickel is often used.

Sheet Steel

There are many types of sheet metal suitable for mould making. Low-carbon steel is generally acceptable for most low-volume applications, while galvanized steel is preferred for applications in direct contact with liquids that may cause rust. Stainless steel is used when corrosion may occur due to the mould cooling method or because moulds must be stored outdoors exposed to the elements. Sheet metal moulds are the result of meticulous design and meticulous attention to detail. Advanced CAD software allows moulds to meet high standards of precision and quality. During the design process, several critical factors are considered, including the geometry of the final product, the frame structure, and any potential heating issues. The production of sheet metal moulds requires specialized skills and cutting-edge technologies,





Thanks to the versatility of aluminium, these moulds offer lightness, strength, and good thermal conductivity. They are ideal for the production of furniture, automotive, aerospace, and other components requiring high aesthetic quality standards.



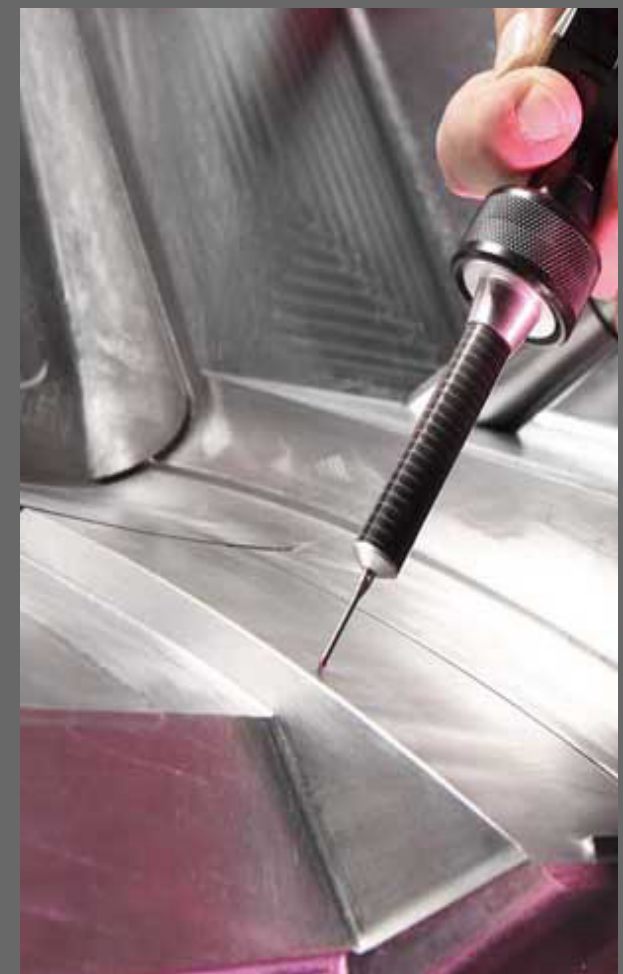
such as laser cutting, to achieve high precision and perfect alignment. The external and internal welds, then finished by grinding, ensure a solid and resistant structure, while high-temperature heat treatments give greater stability and durability to the mould.

Aluminium

CNC aluminium block moulds are precision molds used in the production of manufactured products. Thanks to CNC (Computer Numerical Control) machining, they are created from a single block of aluminum, ensuring a solid and durable structure. These moulds offer high precision and reproducibility, enabling the creation of superior-quality products with intricate details and precise finishes. Aluminum casting moulds are widely used in the production of products with complex shapes that cannot be made from sheet metal. These moulds are created by casting molten aluminium with the aid of a model. Thanks to the versatility of aluminium, these moulds offer lightness, strength, and good thermal conductivity. They are ideal for the production of furniture, automotive, aerospace, and other components requiring high aesthetic quality standards. Thanks to advances in CNC technology, this mould production method accounts for up to 75% of aluminium moulds produced in Europe.

Electroformed Nickel

Electroformed moulds of all sizes are produced for numerous applications, and their production has become an important part of the industry. Electroforming is one of the best methods for reproducing surface details and, in some cases, the only way to achieve the required precision and accuracy economically. Electroforming applications are not limited to small molds with submicron replication requirements, and in fact, the mould size that can be produced is usually limited only by the size of the electroforming tank.



7. Key Companies

XM Tech
Malo, Italy



Mould Development



Developing a new mould always represents a significant challenge that must be addressed using the right methodology. XM Tech, a leading manufacturer of rotational molding moulds, has developed a unique approach to new moulds over the years, providing its partners not only with the finished mould but also actively supporting them throughout the entire development process. The definition of a new mould follows a succession of phases that begin with the initial idea and progressively refine it in all critical aspects.

Preliminary Project Analysis

In this first phase, the project undergoes a detailed feasibility analysis aimed at identifying any construction issues and identifying appropriate technical solutions. This is a very important activity, developed in close collaboration between the company and its customer.

3D Technical Design

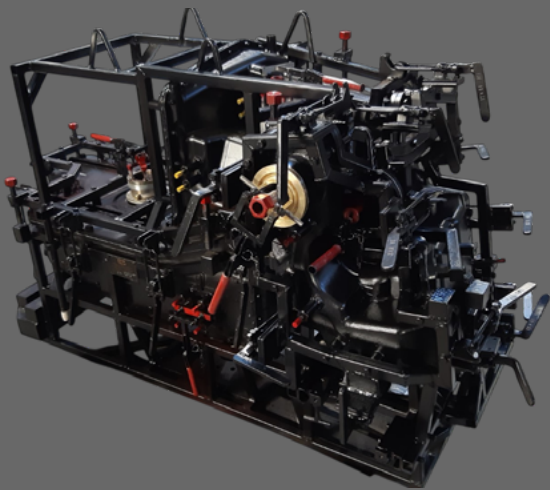
Once fully analyzed, the project is redesigned in 3D, creating a complete model that includes both the mould and the support structure. Through 3D modeling, further construction and dimensional modifications can be made to optimize the final product.

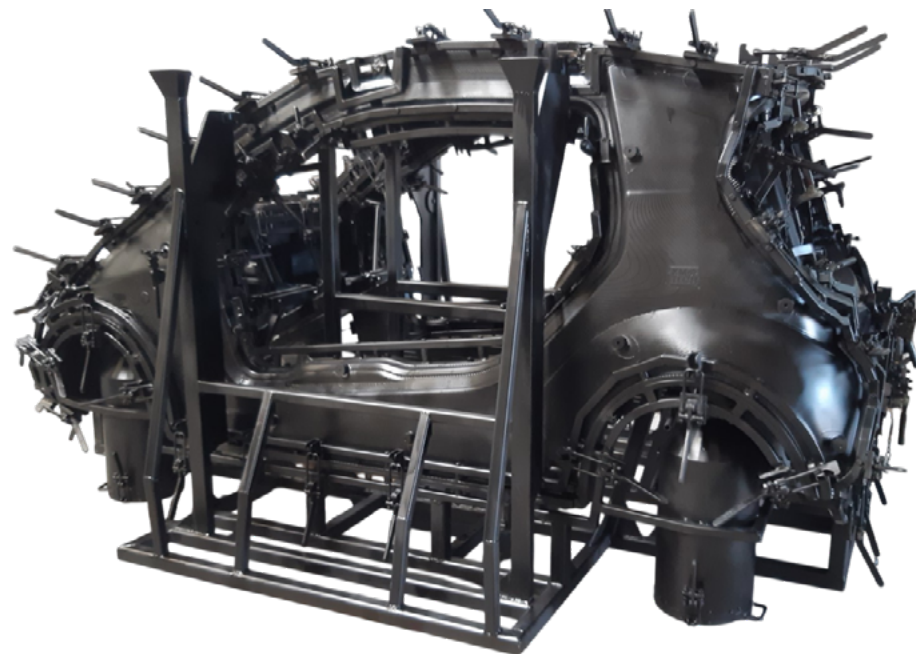
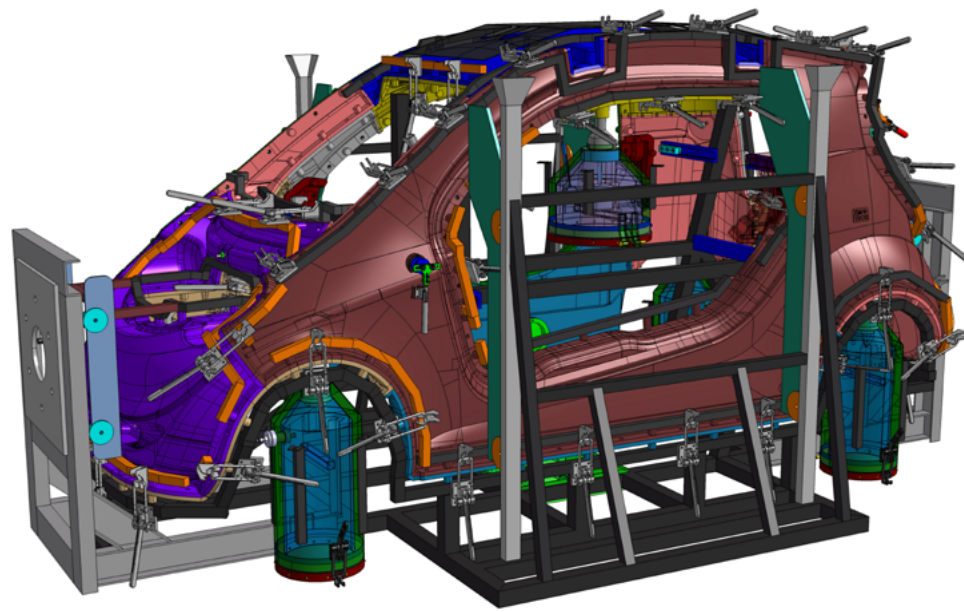
3D Scanning

If the idea is to replicate an existing product for which the original drawings are not available, 3D scanning allows for detailed mapping of the entire surface and faithful reproduction.

CNC Milling or Casting

Using state-of-the-art five-axis CNC milling machines, the mould is created from the aluminum block. Alternatively, the mold is made through aluminium casting. Once the process is complete, the mold undergoes careful quality control before being





XM Tech's moulds for the new Softcar vehicle

Softcar represents a significant new evolution in urban mobility: a vehicle made from lightweight materials and designed for easy recycling at the end of its life, featuring an electric drivetrain that reduces harmful emissions, an innovative example of the circular economy applied to the automotive industry.

From the initial idea to the final mold

XM Tech was involved in the project from the development stage, providing essential support for the actual production of the car. The main body parts are made using rotational moulding. Creating the moulds was a lengthy process that began with a detailed analysis of all the critical issues the new vehicle might face. The final construction solutions resulted in a compact vehicle equipped with rotomolded doors featuring an innovative opening system. The three-dimensional design of the moulds has allowed us to optimize the production of the parts, ensuring a high surface quality for each individual component.

CNC aluminum molds for precision

Aluminum moulds made with next-generation 5-axis milling machines allowed to create each component with extreme precision, ensuring the vehicle's high-quality production. Ultralight, weighing just 642 kg including the battery, Softcar uses an infinitely recyclable aluminum chassis to which the rotomoulded body is mounted, weighing just 60 kg.



7. Key Companies

Diversified Mold & Castings

Warrensville Hts., Ohio, USA



Quality First



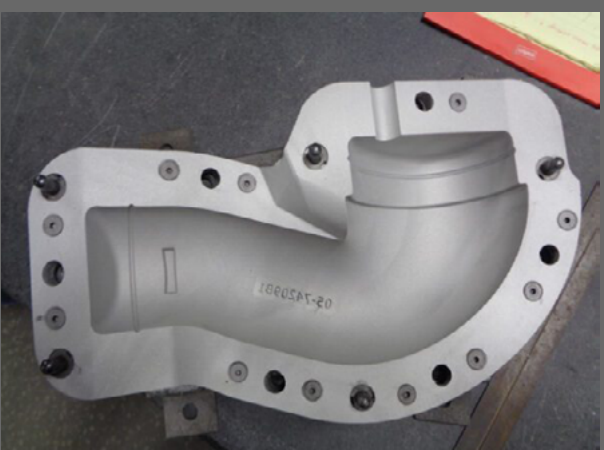
Diversified Mold & Castings is one of the most successful companies in the production of moulds for the rotational moulding industry. Founded in 1939 and evolving over the decades, today DMC is led by Vince Costello and has progressively expanded through mould production ranging from rotational moluding to thermoforming. Methods of mould making have extended to include machining, fabrication (aluminum and steel), sand casting, as well as many other options.

CNC Aluminum Molds

Surface finishing, dimensional accuracy, expedited lead times; all of these factors are what make CNC tooling a great option when deciding what type of mould you should consider. The advantages of CNC-based aluminum mould production are numerous, including: an extreme dimensional accuracy and no templates or tools required. Furthermore, the mould cavity has consistent surfaces with no casting defects, and good heat transfer is achieved thanks to precise wall thickness and material density.

Cast Aluminum Moulds

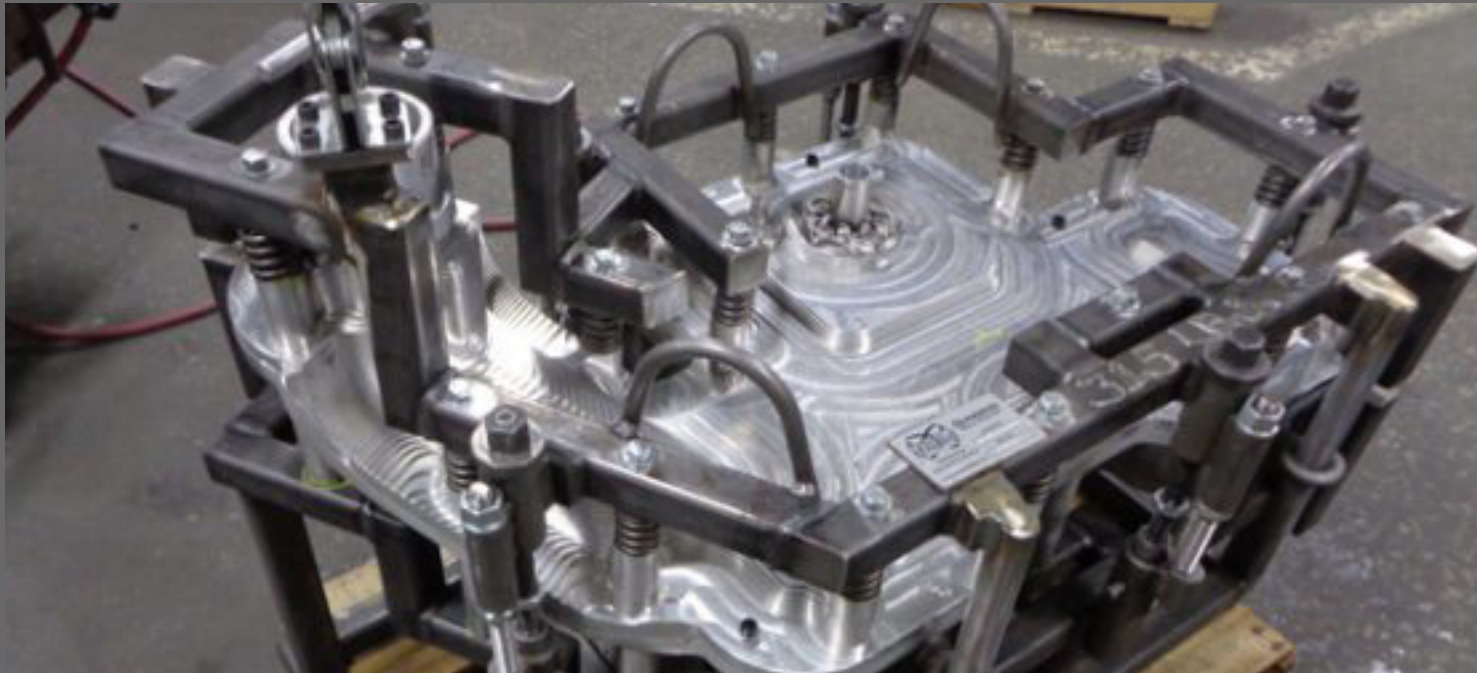
Cast aluminum moulds have been the standard for the rotational moulding industry since the process began moulding plastic back in the 1950's. Although its' casting experience dates back to 1939, Diversified began casting for the industry in 1999, and to this day aluminum cast moulds still are the standard-bearer. With the ability to control wall thickness and good thermal conductivity aluminum cast moulds help create the most consistent plastic parts in the industry. With a casting capacity of over 1,800 kg and a 20-ton overhead crane, DMC's in-house aluminum foundry can cast anything from a small fuel tank to a large septic tank. Thanks to state-of-the-art degassing capabilities, every rotational mould uses aircraft-grade metal.





Fabricated Moulds

Fabrication is a widely used construction process for components with simple geometry, often large in size. Agricultural tanks, water tanks, and fuel tanks are some examples of fabricated tools. This process is particularly suitable for large moulds that can be made from various metals, such as aluminum, carbon (mild) steel, or stainless steel. The creation of this type of mould requires considerable technical and manual skill, which Diversified Mold & Castings guarantees thanks to many years of experience in the industry.



Rotational Mould Frames

The structure of a rotational mould determines its durability and longevity. The structure acts as a support, allowing the mold to move during the cycle while preventing deformation. It protects against unexpected accidents that may occur in the workshop, such as a mold falling or being hit by a forklift. The structure allows the mold to be mounted close to the machine arm. Diversified works with its customers to define the specifications of each mold, starting with a wide range of frame options, to meet every specific requirement, given the complexity and size of the mould.



Rotational Mould Finishes

Diversified Mold & Castings offers a wide selection of finishes applicable to rotational moulds. In addition to satin and gloss finishes, DMC can produce organic finishes that mimic natural materials such as stone, wood grain, terracotta, and wicker. The wide variety of possible finishes allows each rotomoulded product to be characterized through specific finishes capable of making it particularly recognizable on the market.



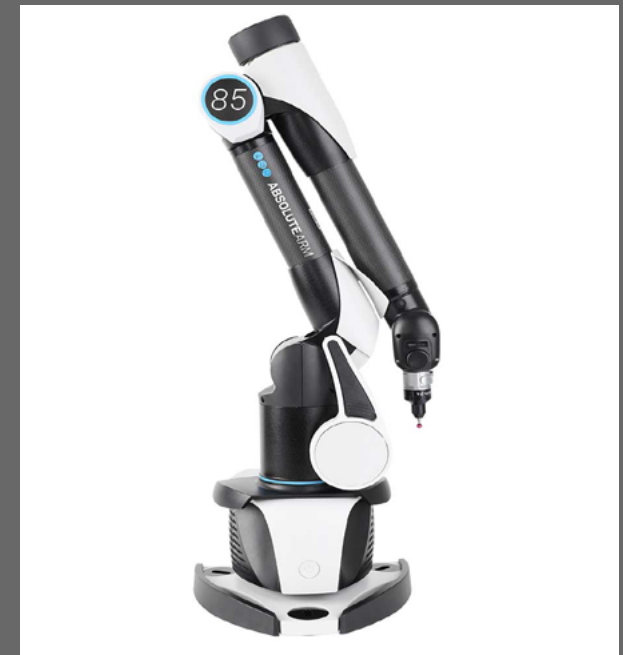


Scanning and Reverse Engineering

Diversified Mold & Castings has developed a strong expertise in scanning and reverse engineering over the years. The Hexagon mobile scanner enables DMC to work smarter with a complete scan-based reverse engineering workflow, based on precision 3D scanning and high-quality scan data. DMC's portable 3D scanners and metrology-grade software capture every detail of physical components. From the simplest components to the most complex freeform surfaces, this process allows DMC to achieve the precision and clarity needed to reconstruct designs with confidence.

With advanced 3D scanning technologies and software designed to manage point clouds and meshes, DMC's reverse engineering solutions simplify the transformation of raw scan data into fully editable parametric CAD models. Whether redesigning a component, replacing a legacy component, or creating a digital record, these tools streamline the entire process, from the first scan to the final CAD.

DMC reverse engineering solutions deliver repeatable accuracy, speed, and flexibility for every workflow, transforming detailed 3D scan data into intelligent, feature-based CAD models that seamlessly integrate into downstream engineering and manufacturing processes.



Five-Axis CNC Routers

DMC offers the possibility of producing complex models for rotational molding in-house using fixed bridge and moving table milling machines. These types of milling machines are designed for high-precision machining in various sectors, including aeronautics, rotational molding, and thermoforming. Given the complexity and size of the mould. The milling machines used by DMC are widely used for the processing of plastics, composites and light metals to meet every specific need.



7. Key Companies

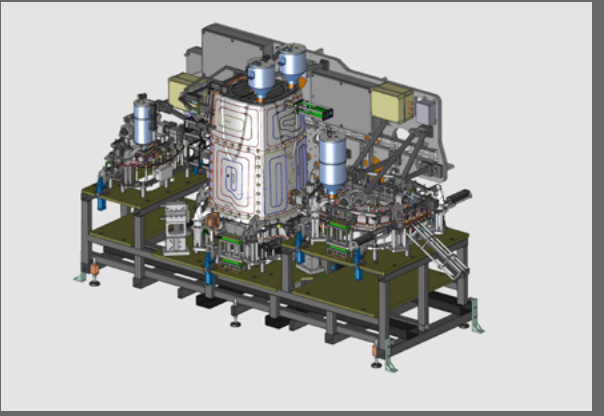
Maus
Karlsruhe, Germany



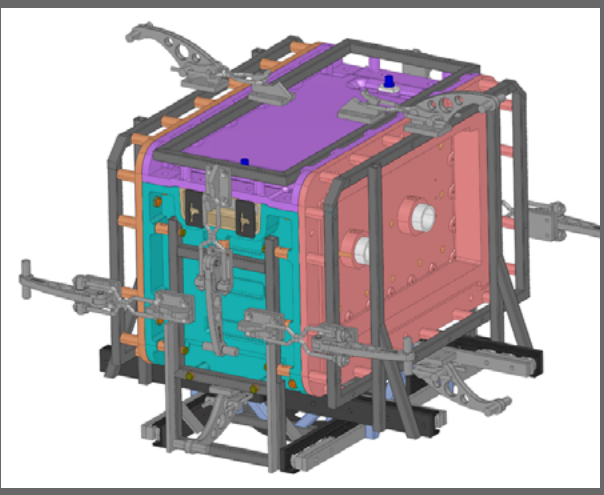
100 Years of Excellence



Maus's history spans over 100 years, marked by a constant focus on research, precision, and resilience. From its origins as a model maker in Ettlingen to becoming a global mold supplier for the rotational moulding industry, the company's evolution has been marked by constant growth combined with a commitment to always being at the forefront of innovation.



From Foundry Patterns to Moulding Innovation
The company was founded in 1925 by August Maus in Ettlingen, Germany. Initially focused on foundry model making (Gießerei-Modellbau), Maus supplied wooden casting patterns to the regional metalworking industries. These early decades were characterized by meticulous craftsmanship, technical expertise, and consistent attention to detail—qualities that still characterize the company's production today.

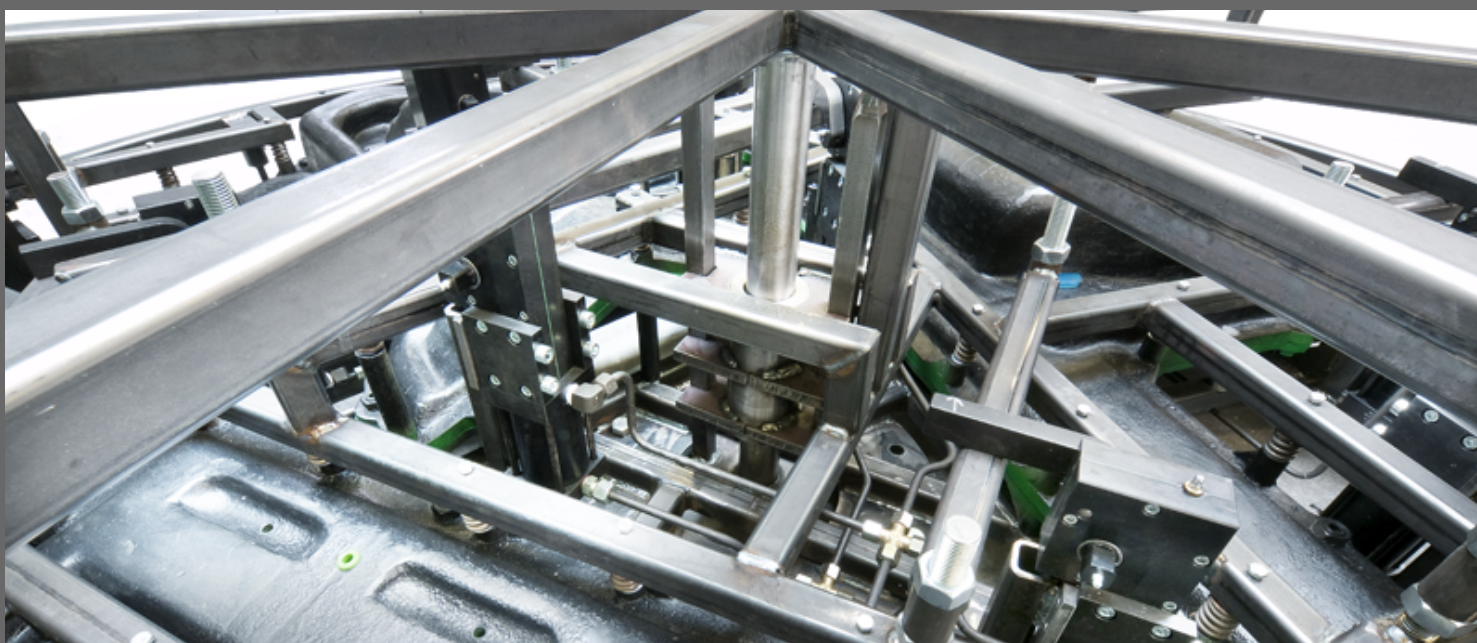
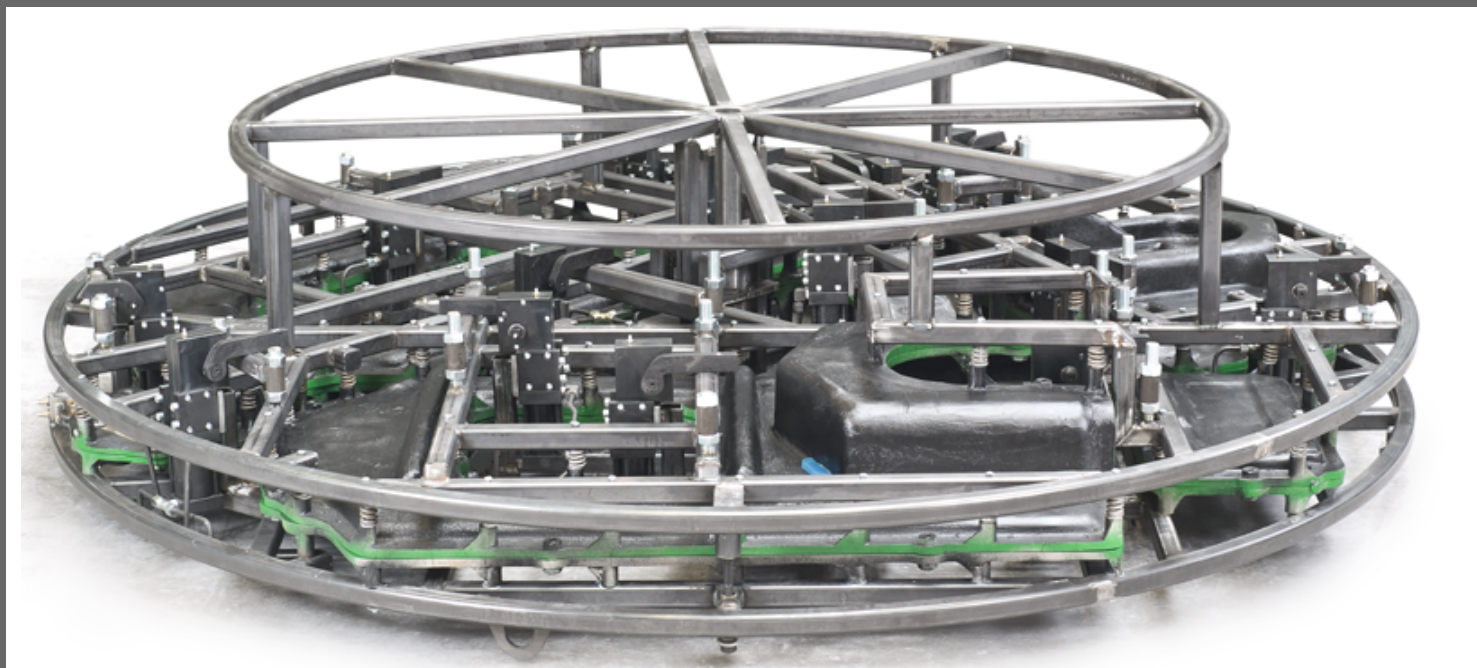


Pioneering Rotational Moulding Since 1961
In 1961, Maus produced its first rotational moulds for the Rhein-Conti company in Hockenheim. Maus produced the wooden foundry patterns, while the aluminium casting was performed by an external foundry. Final assembly and finishing of the moulds were completed at Maus, marking the company's entry into the rotational moulding industry.



Expansion and a New Headquarters
In the mid-1980s, Maus established a dedicated aluminum foundry within its Karlsruhe plant, designed to meet the stringent requirements of rotational moulding production, achieving new levels of quality control, production speed, and design flexibility. It also laid the foundation for a major strategic shift: from that point on, the company began to focus almost exclusively on the European rotational moulding market, continuing its path of growth and innovation.





Expansion and a New Headquarters

Previously, in 1972, under the leadership of Emil Maus, the company had moved from Ettlingen to its current headquarters in Karlsruhe-Grötzingen. The move supported the growth of the company's capabilities with more space, modern machinery, and a dedicated environment for tool development. It also allowed the company to expand its rotational moulding business.

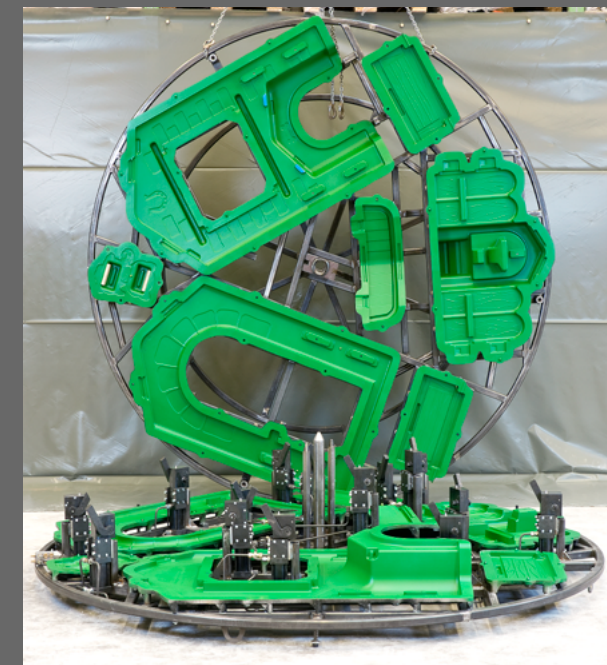
Engineering Moulds for Global Markets

Today, Maus supplies tools to customers worldwide, producing aluminum and steel rotational moulds for a variety of industrial sectors, including aerospace, water treatment, storage containers, automotive, transportation components, agricultural and construction products, recreational, leisure and playground, sports equipment and many others. Maus' current offering includes a wide range of products and services, including high-precision CNC mold manufacturing, engineering, simulation, and design consulting, rapid prototyping and thermal system integration, as well as long-term support, retrofits, and mould refurbishments.

Still Family-Owned, Always Forward-Thinking

Today, under the joint leadership of the third and fourth generations of the family, the company Maus maintains its core values: craftsmanship, reliability, and close collaboration with customers. Employees are trained in-house, many through in-house apprenticeship programs, ensuring a profound transfer of knowledge from generation to generation.

For Maus, every mold is always a team effort, accompanied by constant attention to every phase of the process, from design to final production, all the way to maintenance.



8. International Events

ARMO

Affiliation of Rotational Moulding Organisations

Calendar



Rotopol 2026

Wroclaw, Poland May 14 – May 15, 2026

This year's 10th Rotopol Conference will focus on the theme "New Trends in Rotational Moulding". As every year, the meeting will be attended by renowned speakers from Polish and abroad, as well as representatives of Polish and foreign rotomoulding companies.
www.rotopol.pl



Rotoplas 2026

New Orleans, USA Nov 16 - Nov 19, 2026

Rotoplas is the largest exposition for the rotational molding industry, offering the latest in advanced technology, products, services and innovative parts made specifically for the rotomolding process.
www.rotoplas.org



ARMO General Conference

Baveno, Italy Sep 26 - Sep 28, 2027

ARMO is pleased to announce that its next general conference will be held in Baveno, northern Italy, from September 26 to 28, 2027. More details and information on this major event dedicated to the world of rotational molding will be available soon.
www.armo-global.org



9. Affiliates

	AFR - Association Francophone du Rotomoulage	www.rotomoulage.org
	ARM - Association of Rotational Molders	www.rotomolding.org
	ARMA - Association of Rotational Moulders Australasia	www.rotationalmoulding.com
	ANIPAC - The Mexican Plastic Association	www.anipac.org.mx
	ARMSA - Association of Rotational Moulders Southern Africa	www.armsa.co.za
	ARM-CE - Association of Rotational Moulders Central Europe	www.rotational-moulding.de
	StAR - Society of Asian Rotomoulders	www.starasia.org
	Nordic ARM - Nordic Association of Rotational Moulders	www.nordicarm.org
	BPF - Rotational Moulders Group	www.bpf.co.uk
	IT-RO - Italia Rotazionale	www.it-ro.it
	RPC-CPPIA	www.crotomolding.com
	Rotopol Association	www.rotopol.pl



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