



SPG Pre-Series Tooling & Prototyping

Shaping the world of tomorrow

Lighting & Optics





ARRK
SPG Pre-Series Tooling & Prototyping

3

Driven by experience, motivated by your ideas

Successful product development relies on effective testing and prototyping. At ARRK SPG, we support your team with precise prototype and low-volume parts including the needed expertise throughout the entire development cycle.



ARRK Corporation

ARRK Corporation is a global company that provides product development support services.

Since its founding in Japan in 1948, and the support of Mitsui Chemicals as a mother company since 2018, ARRK has a strong focus on product development in the field of automotive, design, and other industries.

With their main activities including product planning, design, engineering, prototyping and low volume production ARRK facilitates every step of the production cycle.

3000+ Employees

14 ARRK companies worldwide

3 Continents



ARRK SPG

ARRK SPG Pre-Series Tooling and Prototyping B.V. is an intermediary link between the customer and the supplier.

We offer proactive project management and product sourcing in every step of the product development cycle.



In post-war **Osaka, Mr. Araki** established the Osaka Design Model Center, laying the foundation for what would become the ARRK Corporation.

The core mission was to transform abstract designs and ideas into tangible, working models.



FOUNDATION ARRK
Japan

1948



Began international expansion with the establishment of Model Maker Associates (now ARRK North America) in the U.S. (1984) and Model Makers Associate Ltd (ARRK PDG U.K.) in the UK (1988), later **ARRK Europe Ltd.**

ARRK EUROPE
United Kingdom

1988

SPG Pre-Series Tooling & Prototyping B.V. is established and begins injection molding for pre-series production of automotive parts.

Prior to this period, it was part of the SPG Group, owned by Kroymans. The company was previously known as SPG-Kroymans & SPG Project Management B.V.



START OF SPG
Netherlands

2001



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SPG JOINS ARRK CORPORATION

2006

ARRK SPG Pre-Series Tooling & Prototyping B.V. has relocates to Weert.

This move was driven by a requirement for more space for storage and assembly, combined with a desire for a more strategic geographical location.



ARRK SPG MOVES TO WEERT

2007

How it began

Building on a rich heritage of craftsmanship and prototyping that spans over seven decades, ARRK is continuously pushing the boundaries of innovation globally. We are driven by our mission!

Shaping the world of tomorrow

ready to realize our partners' most complex and creative product ideas for the future.

2018

ARRK SPG MOVES TO NEDERWEERT



ARRK SPG Pre-Series Tooling & Prototyping B.V.

enjoying the benefits of the larger building, which has been tailored to our needs.

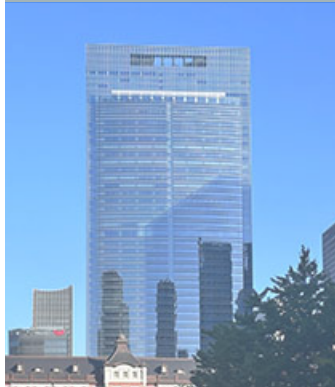
This includes the customer meeting rooms, showroom, administration offices, as well as an improved factory layout.

2020

ARRK AFFILIATES TO MITSUI CHEMICALS

ARRK is part of the Japanese **Mitsui Chemicals Group** since 2020.

ARRK draws on that wide materials expertise of Mitsui Chemicals by using its wide range of product and material technologies in engineering, prototyping and production.



2021

INTEGRATION INTO ARRK ENGINEERING



ARRK Engineering is a globally active development partner for the automotive and mobility industry.

Headquarter is located in Munich, throughout Germany there are four more offices based. At international level, we benefit from our subsidiaries in China and Romania as well as locations in Malaysia, Spain, Japan and in the US.

2023

ARRK VISIBILITY SOLUTIONS

ARRK Visibility Solutions brings full package visibility to the mobility market with dedicated project management and strong capabilities in development and low volume production. ARRK Visibility Solutions enables you to see and be seen.



Why ARRK SPG?



Professionality



Entrepreneurship



Passionate



**Solution & oriented
thinking**

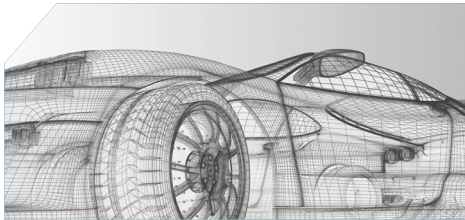


**Maximum service,
keeping promises**



**Look and think beyond
customer demand**

Technical Excellence, Seamless Supply



1. Engineering



2. Rapid Prototyping



3. Raw Materials



4. Toolmaking



10. Logistics



5. Parts Production



9. Warehousing



8. Quality Control



7. Assembly



6. Finishing

Project Management

We take care of the supply chain, so you don't have to.

Motivated to fulfill

Together with our valued partners in our supply chain, we can manage any project from A to Z. First, we map all of our customer's wishes. Next, we plan, arrange and oversee the execution and deliver the final product. This way, ARRK SPG can offer complete fulfilment, or surpass expectations.

Supply Chain & Logistics

- Sense of ownership & pro-active approach
- Strong and frequent communication
- Planning & EDI
- Packaging & RFID-Labeling
- Warehousing & Logistics

Quality Control

Finally, we execute various quality checks to make sure the products we deliver meet the highest standards.

- Parts measurement 3D CMM, tactile or digital scanning
- Process FMEA and control plan
- PPAP / EMPB & IMDS registration

Certificates

- ISO9001:2015
- ISO14001:2015
- ISO27001:2017
- TISAX-Label



Finishing

Using various finishing techniques, we ensure your prototype is of the highest possible quality.

Make it unique

In order to truly assess a product's aesthetics in the early stages of product development, it is absolutely worthwhile to build a prototype with a high-quality finish. Using various finishing techniques, we can match or surpass the quality standards of the final product.

Surface treatment and decoration

- Painting: texture painting & HSP diffuse painting
- Laser texturing (femtosecond) and laser etching
- Metallization (translucent) and PVD-coating
- Matt translucent silkscreen printing
- And many more...

Assembly

Regardless of its complexity, we can assemble various parts into a complete product.

Ready to install

Besides the production of single parts, we can also take care of the assembly of an integrated module or even a full product. We are especially skilled in:

- Complex assemblies with multiple options, e.g. bumper facias and door panels
- Functional lighting modules including PCB's



Our Technologies

Prototyping & Low-Volume Production

Tailored solutions from individual components to full assemblies, up to 2,000 units.

CNC-machining

- Optical materials like PMMA, PC, Zeonex, etc. including engineering plastics
- Metals including aluminium for heatsinks and reflectors
- Milling radius from R0.5 up to R0.05 for optics
- Unique diamond polishing technology for small optics
- Femtosecond laser engraving of free-form microstructures, micro-optics or textures
- ARRK Fasttool technology for milled parts in series materials (e.g. milky, smokey)
- SPDT (Single Point Diamond Turning) and Diamond Machining Technology

PU-vacuum casting

- Including 2-/3-shot casting
- Standardized colours for (semi-)translucent materials
- Reflex patterns can be included
- Silicone tools based on CNC-machined masters for excellent surface quality, highest accuracy and optimum dimensional stability
- Acomon RAVolution™ PU optical clear material resistant to UV yellowing
- PU Back molding of polymer foils include in-mold structural electronics IMSE ®

ARRK global 3D-Rapid Prototyping

- SLS Selective Laser Sintering
- SLA Stereolithography
- Polyjet (Objet)
- DMLS / SLM Metal Sintering
- DLP Technology
- FFF/FDM – Printing (Fused Filament Fabrication)



Optical silicone casting

- Optical silicone parts with DOW materials by using steel prototype tooling

Injection moulding

- Using aluminium moulds at ARRK SPG as well as rapid steel non-export moulds operated from our ARRK Far-East facilities
- PRE-TENSION Tool® for large mouldings
- In-Mould-Decoration (IMD) & IML/FIM with printing electronics
- Including 2-/3-shot overmoulding, gas injection (GID) and Sequential Valve Gating (SQV)
- Expandable polypropylene EPP & PUR-Foaming

Light-weight solutions

- MuCell® and Chemical foaming
- CRFP composite solutions
- Thermoplastic-prepreg overmoulding include Mitsui Tafnex™ CF-PP UD Tapes
- D-LFT Direct Long Fiber Thermoplastic moulding

Sustainable solutions

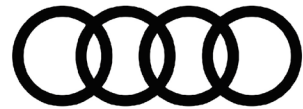
- Using high-flow PP compounds from Mitsui Chemicals
- Using PCR and bio-based material & additives

Other solutions

- Compression Moulding (Rubber) & Liquid Silicone Rubber (LSR)
- Blow moulding
- Thermoforming
- ThermoShaping®
- Aluminium Sand Casting & High Pressure Die-Casting (HPDC)
- Extrusion (Aluminium, plastics, TPE and EPDM)
- Sheet metal (Stamping, deep drawing and pressing)



Our clients





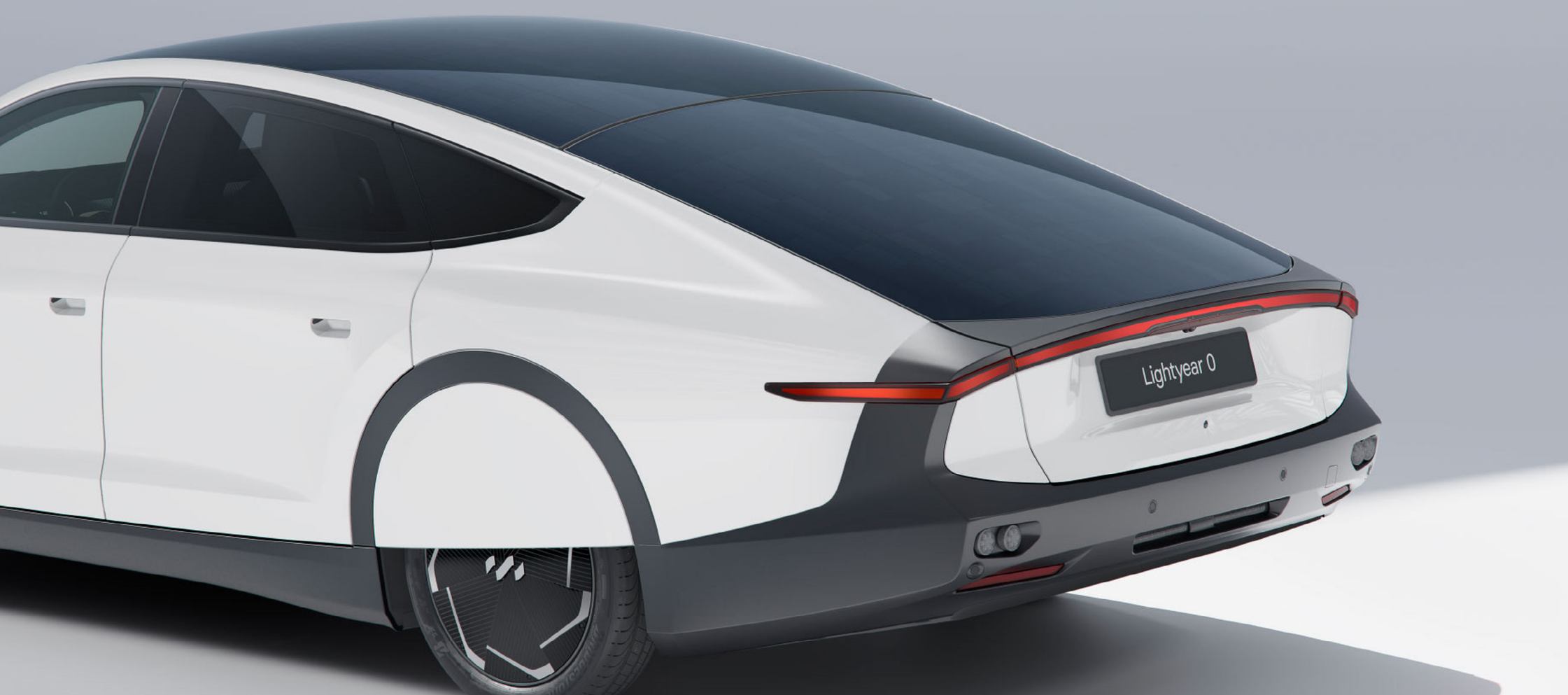
"I would like to thank you for the perfect cooperation and quality of parts from your company. We are very satisfy with your kindly communication and perfect support for all projects, because the effort is excellent and you are able to gives us the best information about technologies and possible production method of separately parts for projects, which are becomes still more complicated! ARRK SPG is a very reliable and flexible partner for us."



“Recently, DAF introduced a new generation of trucks to which ARRK SPG collaborated in the design and styling phase. We really appreciated your cooperation from the beginning in realizing all deadlines and getting the styling models ready for management presentations on time with excellent quality. The prototypes helped us to make the right choices along the way. A personal highlight for me was the fact that the headlight was already operational in the early prototype phase of the project. That helped us to implement LED lighting on the entire vehicle, which is an important step towards a sustainable future.”



“ARRK SPG delivers rapidly and with a consistent quality. We rely on the fast response time of the ARRK SPG team to provide first prototypes of plastic optical systems. The quality and delivery time always meets our demands. Our flagship lamp XP30R was first built with lenses made by ARRK SPG to successfully prove out the concept - thank you!”



Lightyear

“ARRK SPG has guided us as a reliable and knowledgeable manufacturing partner from the first concept to the start of small-scale production of the Lightyear 0 rear lighting system. Their experience, knowledge and craftsmanship have made a major contribution to our development process.”



“During the early design stages of the Gazelle N01, ARRK SPG proved to be a reliable and knowledgeable partner. Their strong alignment with our Dutch heritage and way of working helped lay a solid foundation for this innovative bicycle lighting concept.”



ENGINEERING

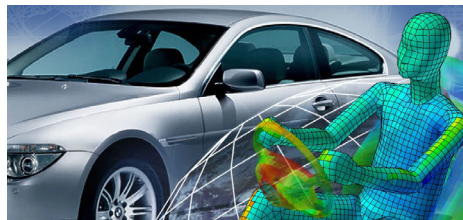
Your specialist for forward-looking automotive development

ARRK Engineering's range of services pools skills from different thematic fields in order to achieve the best possible production results as well as consistent quality of manufactured components. Teams of experts work with certain key issues in mind to find interdisciplinary ways of realizing projects faster and in a more technically comprehensive manner.

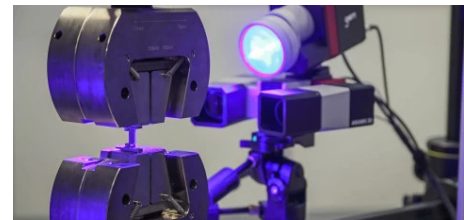
Interdisciplinary Topics



Electronics & Software



CAE & Simulation



Material



Acoustics



Composite



Digitalization & Software

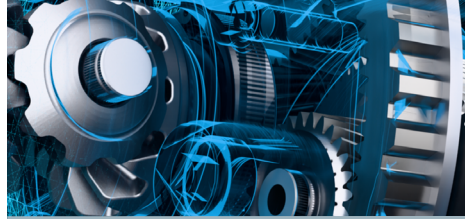


Sustainability Management

Modules



Car Body & High Voltage Battery



Powertrain



Chassis



Interior & Exterior



Optical Systems

Entire Vehicle Systems



Automated Driving



Passive Safety



Thermal Management

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VISIBILITY SOLUTIONS

Small Series Tier-1 Lighting supplier

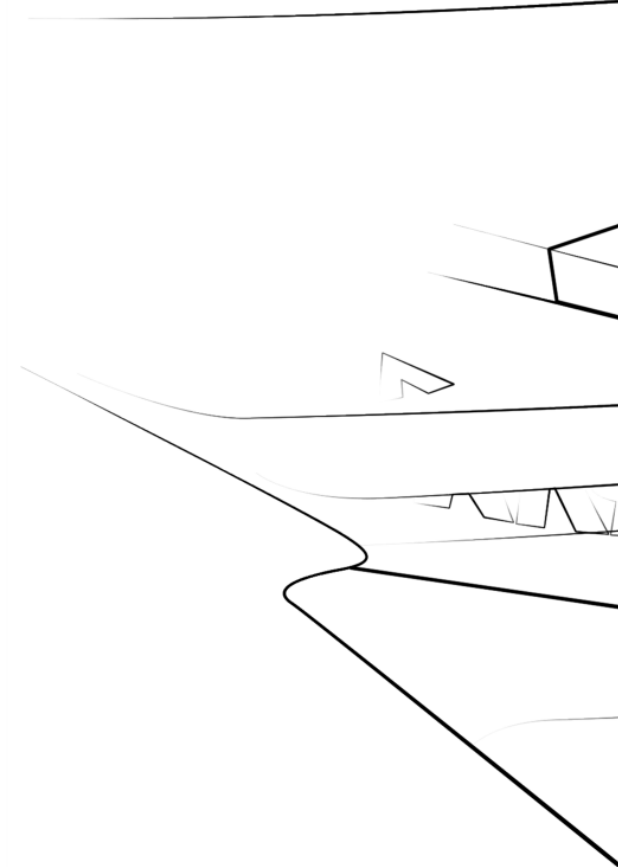
Through Visibility Solutions, ARRK serves the Mobility Market as a Tier-1 Lighting Supplier. OEMs are directly supported on the design, development, and manufacturing of (customized) lighting systems - from concept to retirement.

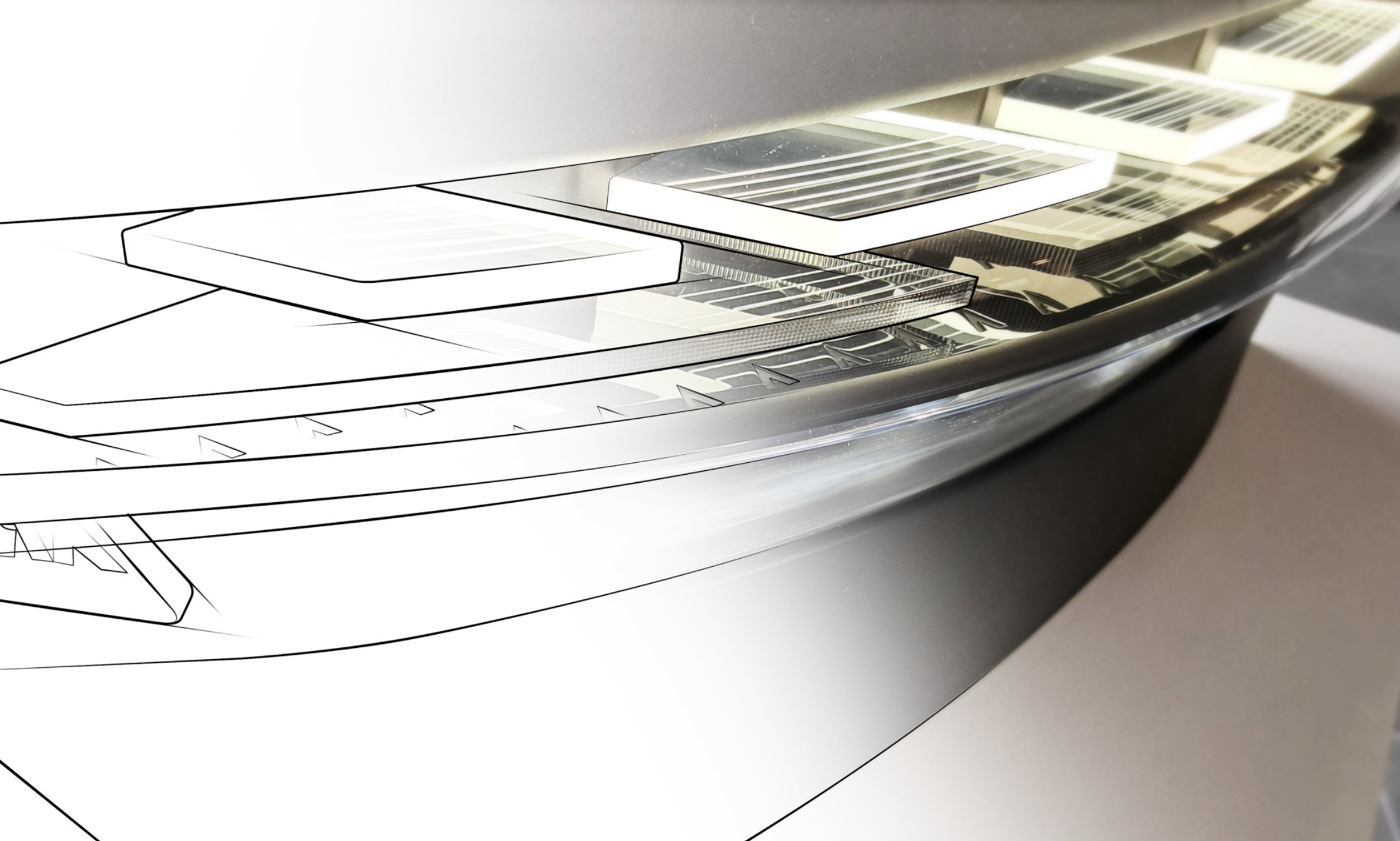
Our focus is on Small Series programs, where our approach is built on flexibility, agility, and commitment to close collaboration, ensuring a high service level for our customers.

We serve the entire Mobility Market, from bespoke vehicle series and hypercars to people movers, delivering tailored lighting solutions for diverse applications.

Although located in Europe (Netherlands), we operate globally, leveraging the capabilities and capacity of the ARRK Group and its supply base.

Our approach is guided by our extensive experience in the Automotive Market, Lighting Development and Manufacturing and our core values.





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