RotoTrends

Exploring the potentials of rotational moulding in design

Issue 9

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.

Lighting Systems for Construction Sites

Every part of a construction site should be set up to make the most of natural daylight during working hours. This enables people to be able to see what they're doing and where they are going, improving safety.

Main rules states that where natural light is not possible, such as in winter, during overnight work, or in enclosed spaces, artificial light should be provided. This also applies to any shadowed areas, such as behind buildings, where light is limited at certain points in the day.

Artificial light is also be needed overnight, even if nobody is working on the site during these hours, as it can improve security.

Key Requirements Main Elements

Lighting systems for construction sites must be based on a series of fundamental requirements:
- Ensure a good level of visibility for the activity to be carried out
- Allow people to clearly recognize any dangerous areas
- Deciphering colours (important for information signals)
- Meet individual visibility requirements
- Allow you to move around the site safely, even in the event of an emergency

Additionally, other key elements to consider include:
- Do not cause glare or be too bright for safe visibility
- Do not create large differences in lighting levels between different areas (as this may cause the eyes to require a period of visibility adaptation)
- Do not cause dangers and allow easy access for ordinary and extraordinary maintenance.

Light Towers LTN5Y

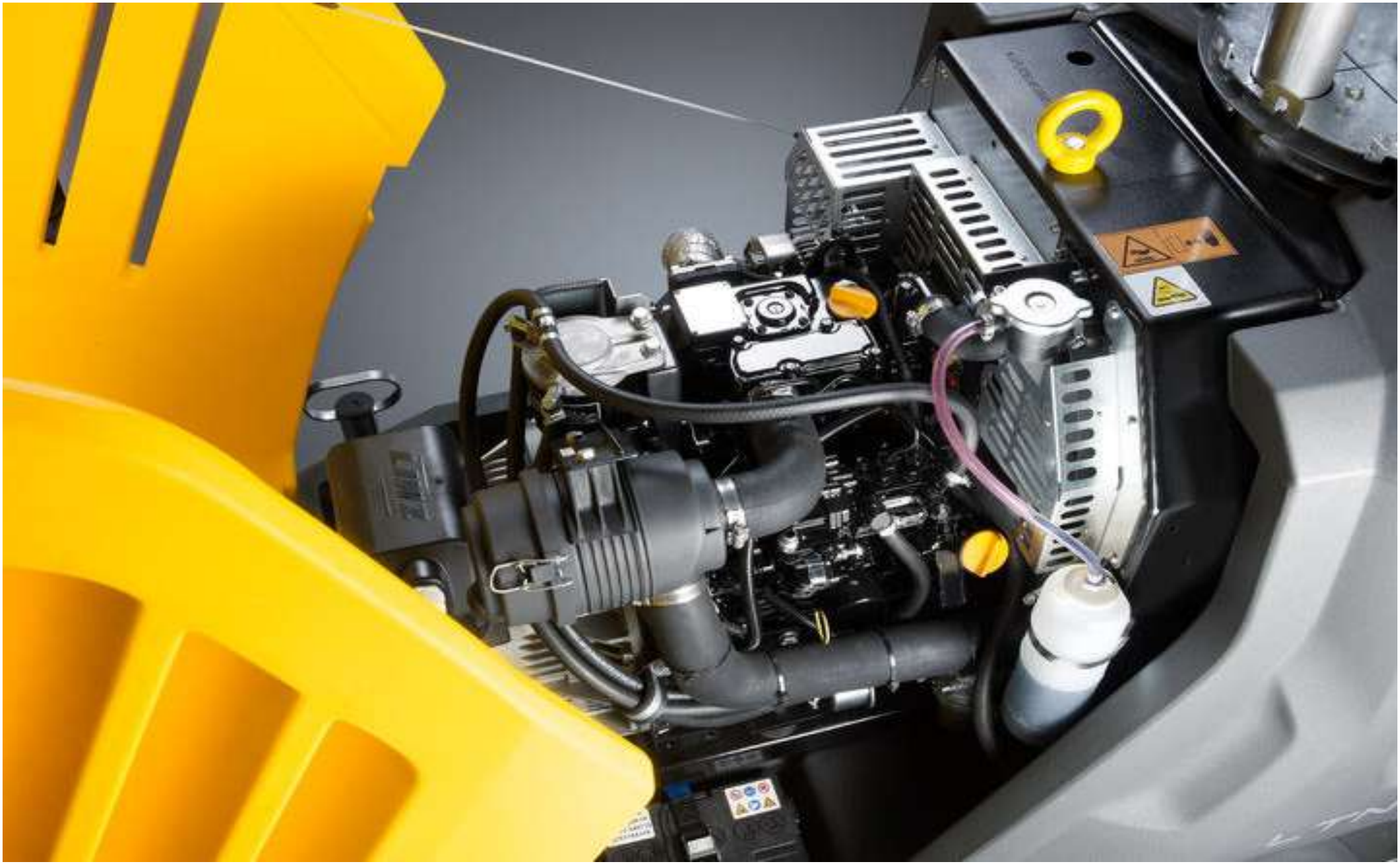
Portable, independent lighting for large construction sites

production Wacker Neuson - Germany

Thanks to its powerful LED panels, the LTN5Y Light Tower provides bright, daylight-like illumination for large areas. The tower can be easily raised and lowered automatically while the external structure of the trailer is made up of a series of rotationally moulded components.
The road-approved trailer and installed diesel generator make the LTN5Y a mobile, independent light source for illumination during road and bridge construction, concreting work, parking lots and events.
The rotomoulded HDPE structure allows the trailer to withstand the stresses to which it is subjected during use in outdoor spaces.
LED lamps are particularly energy efficient. In this way they reduce fuel consumption and guarantee a long range with a full tank.

www.wackerneuson.com

> *Integrated lifting eye provides flexibility for loading, unloading, and positioning on job-site.*



> *The weight is below 750 kg, therefore the Light Tower can be towed with a car driver's license.*

> The control panel is recessed inside the molded body. The product is equipped with wind speed detectors and ground stops.

World of Bicycles:
The Future is Sharing

Share bikes, scooters and ridesharing are not just a trend, they are the growing future of mobility. At the moment, these mobility solutions are already used by commuters, city dwellers and travelers not only to get around the city but to connect to public transport. But there is still much more adoption to do.

If we want shared mobility to become mainstream and fully integrated, we will need people to design solutions that allow people to use it much more often. To achieve this and convince people to actually give up their cars so that we can create more space in our cities, we will need to create accessible and extensive shared mobility networks that allow people to move seamlessly from home to work, commute in the city to get around. running errands and traveling.

This not only requires building bike sharing hubs in the places where they are most central, but also creating a multifunctional space that gives people options. To do this, we need to create convenience, for example by adding grocery stores to mobility hubs and providing electric cargo bikes for parents who need to transport children and groceries.

Product Design
The Frame

Rotomoulded plastic bicycle frames must be built to handle a variety of loads.
First, the frame must support itself and the other components of the bicycle. These are considered static loads. Additionally, the frame must be able to withstand the rider's weight, pedaling and braking forces, and the effects of the road surface. These are dynamic loads; they are the most problematic because, as the name suggests, they move and vary in intensity.

The most popular frame design is known as diamond or double triangle. This design has changed very little since the advent of the safety bicycle in 1880. The strength of the design comes from the triangular shapes that make up the diamond design: these shapes allow a rotomolded frame to resist the physical and mechanical stresses to which it is subjected.

Igus Bike

Mobility According to the Virtually Zero Waste Principle

production Mtrl - Netherlands

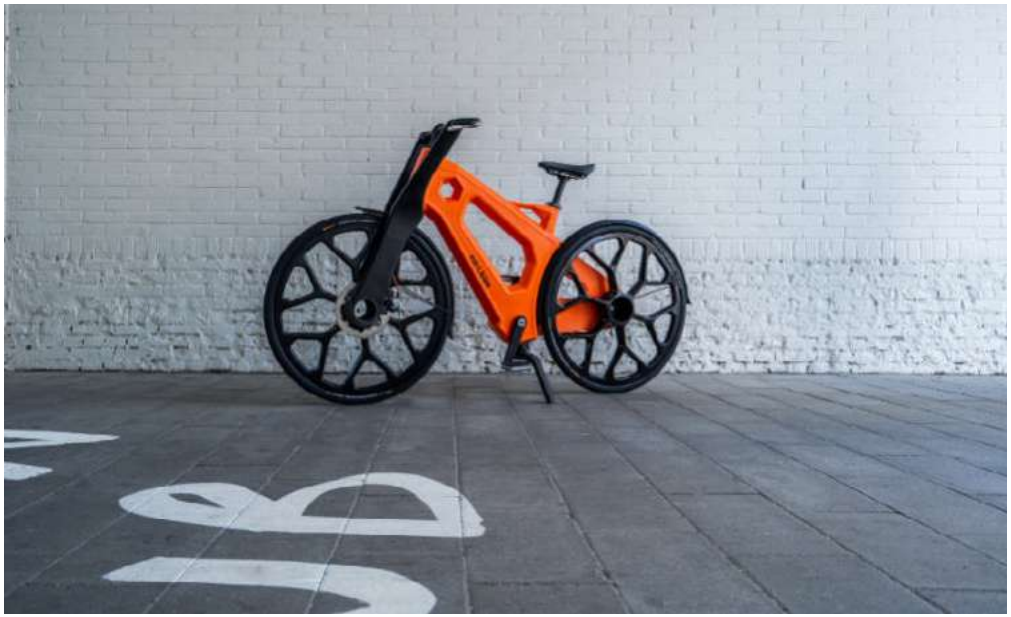
Rotomoulded using recycled polymers, the bicycle designed by Dutch company Mtrl was born as a vehicle for traveling in urban areas.
The bicycle components, almost all of which are plastic, require no lubricants, do not rust and can be recycled. The low-wear moving parts are self-lubricating, and the encapsulated belt drive is protected from environmental influences. For production, Mtrl uses specially built machines with durable, lubrication-free igus components. The structure of the bicycle is moulded in polyethylene using rotational technology.
The bike looks ecologically groundbreaking, striking in appearance and practical for everyday use in the urban environment. The ball bearings, crank, pedals and freewheel were newly developed for the innovative all-plastic planetary gear. The interplay between the colour, frame, fork and rims is style-defining.

www.mtrl.bike

> The proven Picanol concept combines two solid sideframes connected by large-section cross rails.

> When the bicycle ends its life, the plastic can be regranulated and a new bicycle can be built from it.

> The igus:bike is a collaboration project between German motion plastics company igus® and Dutch company mtrl.bike.



> The bicycle is completely free of lubrication, rust and maintenance and it can therefore be outdoors in any weather.

> The bicycle is offered in two different versions, for adults and in the smaller version for children.

Street Cleaning
Equipment

The maintenance of roads in the presence of particular climatic conditions such as heavy storms, snowfalls and windstorms represents a fundamental activity both in urban and extra-urban environments.

Increasing climate change is bringing a progressive increase in extreme weather events and, consequently, the management of connecting roads today represents a central challenge within metropolitan areas.

Very often the need is to have equipment and vehicles capable of being easily transported, capable of tackling terrain that is not in perfect condition, offering valid support to mechanically driven vehicles.

Winter Road Maintenance
Main Methodologies

Winter road operations, commonly known as snow and ice control operations, are one of the most critical functions of state, county and local transportation agencies in cold regions. These operations aim to ensure safety and mobility through the timely and effective application of materials and mechanical removal. The most common materials used are salt (sodium chloride, solid or liquid brine), de-icers based on magnesium chloride and calcium chloride, agricultural-based additives and mixtures, and abrasives.

Material application best practices are designed to apply the right type and quantity of materials in the right place at the right time.
The presence of containers for transporting the salt material or grit to be spread on the roads is of fundamental importance for carrying out correct cleaning. The rotomoulded plastic containers offer considerable resistance to atmospheric agents and, compared to similar metal products, do not rust.

Go-Box 70

Road and Garden Maintenance

production Cemo - Germany

Go-Box 70 is born from the idea of creating a useful mobile container to contain salt, grit and various materials during road and garden maintenance work.
Go-Box 70 is rotomolded in polyethylene, resistant to atmospheric agents and composed of a container with handle, a folding lid and rubber wheels.
It is 100% recyclable and is equipped with a separator accessory to divide the internal compartment.
The angled lid for water drainage, the eccentric stainless steel closure and an ergonomic and easy-to-use handle represent the key details that allow this product to be particularly useful and functional.

www.cemo-group.com

> *Locking lid for loading and unloading rotomoulded of resistant and recyclable polyethylene.*

> *Locking partition wall to divide the internal cavity into two parts.*

> *Rotomoulded angled cover for the water drain.*

Diesel Driven Portable Air Compressors

The advantages of using an air compressor are manifold. Firstly, it provides a clean and reliable source of power. Unlike other energy sources, such as hydraulic or electrical systems, compressed air does not produce harmful emissions or require complex cooling mechanisms. It is also unaffected by fluctuations in the power supply, ensuring uninterrupted operation.

Additionally, air compressors are versatile and flexible. They can be used in a wide range of industries, including manufacturing, construction, automotive, and pharmaceuticals. Air-powered tools, such as impact wrenches, nail guns, and paint sprayers, benefit from the consistent and controlled airflow provided by compressors.

Air compressors are also known for their high efficiency. They are designed to minimize energy wastage and optimize performance. Modern compressors often incorporate advanced technologies like variable speed drives and energy recovery systems, further enhancing their energy efficiency and reducing operational costs.

Main Features Key Applications

Air compressors are indispensable in many industries, offering high-pressure air, reliability, versatility and safety. Their applications range from powering tools and equipment to providing essential services in manufacturing processes. The diesel engine portable screw air compressor is widely used for quarries and mines: it offers a constant energy source to power tools like drills, hammers or other tools that are essential in the quarries and mines.

With ongoing advancements in technology, air compressors continue to evolve, delivering improved performance and meeting the ever-growing demands of diverse industries.

Hardhat Air Compressors

Small air compressors compliant with Stage V standards

production Atlas Copco, USA

The Hardhat compressor features a rotomoulded linear medium density polyethylene (PE) canopy.
The integrated generator increases efficiency on site as there is no need to roll in a generator for small power needs. In addition, these compressors are easy to lift, transport and maneuver.
None of these known and appreciated 8 series benefits have been sacrificed with the introduction of Stage V.
Atlas Copco introduced the HardHat enclosure in 2005 and has progressively evolved it to guarantee a series of high performances for its products, applying it to both compressors and light towers.
Depending on the individual application, you may need greater strength, durability or resistance. For this reason, the HardHat rotomoulded solution allows to obtain a product that is extremely more resistant to impacts and mechanical stress compared to similar products made of sheet metal.
Thanks to the use of plastic instead of metal, the HardHat canopy is corrosion-resistant, lightweight, crack-resistant, environmentally friendly and able to best meet the demanding demands of construction site use.

www.atlascopco.com

> PE protection for increased reliability and resale value, service in under an hour for increased uptime.

> *All standard models under 750 kg for easy transport without a special drivers license.*

> *Atlas Copco won the Red Dot Award in the Product Design category for the innovative HardHat canopy.*

Retail Spaces Become More Interactive

Today's consumers overwhelmingly expect a highly connected, interactive, and personalized shopping experience, which is the major reason why more and more stores are integrating touch screen retail displays in their stores. It's not just a trend too. There are tangible results from doing this that retail businesses can count on. Touch screen retail displays compel customers, garner brand loyalty, and ultimately increase revenue.

Digital kiosks enhance the overall shopping experience like few other things can. Not only are they the way of the future, they provide a slew of useful tools and features that will allow you to optimize your retail store.

User Friendly Digital Displays

Advertising in unique and creative ways is one of the main benefits of digital signage for retail. One of the fundamental criteria is that the touch screen displays positioned in a commercial space or in a public place are designed to provide a user experience that is as intuitive and easy to understand as possible, pleasant and attractive in the event that the totem functions as a terminal for selling products.

The design of interactive totems must follow criteria of maximum functionality and versatility, i.e. they must be able to function both indoors and outdoors. Rotational moulding offers the opportunity to produce components that can be customized with brands and logos.

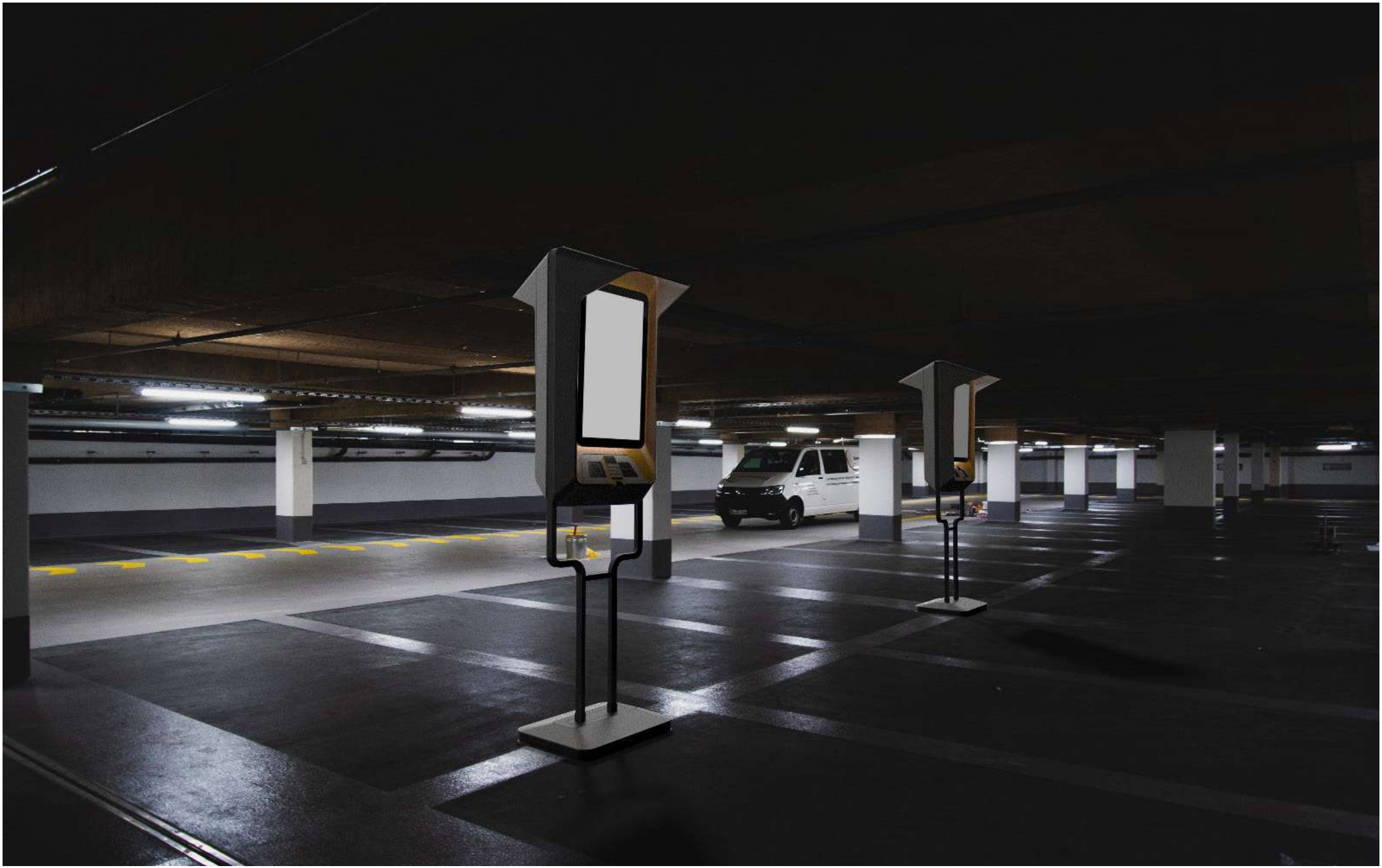
Odak

Indoor and Outdoor Totem with LCD Screen

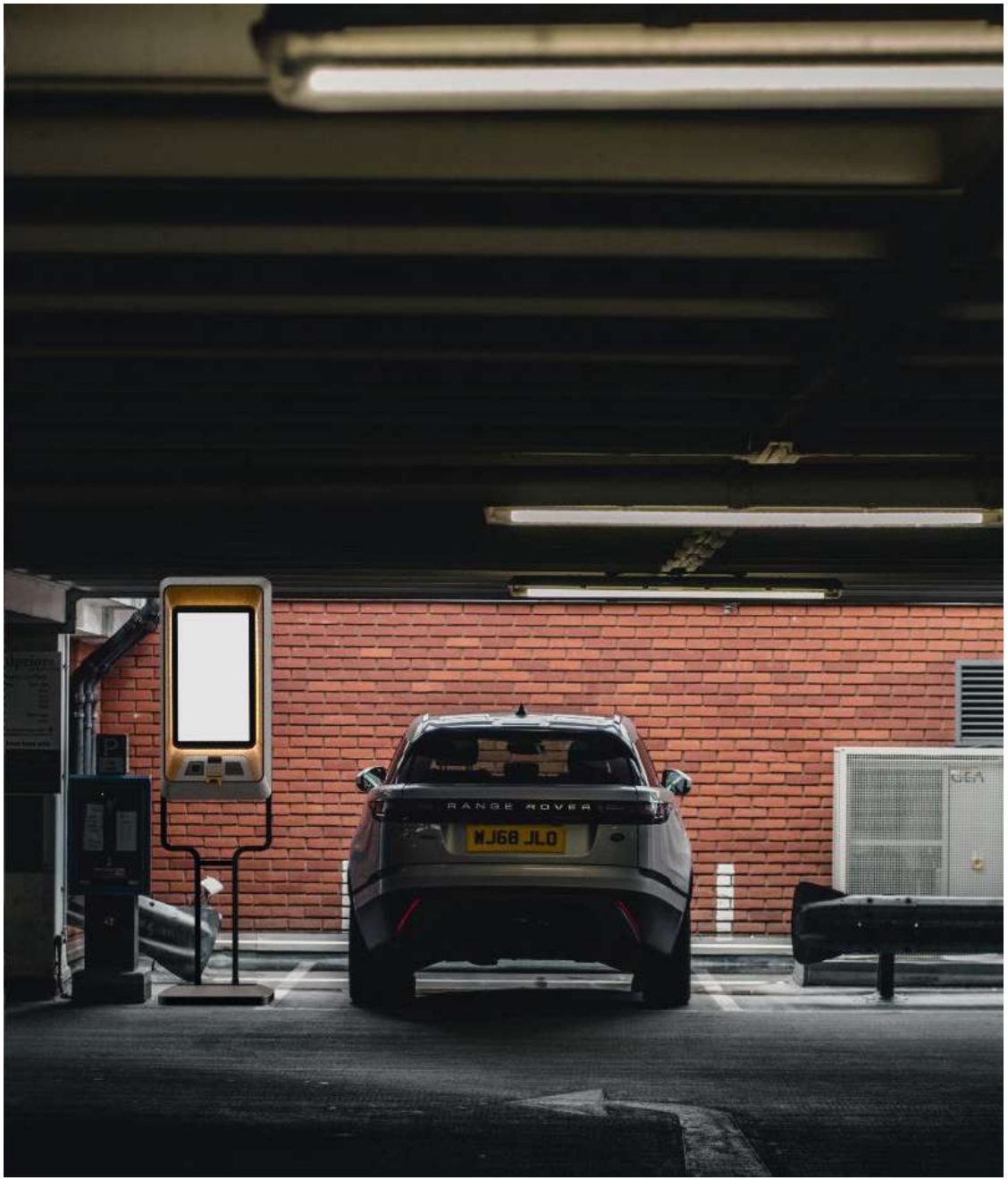
design Emre Can Çelebi, Turkey
Domus Academy, Italy

Odak represents a series of multitouch information panels designed to be positioned within a wide variety of public spaces. The metal supporting structure is completed by a rotationally moulded top with HDPE. The upper part accommodates both the interactive screen and the payment slot. It is also available in the variant with a sloping roof which facilitates use in the presence of strong sunlight or rain and features an integrated solar panel.
The flexibility of the product allows it to be used within commercial areas to be able to choose products independently. Or it can be used in restaurants as an interactive menu to select food and drinks. Finally there is the possibility of using it in outdoor spaces such as car parks for toll payment.

www.domusacademy.com



> *The outdoor version features a sloping roof with a built-in solar panel that allows the signage lighting to be recharged.*



> *The metal tubular supporting structure is designed to also accommodate additional place cards.*

> *The display with the main controls is recessed into the inclined frame which allows excellent visibility for the user.*

Wheelchair
A Key Challenge

Wheelchair designs vary greatly to take account of the diverse needs of users with design features, such as the overall length, weight, frame type and width, seat configuration, wheel and castor type, arm and footrests, axle position and propulsion mechanism, all having an influence function.

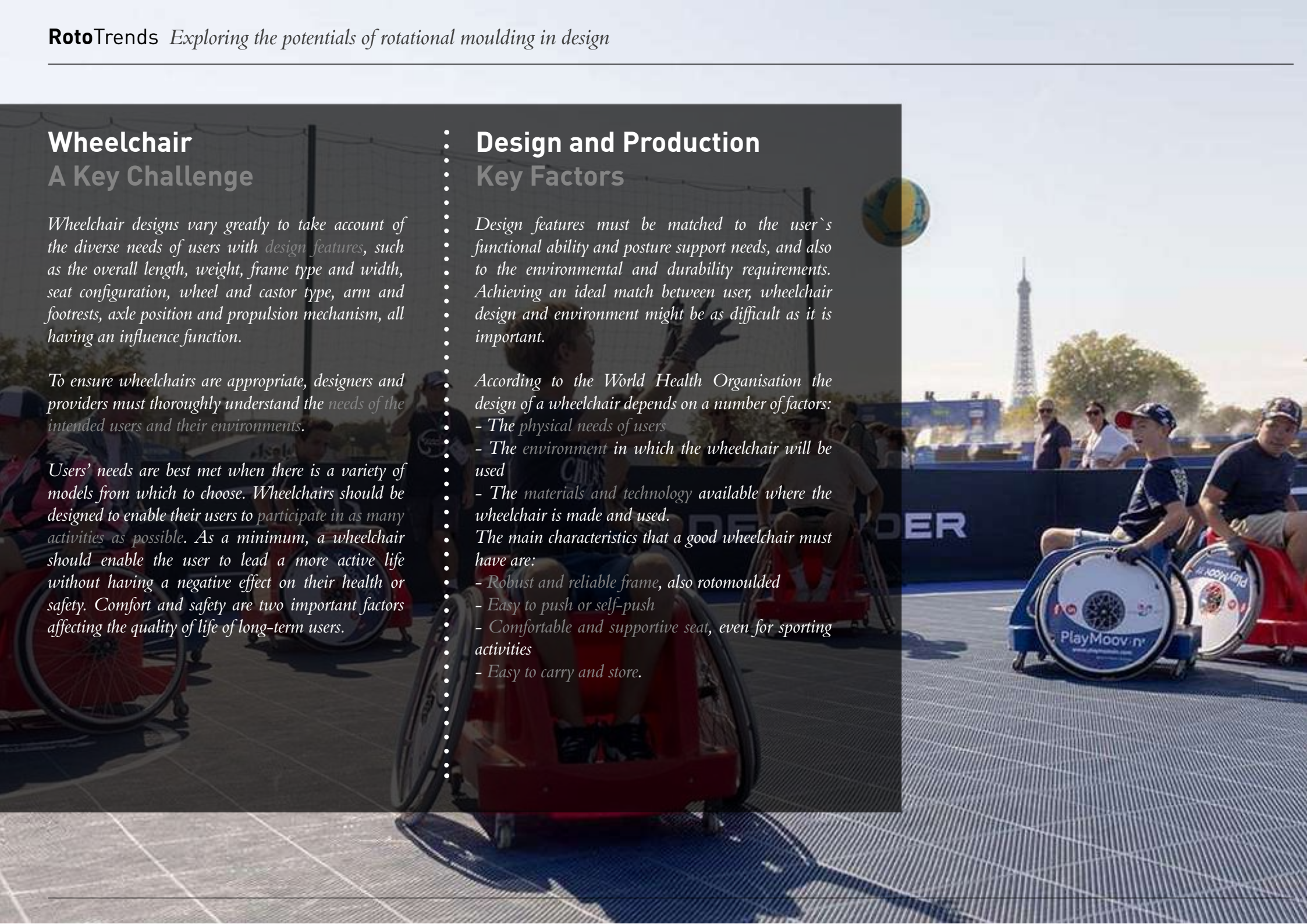
To ensure wheelchairs are appropriate, designers and providers must thoroughly understand the needs of the intended users and their environments.

Users' needs are best met when there is a variety of models from which to choose. Wheelchairs should be designed to enable their users to participate in as many activities as possible. As a minimum, a wheelchair should enable the user to lead a more active life without having a negative effect on their health or safety. Comfort and safety are two important factors affecting the quality of life of long-term users.

Design and Production
Key Factors

Design features must be matched to the user`s functional ability and posture support needs, and also to the environmental and durability requirements. Achieving an ideal match between user, wheelchair design and environment might be as difficult as it is important.

According to the World Health Organisation the design of a wheelchair depends on a number of factors:
- The physical needs of users
- The environment in which the wheelchair will be used
- The materials and technology available where the wheelchair is made and used.
The main characteristics that a good wheelchair must have are:
- Robust and reliable frame, also rotomoulded
- Easy to push or self-push
- Comfortable and supportive seat, even for sporting activities
- Easy to carry and store.



PlayMoovin' Wheelchair

Awareness and Inclusion

production PlayMoovin', France

PlayMoovin' is a new company based in the Puy-de-Dôme region, committed to the inclusion of disabled people. PlayMoovin' wants to make sports accessible to all, by " fading" discrimination at school.
In France, 240.000 children with reduced mobility are deprived of physical activity at school because of the lack of adapted equipments, the cost of a sports chair being nearly 6000 €.
To solve this problem, PlayMoovin' had the idea to create wheelchairs for able-bodied children. This allows them to play with their disabled friends on an equal footing.
PlayMoovin' wanted to make a wheelchair that was totally different from an existing wheelchair, in order to change the way people look at disability.
Thanks to the creation of a rotomoulded seat shell, they have designed a fun chair (developed by Wally Salvan, founder of wheelchair rugby) that is six times less expensive than a sports chair.
Making such hulls was a big challenge, because of the complex shape of the parts and the presence of inserts.
The development of the project lasted eight months from the first contact to the realization of the finalized parts. This is the time needed to develop such complex parts.

www.playmoovin.com

> *The KidsMoovin' can be used even by the smallest children (over 1 meter tall). This lightweight sports wheelchair is no stranger to schoolyards and leisure centers.*

> *With a seat of 38 cm, the wheelchair delights children in nursery school as well as those in primary or middle school.*

> The main goal was to make a wheelchair totally different from already exhisting products, in order to change the way people look at disability.

> The FreeMoovin' is the adult version of the PlayMoovin' multisport wheelchair. It allows the practice of a team sport such as handchair, wheelchair basketball and racket sports.

> The weelchair is available in many different colours and there is a possibility to produce customized colors for each sponsor.

Crossable Objects
for Children

Designing furniture products and toys for children represents a complex and difficult challenge. The current trend is to think of increasingly hybrid, multifunctional and flexible products, capable of being used in multiple ways.

Not rigid products that can only be used to perform a single function. Today the home increasingly represents a dynamic environment in which multiple activities coexist throughout daily life.

Design and Production
Key Factors

A properly designed children's workspace, whether at school or at home, is one of the key factors for the smooth growth and development of all important skills of young people.

Designing the furnishings for this ideal space means integrating different qualities within the individual products: first of all offering versatile solutions, which allow the child to use the products in multiple ways. Then it also means creating innovative, original solutions that stimulate the creativity of the little ones and induce them to continue a path of growth.

Candy

A storage chair for children

design Enrico Azzimonti, Italy
production Anfa Furniture, Italy

Candy is a multifunctional seat for children, whose rotomoulded structure also allows it to be used as a convenient container. Designed to stimulate creativity and sensory interactions, Candy allows children to actively participate in assembling and using the chair.
The concept arises from the observation of natural elements and their forms modeled by nature itself over time. Candy is based on a principle of conscious living that respects the environment around us and is dedicated to children, tactile language and sensory interactions. Candy is designed through combinable elements that encourage children to actively use their hands in all phases of interaction: from assembling the product's components together with their parents, to using its textile accessories or container.
The curved shape of the seat has an iconic design that allows children to play safely and stimulates their creativity. Under the removable cover, the chair is suitable as a container for small objects or toys, with a view to extreme versatility and freedom of use. The armchair is available both in the neutral polyethylene version and with the seat and back covering in removable padded fabric.

www.anfa-furniture.com

> *The container is made up of rotomoulded polyethylene parts on which the natural beech parts are assembled.*

> *The joints are designed to be easily assembled without the need for special equipment, like a toy for the child.*

> *The object can be used in multiple ways, as a seat or container, and can be placed both indoors and outdoors.*

> Backrest and seat can be padded and covered in fabric.

Evolution of Kneeboarding
Main Opportunities

Kneeboarding was invented by Southern California surfers and was first experimented on flat water surfaces as an alternative to wakeboarding, water skiing, and even barefooting. Initially, surfers would get towed by recreation boats using rudimentary bellyboards, probably when the ocean was flat and there were large bodies of water available in their areas.

The first kneeboards were produced in the 1950s, but the initial models were too avant-garde for their time, and not many people had access to wake and motorboats.
The watercraft only started traction with the Knee Ski, the kneeboard made from molded fiberglass developed and marketed in 1972 by surfer Bud Hulst and skier Mike Murphy.
One year later, a former employer of Knee Ski, John Taylor, created Glide Slide, a blow-molded plastic shell filled with foam that became a commercial hit.

Rotational moulding is increasingly proving to be the ideal technology for producing this type of board, thanks to its production flexibility combined with the final reliability of the molded piece.

Wave Riding - Water Skiing
Key Elements

There are two main disciplines in kneeboarding: wave riding (surfing) and water skiing (wake-style).

Kneeboard surfing is often considered a discipline of surfing.

The paddler rides the board in a kneeling position, in a way similar to drop-knee bodyboarding - and performs tricks in the open-face waves.

Kneeboards for waves range between five and six and a half feet.

They are wider than an average surfboard and, feature a rounded nose, a rubber pad for the knees, and are often made of polyurethane and fiberglass, similar to surfboards.

Kneeboard surfers usually wear leashes and swim fins, and they have a few advantages over their fellow surfers when it comes to getting barreled - kneeboarders need less tube area, and they can handle steeper take-offs.

Black Magic

The New Kneeboard Suitable for all Ages.

production O'Brien, USA

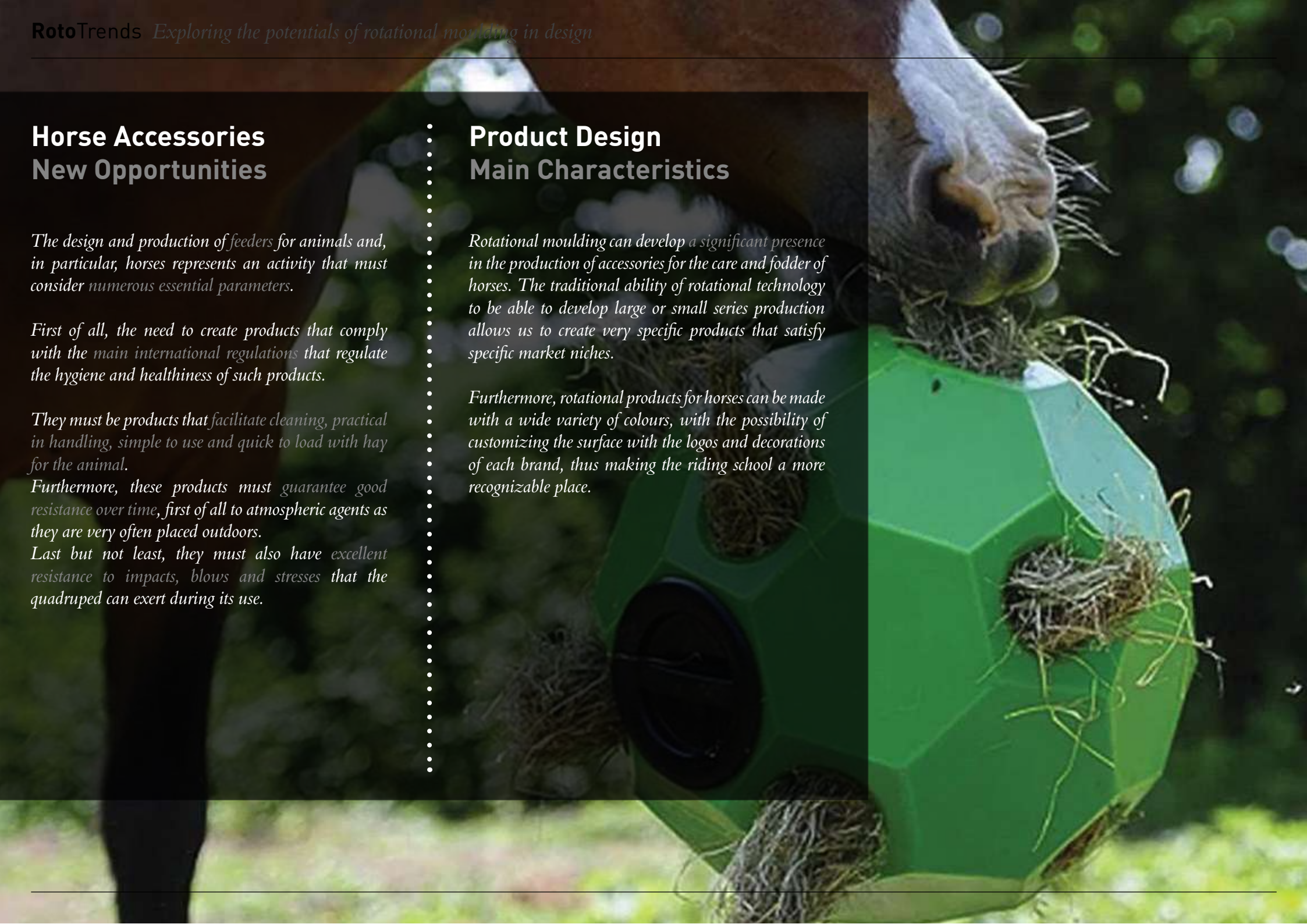
Kneeboarding is a water sport that combines the characteristics of surfing, water skiing and wakeboarding.
Kneeboarding was invented by Southern California surfers as an alternative to wakeboarding and water skiing, and is practiced on flat water surfaces.
The innovative cable-operated retractable fin system and Aquatic Hook make the Black Magic the perfect board for successfully teaching children and beginners the finer points of deep water starts. Its size fits well for both adults and children, and its soft bottom contour offers a super stable and extremely comfortable ride for everyone.
The board, produced through rotational molding, is completed with EVA padding. It is also completed with an integrated aquatic hook which facilitates user stability.

www.obrien.com

> *Combining a beveled edge with cupped, this board delivers good stability to build the rider's confidence.*

> *To further assist in the learning process, it features an Aquatic Hook to simplify deep-water starts and eliminate any frustration in learning to get up.*

> *Quad-moulded fins on each corner provide extra tracking and the curved bottom allows for quick, smooth edge transitions.*



Horse Accessories
New Opportunities

The design and production of feeders for animals and, in particular, horses represents an activity that must consider numerous essential parameters.

First of all, the need to create products that comply with the main international regulations that regulate the hygiene and healthiness of such products.

They must be products that facilitate cleaning, practical in handling, simple to use and quick to load with hay for the animal.
Furthermore, these products must guarantee good resistance over time, first of all to atmospheric agents as they are very often placed outdoors.
Last but not least, they must also have excellent resistance to impacts, blows and stresses that the quadruped can exert during its use.

Product Design
Main Characteristics

Rotational moulding can develop a significant presence in the production of accessories for the care and fodder of horses. The traditional ability of rotational technology to be able to develop large or small series production allows us to create very specific products that satisfy specific market niches.

Furthermore, rotational products for horses can be made with a wide variety of colours, with the possibility of customizing the surface with the logos and decorations of each brand, thus making the riding school a more recognizable place.

Hay Play

The Original Spherical-shaped Slow Forage Feeder

production Parallax Plastics, Great Britain

The Hay Play is the original spherical shaped slow forage feeder, its unique design has thirty two flat faces that enable the feeder to roll around as the horse grazes from it. The movement of the hay play challenges and entertains the horse and offers all the benefits of slow feeding without the need for additional treats or feed. The feeder is made through rotational moulding in a single piece completed with a screw cap: its particular shape makes it resistant to impacts and stresses that the horse can apply. By unscrewing the cap it is possible to insert the hay into the internal cavity.

www.parallaxplastics.co.uk

> *Its unique design has thirty-two flat faces that enable the feeder to roll around as the horse grazes from it.*

> *The movement of the hay play challenges and entertains the horse and offers all the benefits of slow feeding without the need for additional treats or feed.*

> *Single-piece construction makes it incredibly strong and durable.*

Manual Harvesting
The work for a great wine

The first stage of the grape harvest involves picking the bunches of grapes. This step can either be done manually or using a grape harvesting machine that shakes the vine to make the bunches fall more quickly.

For a quality wine, manual harvesting of the grapes is undoubtedly the better option. The farmer carefully selects the bunches of grapes from among those free from mould or defects, and cuts them with special scissors, stripping them of their leaves.

The best bunches are placed in baskets and then emptied into larger crates for the next stage of the harvest.

The grape harvest has three distinct phases: harvesting, crushing, fermentation and the final stages of vinification.

Key Factors
Main Parameters

The grape harvest can be carried out both manually and mechanically. Despite being slower and requiring more manpower, manual harvesting still retains its validity.

In fact, harvesting machines work by "shaking": they move the vines to cause the grapes to detach. Mechanical harvesting is a much more aggressive process than manual harvesting, and this has consequences: the must leaks from the grapes and is exposed to oxidative phenomena, favoring fungi that could give organoleptic defects to the wine in the subsequent phases.

The choice of whether or not to use the grape harvester also depends on the shape of the vineyard itself.
In fact in many vineyards is not possible to use these machines.

Brenta

Basket for collecting grapes during the harvest

production Roto Slovenija, Slovenia

Brenta is a family of containers for the manual harvesting of grape bunches during the harvest period. The rotomoulded basket adapts to the ergonomic shape of the back. Furthermore, the two wide side straps allow you to wear the container and move it. The large curved edge gives rigidity and resistance to the mechanical stresses to which the container is subjected. It is available in both adult and children's sizes.

www.shop-roto.eu

> *The rotomoulded basket has a wide edge designed to facilitate gripping during emptying operations of the harvested bunches.*

> *The container is equipped with side straps that can be adjusted in length to adapt to all body types.*

Professional Booster
A New Design Concept

Professional boosters represent a device of fundamental importance in many workplaces. One of the key elements of these devices lies in the possibility of being easily transported from one place to another. The maneuverability of a booster depends on its shape and, in particular, on the presence of wheels that facilitate sliding on certain terrains, whether paved, asphalted or simply natural.

Professional boosters are designed to concentrate both the central body and the accessories necessary to connect the parts in a small space: they are often used even in the presence of extreme climatic conditions and therefore require a structure that is extremely resistant to all temperatures

Key Factors
Goals

Rotational moulding allows to resolve the main performance needs of these products and produce industrial solutions that combine aesthetics and functionality, in a perfect balance.

The possibility of customizing the rotomoulded surface with stickers and logos allows you to develop customized graphic solutions to characterize each product and differentiate one model from another.

Booster PPS 1224

Mobile Booster

production Kunzer, Germany

The PPS 1224 wheeled model delivers 2640CA at 24V and is suitable for heavy and repeated use by industrial body shops, the rescue fleet and large transport companies, on cars and vans of any engine capacity and on industrial vehicles with completely discharged batteries. even in cold temperature conditions
The booster has a structure composed of a rotationally moulded body and equipped with a large upper handle that facilitates gripping and moving. This booster features flat freewheels making it the perfect tool for workshops, depots and car parks. The wheels provide easy mobility on the most difficult terrain.
The Propulstation® system allows you to obtain an optimal charge and avoids irreversible sulfation of the internal parts of the battery extending the life of the unit. With the Propulstation® system there is a LED signal that indicates the voltage to select on the booster. Reduces the risk of misuse when using a 12/24V booster. In case of misuse any gas concentration is evacuated.

www.kunzer.de

> *The particular shape of the rotomoulded handle allows you to position the cables for the electrical connections.*

credits

Wacker Neuson, *Germany*
Mtrl, *Netherlands*
Cemo, *Germany*
Atlas Copco, *USA*
PlayMovin', *France*
Anfa Furniture, *Italy*
O'Brien, *USA*
Parallax Plastics, *Great Britain*
Roto Slovenja, *Slovenia*
Kunzer, *Germany*

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