



## FORD MOTOR COMPANY

2022 WINNER  
SUSTAINABLE PRODUCT

### 2022 F-150 Lightning

The 2022 Ford F-150 Lightning with an extended range battery delivers up to 580 horsepower and 775 lb.-ft. of torque – the most torque of any F-150 ever – as well as a high-tech front trunk and the ability to power your home if needed. The F-150 Lightning is powered by dual in-board motors with up to 320 miles of range on select models and is built on an all-new steel frame that supports a maximum 2,235-pound payload and up to 10,000-pounds of towing capacity.

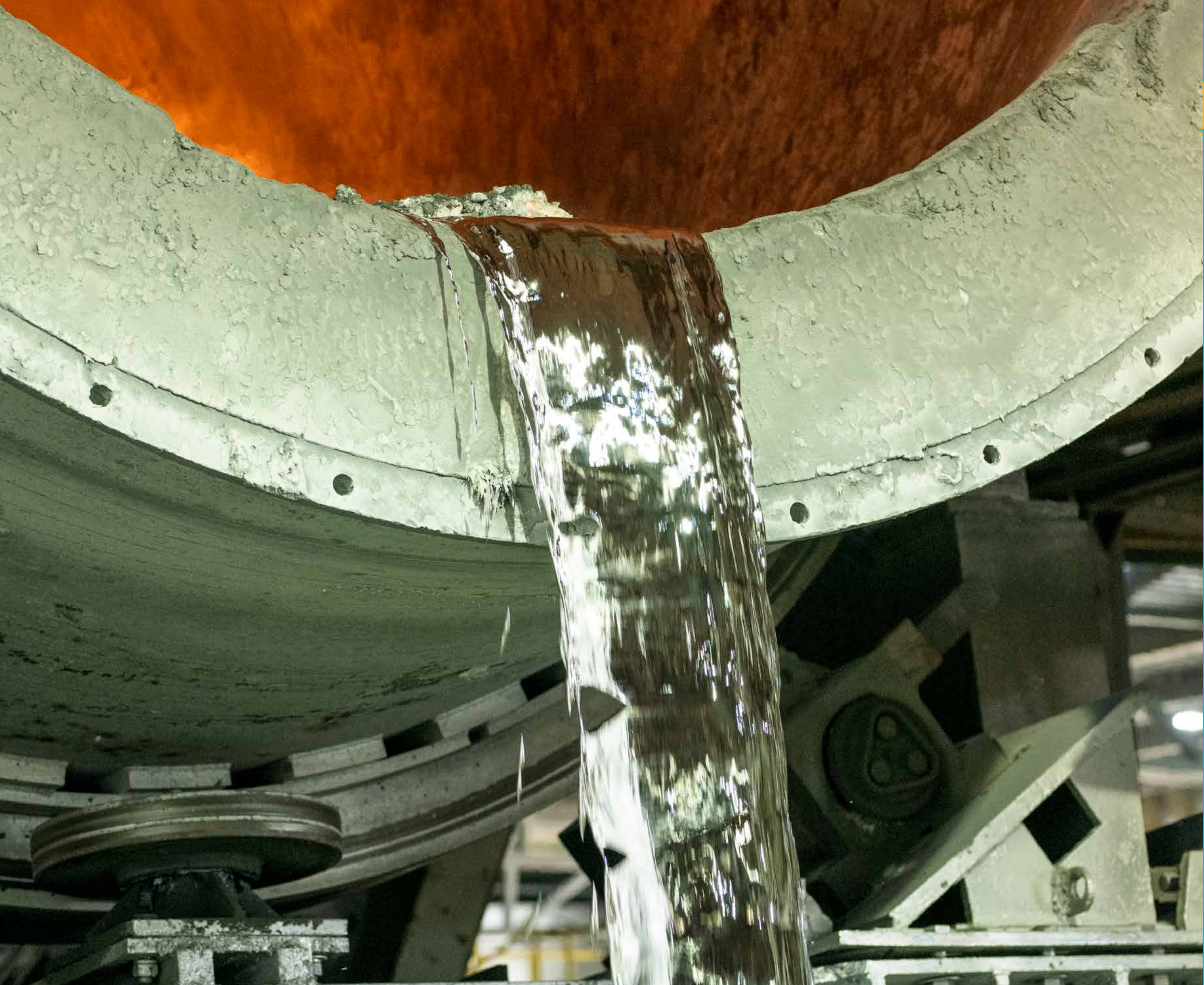


## LACKS ENTERPRISES

### 2022 RUNNER-UP SUSTAINABLE PRODUCT

#### Composite Wheel Technology

Lacks Enterprises' innovative, weight-saving composite wheel technology is recognized in a joint Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) report titled "Midterm Evaluation of Light-duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy (CAFE) standards for Model Years 2022-2025." The patented wheel design allows for multiple finishes and designs on the same wheel backbone offering increased trim level differentiation, while saving costs and optimizing aerodynamics and fuel efficiency.

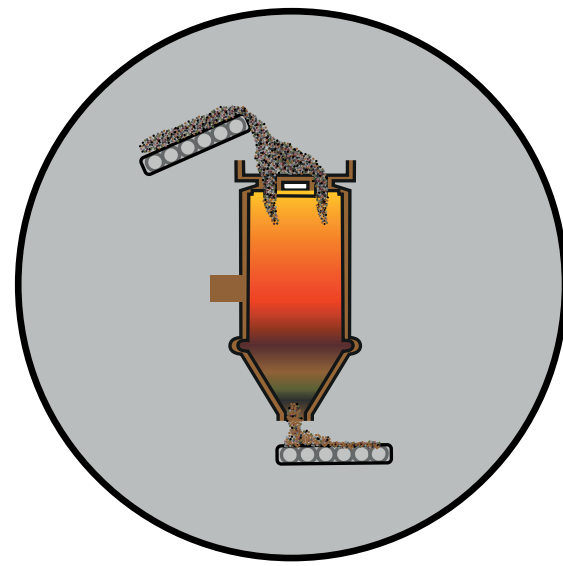


## NEMAK

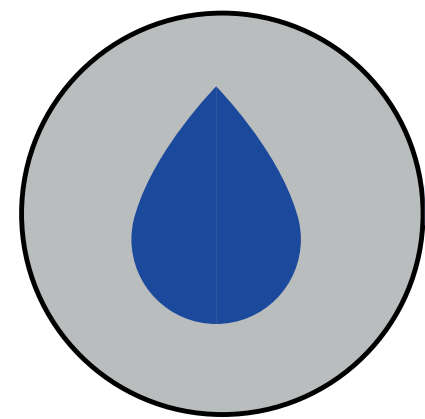
2022 WINNER  
SUSTAINABLE PROCESS

### Recycled Materials for Sustainable Manufacturing and Product

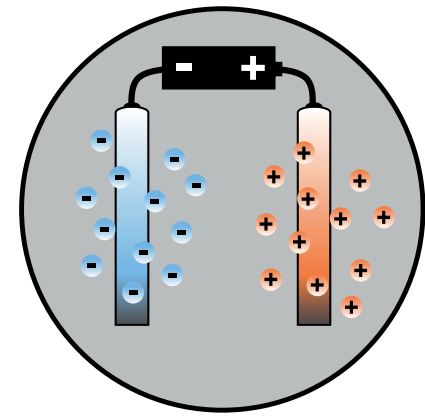
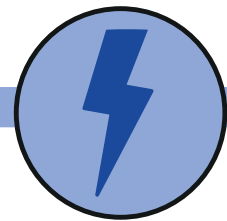
Nemak's Melting Center specializes in the production of aluminum-silicon alloys for the automotive industry. Recycling 2.5 billion aluminum cans per year, Nemak contributes to a more sustainable manufacturing. With a recycling capacity of more than 400k tons per year, the process decreases the amount of energy needed to extract primary aluminum by 95%, thus eliminating 4.8 million tons of carbon dioxide per year.



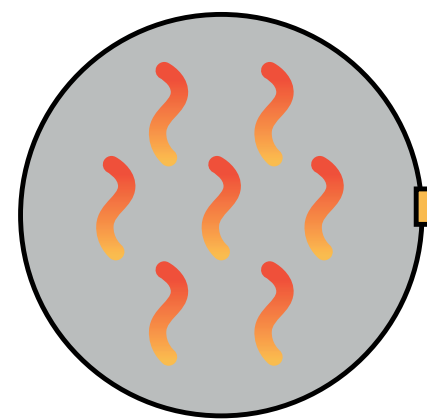
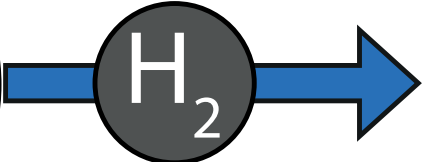
# Hydrogen DRI H<sub>2</sub> use for DRI production



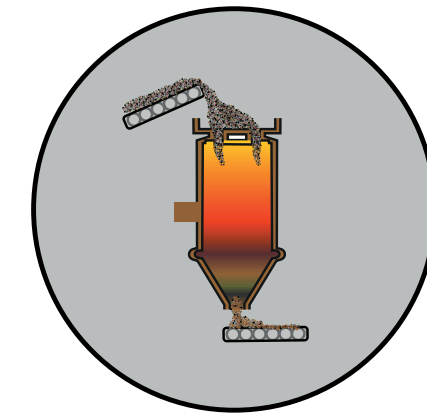
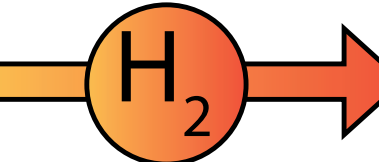
Clean  
électricité



Water  
electrolysis



Heating



DRI

## ARCELORMITTAL

2022 RUNNER-UP  
SUSTAINABLE PROCESS

### First Industrial Large Scale Hydrogen Direct Reduced Iron Test (H<sub>2</sub> DRI Test)

ArcelorMittal has launched the first large-scale green trial of hydrogen-based injection in a DRI plant. Through a \$10 billion investment plan, this milestone will propel the future large-scale supply of green steel to automotive original equipment manufacturers.



## FORD MOTOR COMPANY

2022 WINNER  
SUSTAINABLE MATERIAL

### 100% Post-Consumer Recycled (PCR) Ocean Plastic Wiring Harness Clips (PA6)

Ford has implemented an industry-first application of 100% PCR ocean plastic into vehicle parts. The material composition of these parts is collected by workers from plastic waste in the Indian Ocean and the Arabian Sea, promoting healthier marine life, reducing landfill waste and energy use, and providing jobs. aerodynamics and fuel efficiency.



## NUCOR CORPORATION

2022 RUNNER-UP  
SUSTAINABLE MATERIAL

### Econiq™, the World's First Net Zero Carbon Steel at Scale

As the world's first net-zero steel produced at scale, Nucor Corporation is pioneering the reduction of a vehicle's carbon footprint without changing the design or grade selection. Econiq is available to all automotive companies today, has a very high percentage of recycled content, and is the only net-zero steel produced at scale in North America.

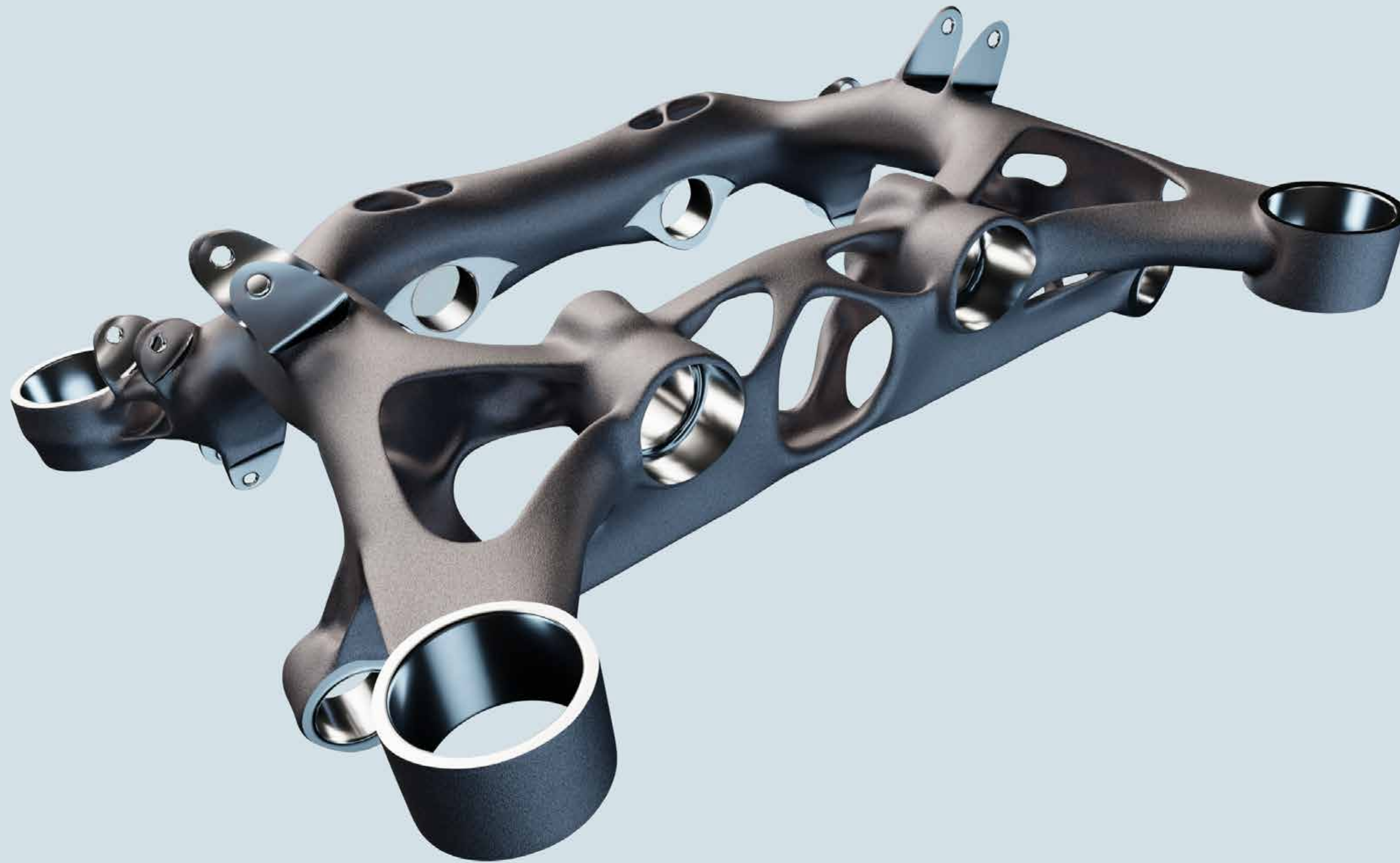


## SHILOH INDUSTRIES AND GENERAL MOTORS

2022 WINNER  
ENABLING TECHNOLOGY

### ShilohCore Acoustic Patch Laminate (APL)

Its noise, vibration, and harshness (NVH) damping performance functions comparably to a fully laminated vehicle material, but lowers weight, carbon emissions, and costs. Patented ShilohCore NVH damping performance can be tailored to achieve required temperature ranges and target frequencies, while maintaining vehicle fuel efficiency and reducing raw material usage.



## BIONIC MESH DESIGN GMBH

2022 RUNNER-UP  
ENABLING TECHNOLOGY

### Bionic Mesh Design

Bionic Mesh Design GmbH has refined and redefined lightweight design for mass casting and forging productions. These lightweight designs are achieved through the direct transformation of topology in CAD models and an emphasis on production processes. By requiring 90% less design time than standard solid modeling processes, Bionic Mesh Design helps automotive OEMs and suppliers get products to market faster.



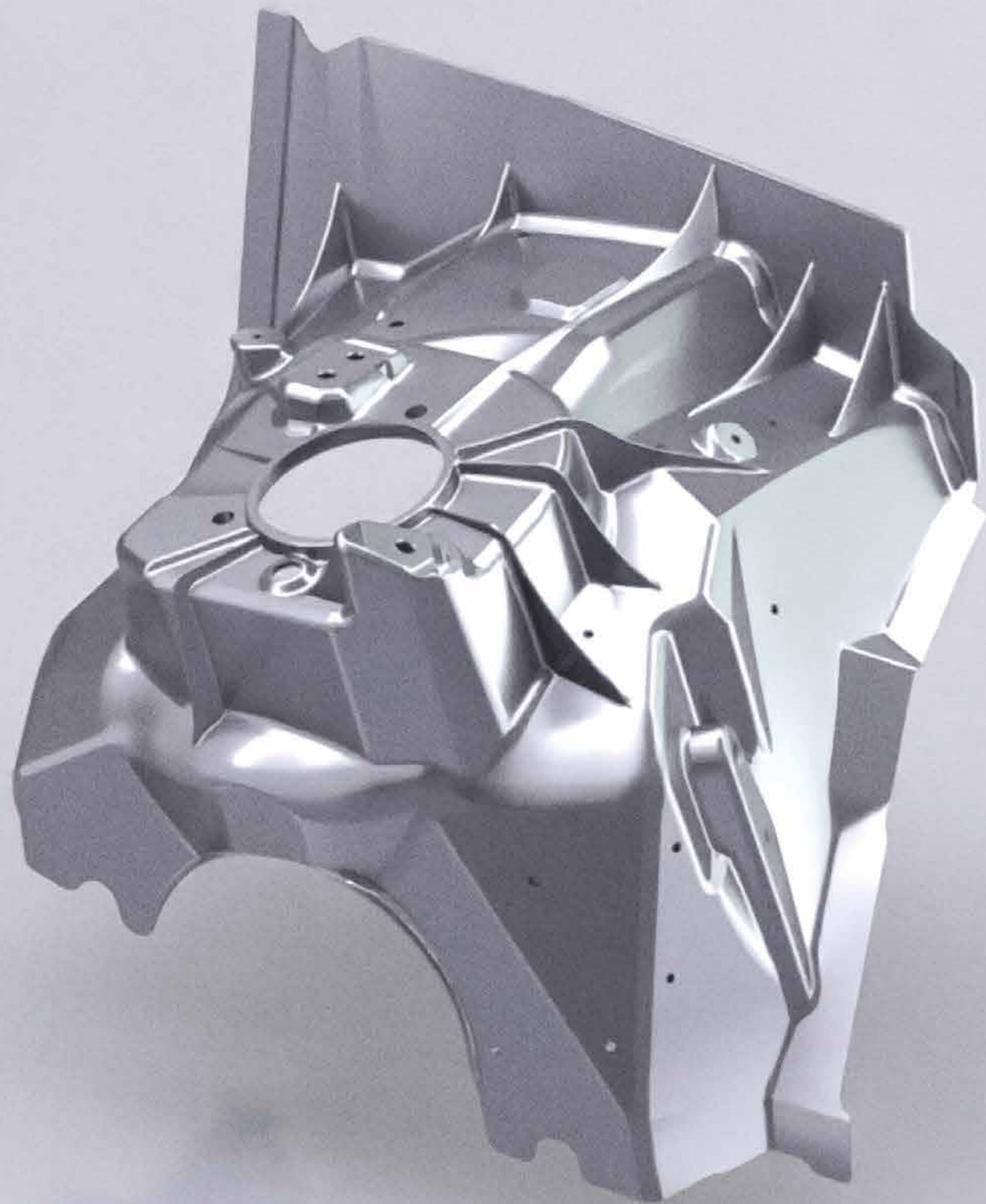


## HUMAN HORIZONS

2022 RUNNER-UP  
ENABLING TECHNOLOGY

### Integrated High Pressure Die Casting (HPDC) Rear Cabin

Human Horizons has incorporated high pressure die casting and heat-free treatment material into the manufacturing of their rear cabin, resulting in up to 20% weight reduction. The HPDC Rear Cabin has integrated 40 parts of the rear floor into a single part, thereby cutting manufacturing and mold development time by a third.



## MCMASTER UNIVERSITY AND NEMAK

2022 WINNER  
FUTURE OF LIGHTWEIGHTING

### NemAlloy™, Novel Lightweight Automotive Aluminum Alloys

A brand-new, high strength aluminum diecasting alloy that serves the needs of automotive structural components without requiring heat treatment. Due to its lightweighting advantages and heat treatment elimination, Nemalloy™ is a fully recyclable solution that can help companies transform the way they manufacture and forge a path to net zero emissions.



## ADIENT

2022 RUNNER-UP  
FUTURE OF LIGHTWEIGHTING

### UltraThin Seating

Adient has constructed ultra-thin, reinforced automotive seats made of comfortable, thermoplastic elastomers panels. UltraThin's design not only saves space and mass, but it also saves labor, time spent in assembly, and materials and part count.



## YANFENG

2022 RUNNER-UP  
FUTURE OF LIGHTWEIGHTING

### Instrument Panel and Passenger Air Bag (IP PAB) Integration

The IP PAB integration combines the chute and airbag module housing into one part to lower costs and creates synergies in the development process. Through material substitution and weight savings by 23%, the system reduces the product's carbon footprint by 50%.



AMC, DITF, BMW M,  
CSI ENTWICKLUNGSTECHNIK

2022 HONORABLE MENTION  
FUTURE OF LIGHTWEIGHTING

### NaMiKo Biobased Automotive Center Console

With the goal of a lightweighting and zero-footprint-product, the NaMiKo-Project team combined sustainability, methodical lifecycle analysis, and lightweight design to develop an automotive center console using the “NFK in 3D” filament winding process covered with circular “smart textiles,” and bio based natural fiber composites.

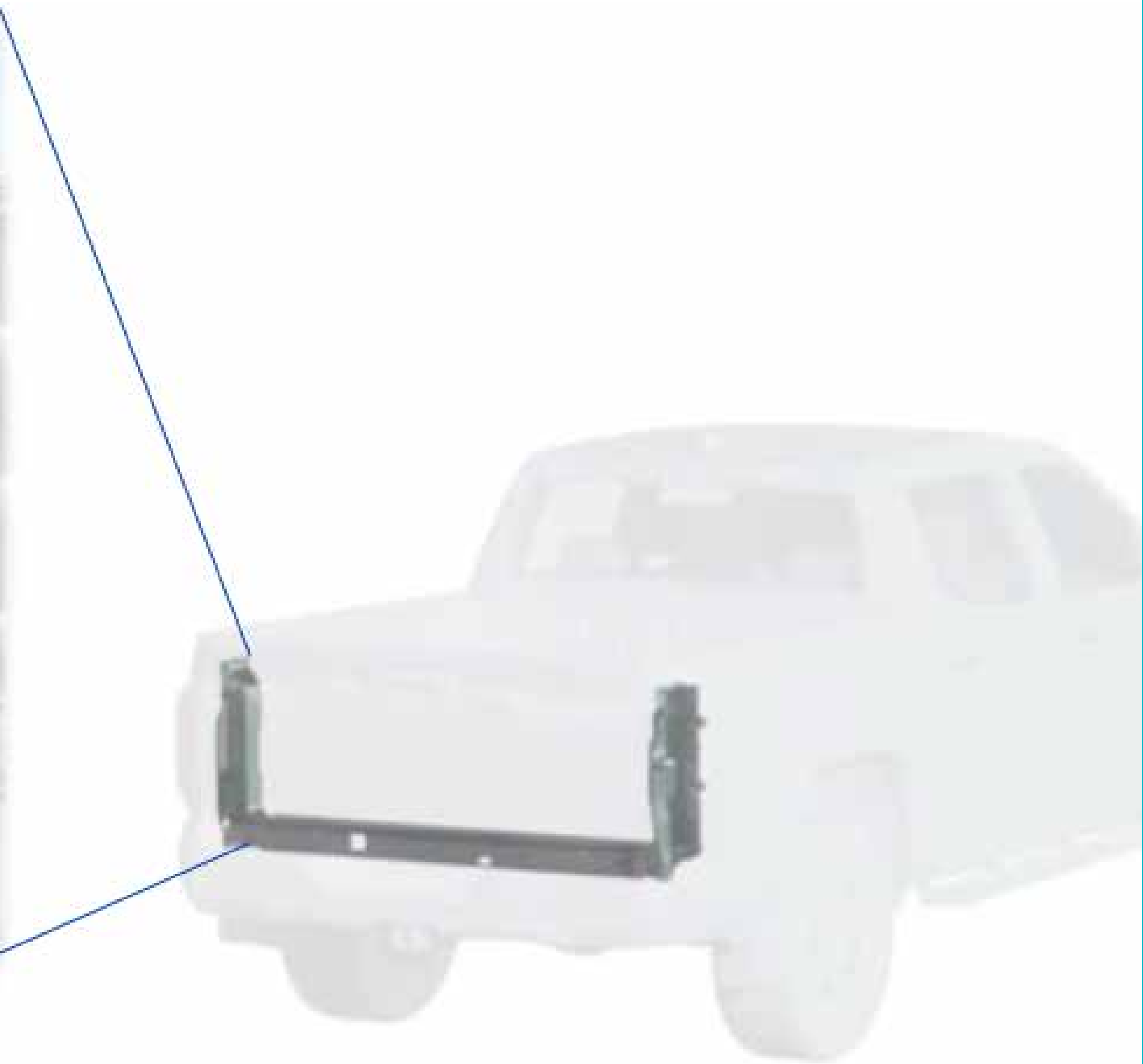


## BASF CORP., TOYOTA, AND L&L PRODUCTS

### 2022 WINNER MODULE LIGHTWEIGHTING

#### Toyota Tundra Second Row Seat Structure

By replacing more than 60 stamped and welded steel pieces with only four composite pieces in the seat assembly, the Toyota Tundra lightweights its second-row rear seat structure exponentially. These changes in production have resulted in 20% mass reductions over previous generations' steel seat structure and achieved 20% cost savings over previous generations' steel seat structure.



## BOCAR GROUP

### 2022 RUNNER-UP MODULE LIGHTWEIGHTING

#### Toyota Tundra Rear End Post

The Bocar lightweight design of the Toyota Tundra rear end post is the first of its kind with a class “A” visual exterior structural die-cast application. Achieving more sustainable mobility, this vehicle back section saves of 4.4 kg (9.7 lbs.) of mass per vehicle and 78.9 kg in carbon emissions per vehicle a year.