RotoTrends

Exploring the potentials of rotational moulding in design

Issue 12

ARMO
ASSOCIATION OF ROTATIONAL MOULDING ORGANISATIONS

Introduction

The evolution that has distinguished rotational moulding in recent decades is intimately related to the development of awareness of rotomoulding in the design world.
In other words, as the potential of rotomoulding becomes "common knowledge" amongst designers and producers the sophistication of their projects using our technology for industrial applications grows.
RotoTrends explores the different potentials of rotational moulding showing case-histories where the roto technology is able to open new markets, developing innovative products and working successfully in new niches.
The projects developed in partnership with international design institutes, and the selected industrial products produced a faithful portrait of an industry constantly hungry for new ideas, eager to experiment with new shapes and new materials, sensitive to the international richness of globalization.
Rotomoulding is strategically placed as one of the key technologies for rethinking the industry according to today's needs for technology and performance.

Innovating Medical Rehabilitation Processes

Products dedicated to the rehabilitation of people suffering from trauma or disease represent a rapidly expanding market internationally. Market demand is specifically focused on innovative products capable of guaranteeing high performance.
In particular, medical centres and hospitals require products that are highly durable and, at the same time, capable of combining multiple functions in a single device.

The versatility of these products is in fact a key point: the trend is to equip oneself with products capable of combining in a single object multiple functions that were previously delegated to different dedicated products. In this way, the hospital environment has the opportunity to rationalise its spaces, making the patient's rehabilitation phase more efficient.

A Sector with Growing Opportunities

The production of equipment for the rehabilitation of people suffering from trauma or various pathologies represents an important development opportunity for the rotational moulding industry.
The production of these machines generally requires the development of multiple models with integrated variants and accessories: from this point of view, rotational moulding offers, unlike other moulding technologies, greater flexibility in terms of producible quantities and a wide variety of possible shapes.

Ergonomics is also an important issue for this type of products: thanks to rotational moulding, it is possible to design and produce objects that adapt perfectly to the shapes and sizes of the human body, devices that are perfectly functional for the specific needs of rehabilitation centres.

Actimo NR

An ideal aid for standing mobility and rehabilitation

production Sakai Medical, Japan
moulding Dailite, Japan

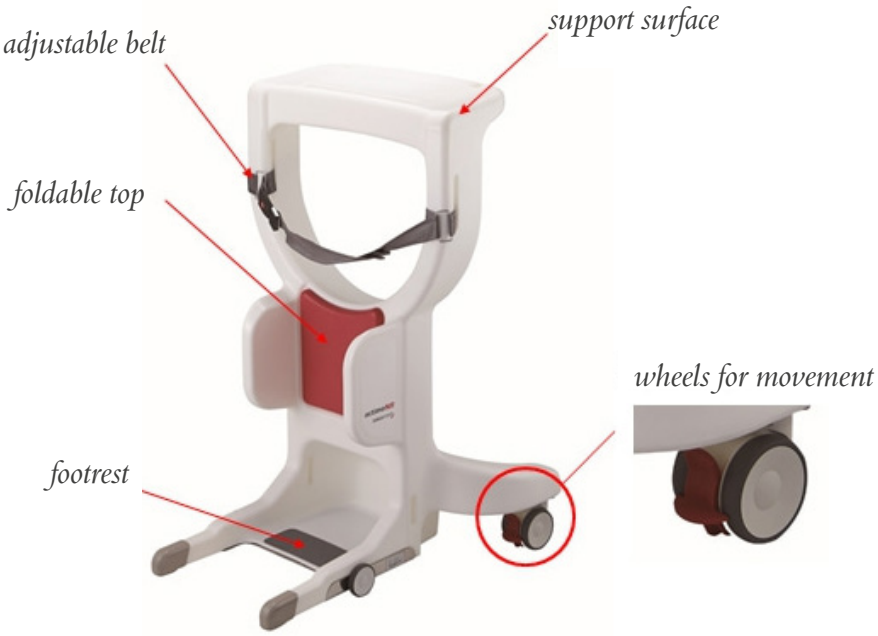
Active NR is an innovative product designed to support the lower limbs and trunk, allowing people in the early stages after a stroke to safely maintain an upright posture. This enables rehabilitation of standing and mobility using the functional side of the body. This trolley is a functional aid for standing and mobility, ideal for early stages of activity, developed based on the needs of rehabilitation contexts. It can be used in various situations, adapting to the needs of the moment. By exploiting residual functions, it reduces the workload of the assistant during mobility and transfer. In accessible bathrooms, it allows direct access to the front of the toilet seat, enabling safe assistance regardless of the direction of hemiplegia. It can also be used as a standing table. Posture can be corrected from both the front and rear. By stacking the body, storage space can be reduced. In rehabilitation facilities where early removal from bed is required, this is an unprecedented assistive device that enables patients to move safely while standing. The rotomoulded polyethylene main body is relatively lightweight to make the trolley easy to manoeuvre, yet it also ensures excellent stability.

www.sakaimed.co.jp

GOOD DESIGN AWARD

> *In rehabilitation sites where early removal from the bed is desired, Actimo NR represents an unprecedented assistive device that enables safe standing movement of patients.*

> The armrest space doubles as a table that can be used for standing exercises; the functions required for rehabilitation are grouped together in a single object, optimising the available space.



> The rotomoulded structure is designed to be compatible with beds of different sizes and particularly easy to move around hospital wards.

Bicycle Accessories
Market Trends

The global bicycle accessories market size was estimated at USD 12.94 billion in 2024 and is projected to reach USD 20.50 billion by 2030, growing of 8.2% from 2025 to 2030. The market growth can be attributed to factors such as health and fitness trends and increasing environmental concerns.

As more people take up cycling for transportation, exercise, or leisure, the demand for bicycle accessories has also increased. From cycle racks, helmets, lights, and locks to bags, mirrors, water bottle cages, and pedals, bike accessories are crucial in enhancing the safety, comfort, and functionality of bicycles and cyclists.

Growing awareness of health benefits associated with cycling, such as improved cardiovascular health and fitness, has let more people adopt cycling as a regular activity. This trend boosts demand for accessories like fitness tracking devices, saddlebags, and hydration systems, supporting long-distance and performance-oriented cycling.

Designing a Bike Rack
Main Criteria

Designing a bike rack requires criteria for security (supporting frame and wheels for secure locking), usability (easy access, proper size for bike types, sufficient space for locking), stability (two points of contact, sturdy installation), and durability (simple, no moving parts, strong materials).

Key considerations also include the location, intended use, and local regulations. In terms of security and stability, the rack should support the bicycle frame and front wheel, ideally at two points, to prevent it from falling over. The design must allow users to secure both the bicycle frame and at least one wheel to the rack using a U-lock or similar device.

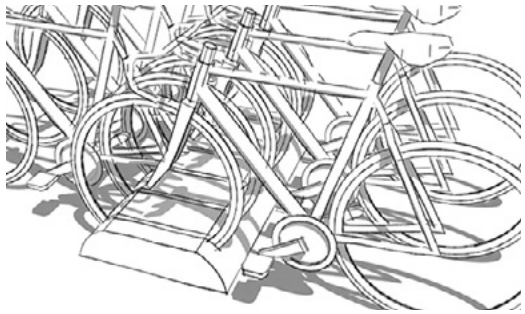
Racks must be made of resistant, high-security materials that can adapt to the shape of bicycles, creating functional and practical attachment points. From this point of view, racks produced using rotational moulding offer the opportunity to create articulated shapes that perfectly meet the practical and functional needs of bicycles. In addition, rotationally moulded racks can be used both indoors and outdoors, as they are resistant to atmospheric agents and can be coloured throughout.

BikeBump
Bike POP display

production Cannondale, USA
design Raymond James, USA

The bicycle rack designed by Raymond arose from the company's need to replace a series of wooden racks that were used in bicycle shops. The project developed from the idea of creating an object that could be mass-produced at relatively low cost and that would allow for great flexibility of use.
A new rotomoulded base introduces a new way of displaying bicycles, which also incorporates a series of rigid vertical panels describing the products. The base does not need to be fixed to the ground and is easy to move; moreover, as it is moulded from polyethylene in a single piece, it can be used both indoors and outdoors, thus increasing its potential uses.

www.cannondale.com



> The unique shape of the base allows bicycles to be inserted in both directions. It is also possible to place multiple elements side by side to create compositions on the ground.

> The integration of the rotomoulded base with the vertical panels allows the two functions to be combined in a single freestanding object, making it more versatile and functional.

Enhancing Mobility for All
Design Criteria

Urban mobility design criteria focus on creating systems that are sustainable, accessible, inclusive, integrated, and resilient, prioritizing active transport, reducing car dependency, and ensuring safe, equitable access to destinations for all users, including those with disabilities.

Key criteria include mixed-use planning for shorter commutes, dedicated infrastructure for walking, cycling, and new modes, robust public transport connectivity, and the integration of green spaces. Mobility design should also address resilience to disruptions, promote multimodal user experiences, and incorporate technology and smart systems to manage traffic flow and provide information.

Rotational moulding is an important resource for creating innovation in the design and production of vehicles for urban transport. Thanks to its intrinsic production flexibility and the possibility of creating products with relatively low production costs, rotomoulding is an efficient solution for producing vehicles and infrastructure solutions in this sector.

Urban Mobility
Key Factors

Three key factors are driving this wave of innovation:

Sharing economy and multimodal mobility: the sharing economy has revolutionized urban mobility by offering flexible and convenient alternatives to car ownership. Services like car sharing, bike sharing, and micro-mobility options are changing how people access and utilize transportation within cities.

Electrification and the power of active mobility: electric vehicles offer a quieter and cleaner urban experience, creating an opportunity to rethink the way we allocate space in cities. With the potential for reduced reliance on large parking garages and roads, cities can repurpose this land for greener spaces and cycling infrastructure.

Smart city infrastructure and automation: connected traffic management systems, real-time information sharing, and the development of autonomous vehicles are all contributing to a more efficient and safer transportation network. interconnected ecosystem allows for optimized traffic flow, reduced congestion, and improved accessibility for all users.

Stuyf Cargo

Vehicle with Storage and Load Capacity

production Mobilitum, Netherlands

Mobilitum is an innovative Dutch company specialising in the supply of 100% customised electric vehicles for various sectors and applications. Their vehicles, designed in collaboration with users, offer customised configurations to integrate seamlessly into business processes. Mobilitum focuses on providing a complete mobility solution, guaranteeing quality, service and support, enabling users to carry out their activities efficiently. It offers a range of vehicles, including Stuyf Cargo, Stuyf Pickup and Stint BSO bus, and provides comprehensive service and support to meet customer needs. Stuyf Cargo is a light electric vehicle developed for use in densely populated urban areas. Versatile and well suited for the last mile, it is manufactured with a rotomoulded polyethylene body. With a range of 43 or 86 km, the battery has enough power for a full day's work. This makes the Stuyf Cargo ideal for activities that require many stops, such as parcel delivery. Or add a mobile power supply and integrated tools.

www.mobilitum.com

> Within a range of 3 meters, the driver has keyless access to the storage area. A timesaver during routes with many stops.

> *The cargo space can fit 250 kg of cargo and has a volume of 1.2 m3. A compartment under the floor offers space for a spare tire and additional storage.*

> *The EPS electric steering enhances the vehicle's steering feel by adding grip and control.*

Health and Prevention
Key Trends

Key health and prevention device trends include advanced wearable technology for continuous, real-time health monitoring, the integration of Artificial Intelligence for personalized insights and predictive analytics, and the growing use of telehealth and remote patient monitoring tools.
There is also an increasing focus on mental health tech, the use of Virtual and Augmented Reality (VR/AR) for training and therapy, and more compact, home-based wellness devices.

Wearables are moving beyond basic step tracking to monitor a wide range of metrics, including heart rate, blood oxygen levels, sleep patterns, and continuous glucose levels using specialized sensors.

Fixed devices are becoming capable of identifying early signs of conditions such as atrial fibrillation and diabetes, enabling users to proactively manage their health. Data from wearables is increasingly streamed to mobile apps, providing real-time feedback and analysis for users to monitor and act on their health metrics.

Telehealth and
Home-Based Solutions

Fixed devices and mobile platforms enable healthcare professionals to monitor patients remotely, improving healthcare efficiency and patient outcomes. They also allow patients to perform detailed screening that provides them with a detailed picture of their condition.

There is also a growing trend towards compact devices that provide users with tools to manage stress, anxiety and other aspects of their mental and physical well-being.

The structure of these products includes both floor-standing and tabletop models, as well as mobile models with wheels. Thanks to the possibility of creating extremely varied and complex shapes, rotational moulding allows for the creation of customised solutions for every type of medical need, integrating multiple functions and devices such as screens and magnetic card readers.

Cardioprime Touch

Multifunction Scale for Health and Prevention

production Davi&Cia, Spain
moulding Prodescom Rotomoldeo - Spain

Cardioprime Touch allows you to detect the composition of the patient's body structure (fat, water, protein and minerals), to perform TMB (Basal Metabolic Rate) measurements and to measure blood pressure. It provides a detailed ticket with all the data collected and the recommended values.
The main body consists of a vertically rotomoulded element to which electronic displays r and a series of graphic elements for customisation are then added.
Cardioprime Touch multifunction scale is precise, functional and reliable. It includes different measurements and presents a 10.1 touchscreen that shows animations and graphics, its screen is bigger than the other multifunction devices, so it facilitates the interactive use of the clients. The device has a specific area to add a poster promotional, as well as the ability to customize the team's logo or add an advertising screen with the logo of a pharmacy.

www.davicia.com

> *The rotomoulded structure includes both the vertical element and the recessed door, which can be opened with a special lock.*

> *Cardioprime Touch team has a specific area to add a poster promotional, as well as the ability to customize the team's logo or add an advertising screen with the logo of a pharmacy.*

Motorcycle Sidecar Market Trends

The future of the global motorcycle sidecar market looks promising with opportunities in the electric bike and regular mechanical bike markets. The global motorcycle sidecar market is expected to reach an estimated $971.0 million by 2030 with a CAGR of 5.6% from 2024 to 2030.

The major drivers for this market are growing spending power, a growing inclination among consumers for vintage items, and notable developments in technology.

Sidecars are being re-imagined as urban mobility solutions, with designs that emphasize easy use and functionality in crowded city traffic. Design attributes like compact size and better storage spaces target commuters and delivery users in urban centers.

These aspects are transforming the motorcycle sidecar market by encouraging new developments, improving customization options, and promoting sustainability.

Designing Three-Wheeled Vehicles

The motorcycle sidecar market is undergoing a transition with several rising trends driven by changing technology, consumer preferences, and regulatory shifts. These trends are revolutionizing the design and functionality of sidecars for the better.

Customization and Personalization: Consumers increasingly appreciate custom-made sidecars, prompting manufacturers to design sidecars that appeal to individual tastes. Many manufacturers are expanding their product range to include accessories that allow for unique designs and colors.

Integration of New Materials: The adoption of new materials such as polyethylene, fiberglass and nylon alloys is becoming more widespread. These materials help increase sidecars' strength, efficiency, and fuel economy while reducing overall weight, thus improving riding stability and security.

Focus on Safety Features: Recognizing the importance of modern features in motorcycle sidecars has led to innovations in advanced designs.

Cooler Kub 750S Sidecar
Three-Wheeled Vehicle

production Cooler Kings Ebikes,
Great Britain

Cooler Kub is a powerful two-wheeler designed to accommodate a sidecar that allows the transport of various materials or people. The sidecar shell is moulded using rotational technology and customised with the addition of an internal seat and safety belts.
The sidecar has a large interior compartment that allows you to transport various things, such as animals, materials or people.
Cooler Kub also has two removable batteries, allowing the vehicle to be parked near a charging station to recharge the batteries. The second 20aH battery gives the vehicle a long range and therefore the possibility of being used for long journeys.
The front LED headlight has a dual function and is protected by a mesh grille, while a rear LED light is integrated with a brake light and turn signals.

www.cooler.bike

> *Cooler Kub also has two removable batteries, allowing the vehicle to be parked near a charging station to recharge the batteries.*

> *The sidecar is rotomoulded in a single piece and mounted on the metal frame.*

> The rotomoulded seat is completed by a padded cushion covered in leather.

> The sidecar is designed to be easily removable and separable from the motorcycle.

Vehicles with High Storage and Load Capacities

In today's truck and van market, vehicle manufacturers are focused on helping customers maintain and drive business with vehicles that are capable, reliable and fuel-efficient. But manufacturers also offer upgrades to personalize work vehicles to the customer's individual style, so practical doesn't mean stripped down.

Vehicles with high storage and load capacities are increasingly dominated by SUVs and pickup trucks, reflecting consumer demand for multi-purpose vehicles and larger families. Key trends include the growth of the SUV market segment, offering enhanced cargo management with features like modular dividers and weather-proof power sockets, as well as the development of long-wheelbase SUV models providing maximum utility and payload capacity.

SUVs are the top choice for cargo box installations, contributing to a significant market share due to their superior load capabilities compared to sedans and hatchbacks. Consumers often choose SUVs and their counterparts for the increased space and versatility they offer for both passengers and cargo.

Features for Enhanced Cargo Capacity

Many vehicles are designed with features that allow for the use of custom storage solutions like shelving, nets, and divider panels to organize cargo securely.

Robust chassis and powerful engines enable these vehicles to carry heavier loads, making them suitable for both family and commercial transport.

Premium SUVs are incorporating features such as weatherproof power outlets, LED interior lighting, and remote access to cargo areas to boost their functionality. Several vehicles are also known for their massive cargo volumes, especially in their extended-wheelbase (MAX or XL) versions.

Terrain DX4 1000

Vehicle with Storage and Load Capacity

production Corvus, Spain
moulding Prodescom Rotomoldeo

Terrain DX4 is a powerful and robust vehicle 4x4 diesel with large storage and loading capacity. A work machine designed to withstand the toughest conditions. Developed to simplify your day-to-day life. DX4 EPS is synonymous with power and manoeuvrability. The EPS electric steering enhances the vehicle's steering feel by adding grip and control. The result is a comfortable 4×4 that's just perfect for getting around large estates or trails.

The equipment DX4 is designed for those looking for a simple vehicle with which to carry out any job comfortably. Equipped as standard with a versatile and large cargo box that allows you to transport everything you need for the work day.

The external components of the vehicle that form the bodywork are rotomoulded and integrated, in terms of design and construction, with the main metal structure. The great height and width of the cabin allow for an easy and wide view of the outside. In addition, the absence of obstacles between seats allows for really easy entry and exit from the vehicle.

www.corvus-utv.com

> Terrain DX4 was born to work on any terrain and under any circumstances, thanks to Its engine, 1000cc YANMAR naturally aspirated diesel, 3 cylinders in line.

> *The equipment DX4 It is designed for those looking for a simple vehicle with which to carry out any job comfortably.*

> *The EPS electric steering enhances the vehicle's steering feel by adding grip and control.*

Continuity to Connect Indoors and Outdoors

Coherence is one of the most important criteria to follow when creating aesthetic and design spaces. One of the great challenges is taking care of the transitions from one space to another, from indoor to outdoor, a process in which contrasts are often created and break with harmony.

Regarding the connections between indoors and outdoors areas, it is becoming more and more common for designers to conceive hybrid products that share the same aesthetic line to give continuity to the style and that the passage from one room to another is smooth and natural. These are some of the keys to create continuity with gardens and terraces, an unmissable trend this season.

Designing Multifunctional Products

Rotational moulding makes it possible to completely redesign an object, not only in terms of its shape, but also by combining multiple functions that were previously separate. In this way, each product acquires added value due to its intrinsic ability to satisfy different functional needs.

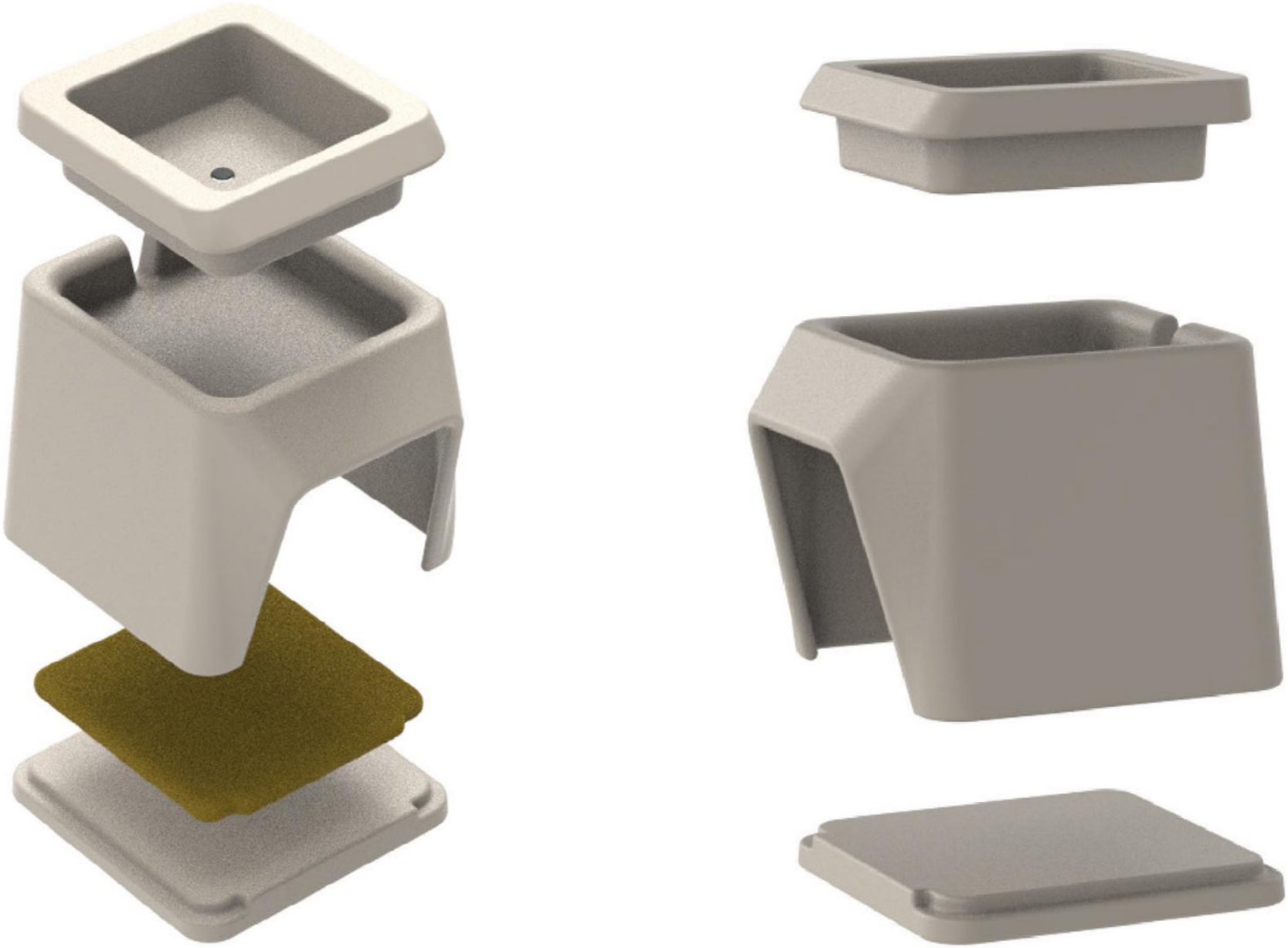
Achieving multifunctionality in rotationally moulded objects means acting on several elements, such as:
- the ability of certain hollow bodies to be reversible and therefore usable on both main sides
- the possibility of integrating multiple functions within the same shape
- the opportunity to create stackable or interlocking objects that can work together or be broken down.

Cozy Cove
A wave of excitement

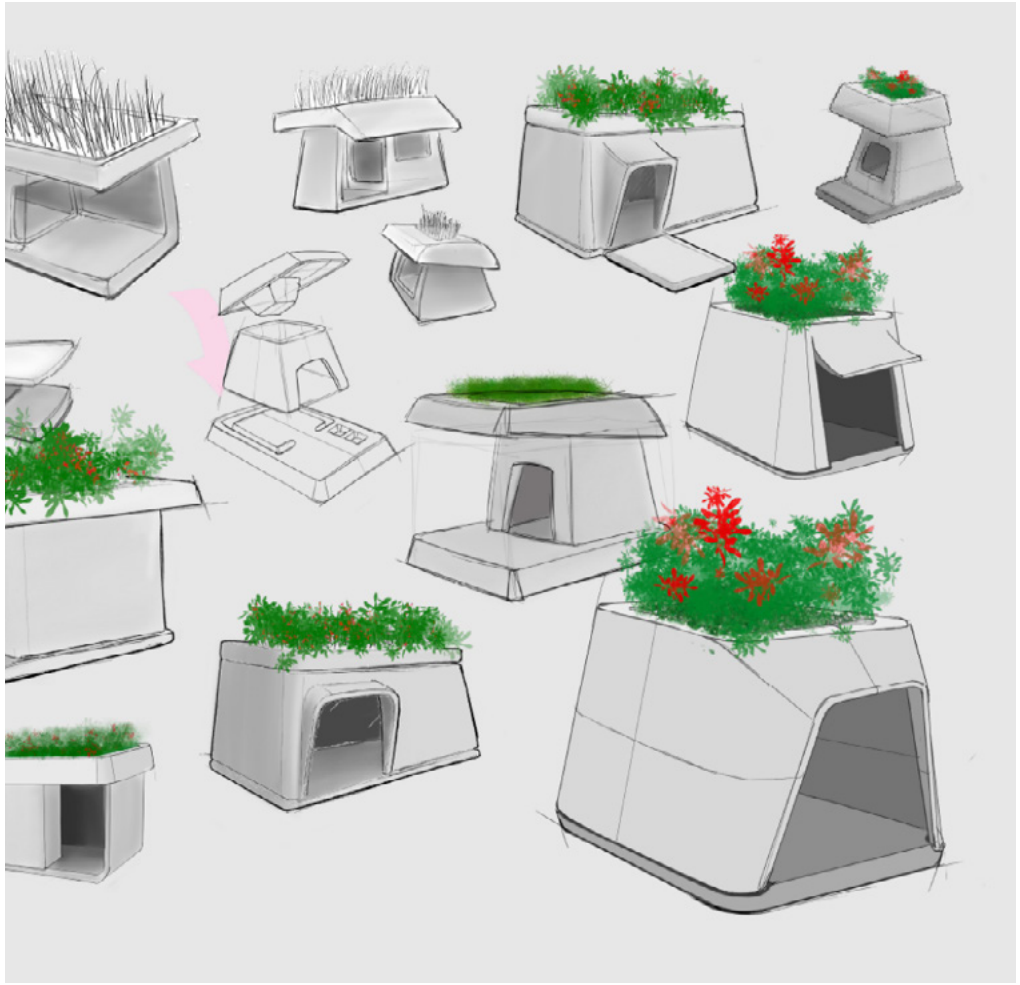
design Reed Sell, USA

Cozy cove is a modular dog house for modern outdoor living, designed to maximize comfort for the pup, ease of use for owner, and space saving functionality to improve any dog owners outdoor space.
It consists of three rotomoulded parts that are stacked on top of each other, allowing two separate functions to be integrated into a single object: the lower part can be used as a comfortable dog bed, while the upper part becomes an ideal pot for growing small plants.
The project took part in the design competition promoted by ARM.

www.reedsell.com



> *The floor base is completed by a removable cushion that allows you to easily wash and replace the cover.*



> *The three components are stackable and easily dismantled for easy cleaning.*

> Thanks to its rotomoulded structure, this multifunctional object can be placed both indoors and outdoors.

Global Air Compressor
Key Features

The market is characterized by a high degree of product innovation, which results in the development of high-quality industrial air compressors.
The demand for sustainable and environment-friendly industrial air compressors is increasing, and this trend is likely to increase R&D spending by various market players. The market is also significantly influenced by the growing regulatory compliance framework across the globe.

The industrial air compressor market is characterized by a high degree of competition owing to the various cost-efficient technologies adopted by the industry players for manufacturing air compressors. Emerging economies witnessed rapid growth in the manufacturing sector, leading to increased competition among the players.

Industrial Air Compressor
Market Summary

The global industrial air compressor market size was estimated at USD 18.32 billion in 2023 and is projected to reach USD 25.18 billion by 2030, growing of 4.1% from 2024 to 2030. This growth is driven by rapid industrialization in emerging economies. The increased industrial activity requires efficient compressed air systems to operate machinery in the manufacturing sector.

As emerging economies are experiencing significant expansion in the manufacturing, oil & gas, and food & beverage industries, the demand for industrial air compressors is rising. Businesses in various industries are automating their production process. Thus, there is a growing demand for efficient and reliable compressed air systems. Hence, the shift toward automation.is not only driving the demand for industrial air compressors but also catalyzing innovation in the sector.

i.Comp 8/9 Tower
Reciprocating Compressor

production Kaeser, Germany

With the i.Comp 8/9 Tower, German brand Kaeser presents a highly efficient complete solution that integrates a piston compressor and compressed air treatment with refrigeration dryer and optional filters in a robust housing. This fully-fledged compressed air station is based on two compressed air tanks, each with a capacity of 40 liters.
Moreover, i.Comp family reciprocating compressors are able to operate with 100 percent duty cycles. Intelligent solutions ensure exceptional filling performance and, as a result, outstanding efficiency.With a volumetric flow rate to 580 l / min, the i.Comp Towers T can be used for a wide range of workshop and trades applications and assure a constant pressure of up to 11 bar with absolute operational reliability.
Made from roto-moulded polyethylene to enable optimum corrosion- and impact-resistance, the attractive sound enclosure not only hides an advanced all-in-one compressed air station comprising a compressor and a refrigeration dryer, but also keeps sound levels to a minimum and helps retain system value.

www.kaeser.com

> *Since i.Comp Tower systems deliver oil-free compressed air, no oil enters the compressed air supply itself.*

> *The drive delivers the necessary power to cover the required compressed air demand with infinitely variable control.*

Small Cylinder Motorcycles Market Drivers

The demand for small cylinder motorcycles (400–650cc) is driven by economic pressures, urban mobility needs, and younger riders prioritizing affordability and fuel efficiency. While search interest for small cylinder motorcycles remains low globally, there is a notable spike in "lightweight motorcycles" searches in 2025, suggesting shifting consumer preferences toward compact, fuel-efficient models.

This segment's appeal stems from a resurgence in classic motorcycle aesthetics combined with the affordability and practicality of smaller engine capacities. Key drivers include the increasing popularity of personalized and stylish transportation, particularly among younger demographics seeking unique and expressive vehicles. Furthermore, the rising disposable incomes in emerging economies, coupled with improved road infrastructure in certain regions, contribute to increased market penetration. The market faces some constraints, primarily related to stringent emission regulations and the rising cost of raw materials. However, manufacturers are actively innovating with fuel-efficient engines and sustainable materials to mitigate these challenges.

The Evolution of the Motorcycle Industry

The motorcycle industry has evolved from traditional motorbikes to a diverse array of specialized types. This transformation has been driven by technological advances, the introduction of new materials, shifting consumer preferences and a growing demand for sustainable transportation options.

Continuous innovation in engine technology, design, and features will be crucial for sustained market expansion. Furthermore, strategic partnerships, marketing initiatives targeting specific demographics, and the expansion into new markets will play a vital role in shaping the future landscape of this dynamic segment. The increasing focus on sustainability and emission control within the motorcycle industry will influence product development and contribute to shaping the trajectory of this sector's growth in the long term. The successful manufacturers will be those who can deftly balance consumer preferences with regulatory requirements and emerging technological advancements..

APX-350 MA
Small-Displacement Racing Motorcycle

production Krämer Motorcycles, USA

Krämer Motorcycles has recently launched its new APX line of motorcycles, designed for the small-displacement racing motorcycle category. The first model from this new lineup is the 2025 Krämer APX-350 MA race bike, which brings grand prix performance for a fraction of the cost. We are also honored to say that the Krämer APX-350 MA will hone the skills of America's top young racers as the spec-bike in the new MotoAmerica Talent Cup.

At the heart of the Krämer APX-350 MA is a chromium-molybdenum steel trellis frame that has been tuned for the ideal flex and feedback necessary for road racing. The chassis design has the ability to be adjusted at the headstock angle, triple-clamp offset, swingarm angle, seat height, rearset height, and handlebar angle, making it ideal for different riding styles and riders of differing sizes.

Built from cross-linked polyethylene, the 12-liter fuel cell is created using a rotational molding process, which results in a lightweight and durable design. A staple of Krämer ingenuity, a cutout is made in the fuel cell for easy access to suspension settings on the rear shock — one of many race-focused designs on the APX platform.

www.kramermotorcyclesusa.com

> The chassis design has the ability to be adjusted at the headstock angle, triple-clamp offset, swingarm angle, seat height, rearset height, and handlebar angle.

> *The Krämer APX-350 MA features a 350cc single-cylinder engine from the KTM EXC-F enduro motorcycle.*

> *Built from cross-linked polyethylene, the 12-liter fuel cell is created using a rotational molding process, which results in a lightweight and durable design.*

Safety & Durability
Ergonomics & Functionality

Child-Proof Design:
Furniture should have no sharp edges, ligature points, or parts that can be used as weapons.

Structural Stability:
All fittings and fixtures, including mirrors, paintings, and signage, must be rigidly fixed to walls with tamper-proof fixings to prevent damage or injury.

Age-Appropriate Design:
Furniture must be designed to accommodate the unique physical needs and developmental stages of children of different ages.

Ergonomic Features:
Adjustable beds, chairs that support proper posture, and soft cushioning ensure comfort during recovery and treatment.

Multi-Functional & Modifiable:
Select versatile furniture like stackable ottomans and tables that can be used for playing, lounging, or working to optimize space and encourage interaction.

Paediatric Furniture
Key Trends

Designing pediatric hospital spaces requires specific expertise and targeted solutions. It's not just a matter of scaling down a bed or adding a splash of color - every element must meet the criteria of safety, ergonomics, and durability, while maintaining high hygiene standards.

Furnishings for pediatric wards must meet criteria for safety, ergonomics, durability, and hygiene, all while creating a positive and child-friendly environment that supports development and accommodates families.

Key considerations include age-appropriate and size-appropriate design, multi-functional and modifiable elements to optimize space, easy-to-clean and anti-microbial materials, and themes and colors that reduce anxiety and promote a familiar atmosphere.

Matris
Crib for Rooming-in

production Malvestio, Italy

Matris was created in response to growing awareness of the importance of the well-being of mothers and newborns, which is now increasingly widespread with the practice of rooming-in. It is a paediatric cot designed to allow close physical contact between mother and baby. This aspect is important in reassuring the baby and promoting bonding: in the first days of life, the baby needs to recognise its mother, listen to her and be breastfed by her. To ensure safety, Matris is also equipped with rotomoulded polyethylene side rails with a central transparent plexiglass window that can be tilted vertically. The main sides can be tilted to allow the crib to be connected to the bed. The crib is also equipped with a centralised automatic braking system with constant braking.

www.malvestio.it

> The side walls are designed to optimise the opening and closing system, which is very simple and easy to use.

>The crib is also equipped with a centralised automatic braking system with constant braking.

> *The tubular metal frame allows the cradle to be manoeuvred using two convenient side handles.*

> *To ensure safety, Matris is also equipped with rotomoulded polyethylene side rails with a central transparent plexiglass window that can be tilted vertically.*

Designing a Reliable and Secure Cell

Design of this kind of vehicles must include emergency exits for all compartments, easy-to-clean and non-slip surfaces as rotomolded polyethylene, and features for inmate comfort and officer safety, such as grab handles, seatbelts, and a secure partition between occupants and officers.

Heavy-Duty Materials:
The vehicle's construction utilizes heavy-duty materials to withstand the rigors of frequent use, varying road conditions, and the unpredictability of inmate transport.

Easy-to-Clean Surfaces:
Floors, walls, and seats are made from materials like aluminum and plastic that are easy to sanitize and clean after each transport, promoting hygiene.

Non-Slip Flooring:
The floor is designed with a non-slip surface to improve footing and prevent accidents during transit.

Prisoner Transport Vehicle Main Criteria

Prisoner transport vehicles must also prioritize safety, security, and durability, featuring compartments for different inmates and officers, reinforced construction, tamper-proof restraints and locks, internal surveillance systems with recording, and climate control.

Secure Compartmentalization:
The interior is divided into separate compartments for different prisoner groups, such as adults, juveniles, or high-risk individuals, ensuring compliance with laws and enhancing safety.

Reinforced Construction:
Floors, walls, and seating are built with durable materials like plastic, or metals to resist damage from vandalism and tampering, with tamper-proof fasteners used for long-term performance.

Secure Partitions and Restraints:
A strong, clear partition separates detainees from officers to prevent physical contact and confrontations, while restraints securely fasten detainees to their seats.

Police Pods
Prisoner Transport Vehicle

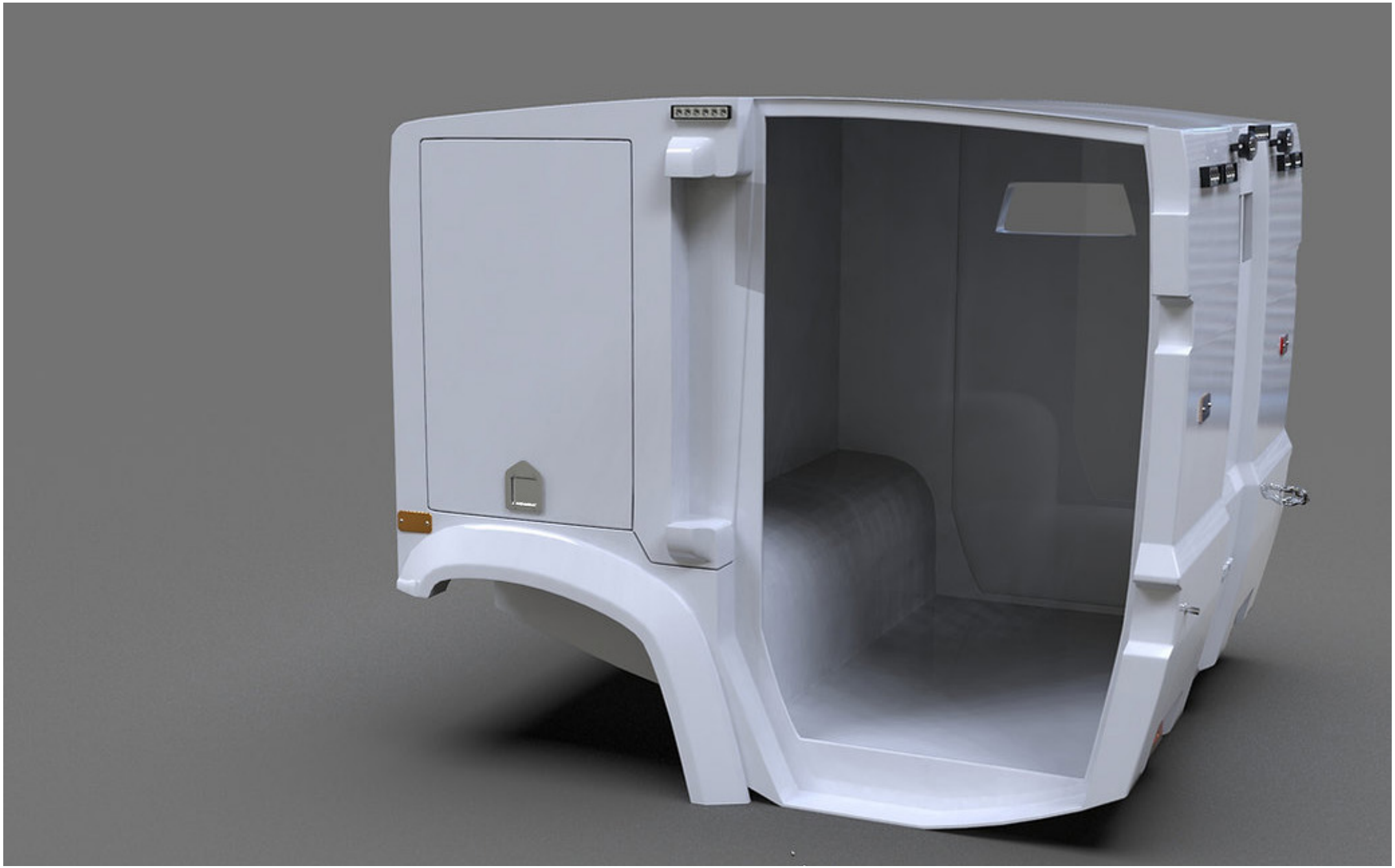
production Varley, Australia
moulding Rotadyne, Australia

Varley's Police Pods, designed to securely transport two detainees, seamlessly integrate essential equipment. These mounted units ensure safe and efficient law enforcement operations with a focus on detainee safety and equipment accessibility.
These pods seamlessly integrate essential law enforcement equipment, providing convenient and organised storage within the unit for quick access to tools necessary for efficient police operations.
Instead of producing a singular hollowed plastic piece, these vehicles use various separate pieces, which fit together around a central piece. The central piece focuses on the internal shape, whilst the remaining pieces define the exterior shape of the vehicle. This ultimately allows the optimisation of both external and internal design features. For Varley's prisoner transportation module, this constituted the use of up to 14 different rotationally moulded parts. This strategy allows for the central piece to be designed with a smooth interior which allows prisoners easy access in and out of the wagon without injury or excessive effort. Rounded corners also prevent the prisoner being accidently injured and reduces the potential for self-harm.

www.varleygroup.com

> *Varley's Police Pods are meticulously designed to optimise both safety and operational efficiency, offering law enforcement personnel a reliable and secure solution for detainee transport.*

> *Varley's Police Pods boast improved lighting all around, including red and blue lights, ensuring optimal visibility during transport.*



> *The inclusion of segregated pods allows frontline officers to flexibly separate detainees when needed, providing a customisable and secure transport solution.*

> *These police pods serve as versatile, generalised transport vehicles, providing law enforcement agencies with a flexible solution for various transportation requirements.*

> *These mounted units ensure safe and efficient law enforcement operations with a focus on detainee safety and equipment accessibility.*

credits

SoftCar, *Switzerland*
Kolkol, *South Africa*
New Holland, *Netherlands*
Terpel,, *Colombia*
Parallax Plastics,, *Great Britain*
Wm Technics, *Italy*
Zamperla, *Italy*
Viglacera Trading, *Vietnam*
Marinaquip, *New Zealand*
Interboro, *USA*
Mighty Studios, *USA*

Cover Pictures
courtesy Euro3Plast, *Italy*

Projects
Bahçesehir University, *Turkey*
Ecal, *France*
Istituto Europeo Design, *Spain*
UDK, *Germany*
Domus Academy, *Italy*
SJB-Institute of Technology, *India*
Seoul University, *South Korea*

Concept
Studio Giovanetti, *Italy*

affiliates ARMO

- AFR - Association Francophone du Rotomoulage
- ARM - Association of Rotational Molders
- ARMA - Association of Rotational Moulders Australasia
- ANIPAC - The Mexican Plastic Association
- ARMSA - Association of Rotational Moulders Southern Africa
- ARM-CE - Association of Rotational Moulders Central Europe
- StAR - Society of Asian Rotomoulders
- Nordic ARM - Nordic Association of Rotational Moulders
- BPF - Rotational Moulders Group
- IT-RO - Italia Rotazionale
- RPC-CPPIA
- Rotopol Association