

NOVEMBER 13 & 14, 2024

KÖLN MESSE, GERMANY

# Professional MotorSport WORLD EXPO

*Engineering for performance*

**200+**  
LEADING  
EXHIBITORS



**SEE WHAT THIS YEAR'S SHOW  
HAS IN STORE FOR YOU...**

SCAN THE QR CODE NOW TO GET YOUR  
**FREE ENTRY PASS!**



[www.pmw-expo.com](http://www.pmw-expo.com)

# PMW Expo 2024

Europe's premier motorsport and performance automotive show is bigger and better than ever

– with brand-new features added for 2024!

**NOVEMBER 13 & 14, 2024, KÖLN MESSE, COLOGNE, GERMANY**

**T**his year's PMW Expo is set to be a phenomenal event! It will feature 200 exhibitors across an extended floorplan, new product demos, motorsport and high-performance automotive solutions and technologies on show, the much-anticipated PMW Awards (judged and awarded live at the show), a brand-new expert masterclass (rates apply), and insightful workshops and forums

across two stages – the exhibitor presentations, new Advanced Powertrain Technology Forum and new AM for High-Performance Automotive Symposium will be packed with content and are all free to attend.

It really is an impressive schedule that is sure to wow visitors, exhibitors and speakers alike. See the next 12 pages for a sneak preview of what the event has in store...

SPONSOR

**MCLAREN**  
APPLIED

NOVEMBER 13 & 14, 2024 | COLOGNE, GERMANY

Get your **FREE** exhibition pass [now!](http://www.pmw-expo.com) [www.pmw-expo.com](http://www.pmw-expo.com)

## Exhibitor presentations

Hear from leading exhibitors as they present the latest engineering solutions on the market on Days 1 and 2.

**FREE TO ATTEND!**

More details, p13

## Advanced Powertrain Technology Forum – new for 2024

Industry leaders from the automotive and motorsport industries will share their insights into advances in high-performance powertrains, both electric and ICE, on Day 1.

## AM for High-Performance Automotive Symposium – new for 2024

This symposium on Day 2 will seek to address key issues surrounding the use of additive manufacturing and the benefits AM can bring.

## Expert masterclass – new for 2024

The four-hour 'Designing spring rates for race cars' masterclass\* on Day 2 will provide participants with skills that can be used immediately on return to the workshop! See page 14 for more details.

\*Rates apply

Scan the QR code to receive your **FREE FastTrack** entry pass!





## High-pressure-ratio turbo

Van Der Lee Turbo Systems offers high-end technical solutions in design, development and manufacturing of turbo systems for every conceivable purpose. As a preferred supplier for international prototype endurance and formula classes, international GT and touring car and rally class race teams, it has in-depth knowledge of all race classes, regulations and requirements. This enables it to design the most effective solutions and products to give customers a competitive advantage, beating the competition on performance, reliability and cost.

At PMW Expo 2024, Van Der Lee Turbo Systems will present to visitors its latest range of high-performance, cost-effective turbocharger solutions for motorsport applications. These lightweight systems are designed with the latest compressor and turbine geometries and supported by the IATF 16949 quality management system.

On display will be the company's new very-high-pressure-ratio turbocharger, which can support a pressure ratio of six while still providing map width at the top through the integrated VIGV system.

It is a flexible design that can be equipped with additional features like integrated waste gate systems, a pneumatic or electric actuator, integrated bypass valve, vaned compressor or turbine, speed sensors, thermocouples and a welded-on heat shield.

**Van Der Lee Turbo Systems**

**Booth 2020**

## Professional brake pad spreading tool

Brown and Geeson will present a quick and easy way to separate brake pads/caliper pistons for a variety of road, track and race cars. Finished in a polished stainless steel, the tool has been designed to be durable and withstand high-temperature environments. The large handles and rubber grips make the heavy-duty tool comfortable and effortless to use. Simply push the handles together to depress the pistons back into the brake caliper. Suitable for two-, four- and six-piston calipers, the removable pads also allow for custom-sized applications. The tool is ideal for use in a range of applications, including endurance racing pit stops when a brake pad change is required and for general workshop use. This high-quality, stainless-steel tool should not be confused with the cheaper options on the market.

**Brown and Geeson**

**Booth 2056**



## Single-roller and hub dynos

Dyno Logic, established by MTG Motorsport, produces single-roller two-wheel-drive, four-wheel-drive and hub dynamometers for chip tuners and motorsport garages. It also provides international services

as an Ecumaster, ZRP Racing and FMIC Turkey distributor.

Visit MTG Motorsport Dyno Logic's booth to discover more.

**MTG Motorsport/Dyno Logic**

**Booth 1032**

## Powerful simulation center for R&D and racing

With the EDAG Zero Prototype Lab, the EDAG Group is the proud owner of a state-of-the-art driving simulation center. The three innovative test platforms provide clear advantages not only for the classic OEMs and Tier 1 manufacturers but also for the motorsports sector.

The VI-grade DiM500 Full Spectrum Simulator (DIM500 FSS) installed in the Zero Prototype Lab is the largest and most powerful cable-driven simulator for development, racing and research. Its focus is on vehicle dynamics, vehicle movement and driver interaction. The simulator offers

faster, safer and more cost-effective testing than out on the racetrack, as numerous setup variants and adjustments for drivers and tracks can be generated in a matter of seconds. The detailed display of the vehicle models enables tires to be changed or vehicle parameters such as stabilizers or damper characteristics modified at the push

of a button. Regardless of the season, test scenarios for a wide range of conditions, including road surface, tire material and weather, can be run repeatedly, saving resources, wear and tear on the vehicle, and the need for a pit crew.

All test scenarios can be virtually tested on any race track. This enables drivers to test their next racetrack to its limits and experience their vehicle setup before the race weekend – in complete safety. Find out more at the EDAG booth.

**EDAG Engineering**

**Booth 3085**



# Next-generation carbon-ceramic brake discs

CTE Carbon Composites will introduce its next-generation carbon-ceramic brake discs at the expo. Using proprietary chemical vapor infiltration (CVI) and reactive melt infiltration (RMI) processes, the company's highly dense, multidimensional crystalline structure sets new standards in the carbon-ceramic brake disc market.

CTE's use of continuous (long) T700-grade carbon fiber is a significant leap forward in

performance and durability. Continuous T700-grade carbon ceramic discs will not crack like previous generation discs do and can be resurfaced multiple times to as-new condition. They have a tensile strength over 40% greater than previous-generation discs and several times greater wear resistance. Being non-brittle, T700-grade



discs will not chip like previous-generation discs. They are designed to perform throughout the full operational temperature range, in all weather conditions, and have an innovative thermal structure that maintains

maximum operational temperatures around 200°C lower than previous-generation discs, significantly reducing the

wear rate. The patented M8 fastener/bobbin mechanism significantly reduces the chance of critical failure of the floating bell. The discs have undergone dynamic testing using an in-house Horiba 9000 series brake dynamometer, plus three-stage real-world testing and development: professional circuit, professional rally and OEM high-performance street.

**Team M Factory**  
**Booth 5024**

**REGISTER ONLINE NOW FOR YOUR FREE PASS!**



## Managing direct injection

The DI Driver-4 is the perfect companion to Link ECU's G5 Voodoo Pro ECU and will be on display at PMW Expo. Link Engine Management says the highly configurable, cost-effective solution gives full control of most modern solenoid-type direct injectors and high-pressure fuel pumps, and represents the next leap forward in engine tuning.

Combined with the G5 Voodoo Pro, DI Driver-4 modules can manage up to 12 direct injectors and

two independent high-pressure fuel pumps, delivering maximum fuel flow at high RPM. Together, they control both direct injection and staged port injection on a single tune, providing an all-in-one solution for optimal power and efficiency.

With CANbus compatibility, connecting the DI Driver-4 to an ECU and other modules is easy. The setup process is simplified through Link's free, user-friendly DI Link software, configurable via USB.

Link Engine Management has over 30 years of experience in advanced, reliable engine management solutions. With offices worldwide and warehouses in the UK and Europe, LinkECU's extensive range is backed by 24/6 tech support and a lifetime warranty.

**Link Engine Management**  
**Booth 6068**



## SPEAKER SPOTLIGHT

Advanced Powertrain Technology Forum

**Selin Tur**

Technical director,  
Williams Grand Prix Technologies



*Multiscale, multiphysics modeling and simulation for faster and more efficient powertrain development*

Selin Tur's presentation will explore how advanced multiscale, multiphysics modeling techniques are accelerating the design and optimization of powertrains in motorsport, leading to faster development cycles and more efficient solutions.

Visit the website for the latest conference information

## Seamless, wireless control

Ecumaster will present its Wireless Racing Panel at the expo. The panel is designed to enhance the racing experience by providing seamless control over vehicle functions without the need for physical wiring. It communicates wirelessly with other devices over a CAN via a dedicated RF receiver, offering a flexible and easy-to-install solution for race cars, where minimizing weight and complexity goes hand in hand with maximizing response speed and reliability.

Key features of the Wireless Racing Panel include multiple configurable buttons, rotary switches and two connectors for paddleshifts that can be assigned to various functions such as activating the pit limiter, adjusting traction control settings and controlling lights and indicators. The panel's wireless nature enables it to be conveniently placed to fit the driver's ergonomics, reducing the clutter of wires traditionally associated



with racing electronics. Wireless RF transmission is immune to all interference in the car, and the panel's robust carbon construction ensures durability in the demanding environment of motorsport, making it a reliable choice for professional and amateur racers alike. The easily replaceable CR2450 battery is enough for over one million button presses.

**Ecumaster**  
**Booth 1006**

## Motorsport turbocharger technology

➤ Garrett will present bespoke motorsport-specific turbochargers and electric turbos at the expo. On the booth will be experts and company leaders from the Garrett Aftermarket division and the Garrett Motorsport division. With 8,000 OE-certified turbos, Garrett's Aftermarket portfolio includes replacements for just about every boosted car dating back to 1968.



Garrett supplies advanced and differentiated technologies for emission reduction and energy efficiency. With a nearly 70-year legacy, it serves customers worldwide with passenger vehicle, commercial vehicle, aftermarket replacement and performance enhancement solutions.

**Garrett Motion**  
**Booth 5000**

## Boost the performance and aesthetics of racing vehicles

➤ First-time exhibitor Vulcan Alpha designs components for motorsport and street use, focusing on advanced



aerodynamics, weight reduction, high-performance composites and thermal management. It provides custom engineering, rapid prototyping and scalable production, using CNC machining, additive manufacturing and multimaterial integration to deliver innovative solutions.

Visit the company's booth at PMW Expo in Cologne to find out more about its 3D scanning capabilities, 3D printing and prototyping, advanced 3D modeling, and design, engineering and production expertise.

**Vulcan Alpha**  
**Booth 5000**

## Tuning, safety and performance

➤ Atomic Shop has been one of the largest suppliers of tuning and performance parts, and safety and motorsport equipment for 18 years. It has branches in Germany (Nürburg), Ukraine (Kyiv), the UAE (Dubai) and the USA (Florida). On display at the expo booth will be its partners' innovative products and services, which can be purchased through Atomic Shop.

**Atomic Shop**  
**Booth 5000**



## New high-performance sensors

➤ Variohm specializes in high-performance sensors designed to meet the demanding needs of motorsport applications.

The MXP Series rotary sensors are ideal for precise pedal, throttle and gearbox sensing, offering a compact and lightweight solution for high-performance racing vehicles. These sensors in the series provide fast, accurate feedback – crucial for maintaining control and optimizing performance on the track.

The ELHM linear sensors excel in motorsport applications such as suspension and pedal sensing. Their IP68-rated water protection ensures they withstand harsh racing conditions, from wet circuits to dusty off-road courses, while maintaining precise measurements to enhance vehicle dynamics and responsiveness.

To manage charging pressure in motorsport engines, the EPT8100 pressure sensor delivers superior performance in a smaller, lighter

package. This sensor's compact design and accuracy are vital for optimizing engine performance while meeting the space constraints of race cars.

Variohm's motorsport-specific sensors are designed to offer reliability, precision and the space-saving benefits needed to push vehicle performance to the limits in competitive racing environments.

**Variohm EuroSensor**  
**Booth 4048**





## Innovative composite solutions

Yanara Technologies is a French company that specializes in composite solutions, offering repair, engineering and manufacturing services for motorsport and other high-tech sectors. Motorsport is in the company's DNA: its two co-owners founded the firm in 2011 after extensive experience in Formula 1, aiming to provide affordable composite services.

The company focuses on out-of-autoclave manufacturing processes. Recognizing the significant technical benefits of composite chassis for small series in motorsport, it has developed two chassis concepts to reduce

development and tooling costs. In 2023 it obtained a patent for a chassis concept, with developments still ongoing.

Yanara Technologies is also a pioneer in composite repair, serving the motorsports industry since 2011. This experience has driven the company to innovate organizationally and develop an efficient system to manage large volumes of parts, ensuring the best support for customers and effective prioritization. Find out more at the company's booth.

**Yanara Technologies**

**Booth 4086**

## Individualized motorsport headlight

FEV subsidiary EDL Rethschulte has developed and manufactured an innovative headlight for the GT3 racing series for a well-known racing customer, and will be displaying this at PMW Expo.



The striking four-point optic, which already provides a characteristic light signature in series production vehicles, was adopted and developed to

enable the light color to be individually adjusted by racing teams. This ensures that teams are clearly recognizable, especially when driving at night.

Despite the limited installation space and demand for low weight, the headlight offers an impressive power density. Thanks to the modular design, it ensures optimum illumination of the road right into the side angles of the vehicle.

The design and materials ensure that the headlamp functions perfectly even when subjected to intense vibrations.

**EDL Rethschulte**

**Booth 5090**

### SPEAKER SPOTLIGHT

Advanced Powertrain  
Technology Forum

**Pierre-  
Jean  
Tardy**



ALPINE

*Chief engineer (hydrogen), Alpine Racing*

*Racing for clean mobility:  
Exploring hydrogen  
technologies at Alpine*

Pierre-Jean Tardy will review the developments being carried out at Alpine with regard to H<sub>2</sub> ICE for motorsport, as well as liquid hydrogen storage for racing.

*Visit the website for the latest conference information*

**REGISTER ONLINE NOW  
FOR YOUR FREE PASS!**



## Emergency clutch release

Shiftec will relaunch its Emergency Clutch Release system at the expo, with pneumatic and new standalone CO<sub>2</sub> canister/9V power formats.

The Emergency Clutch Release is designed to work as a standalone installation to enable actuation of a vehicle clutch. It has been approved by FIA and ACO for use in LMP vehicles as an emergency neutral device capable of disconnecting vehicle drivetrains.

The original ECR Air version requires an external air source as well as a simple DC

power supply. However, the new, updated CO<sub>2</sub> version is a completely standalone unit incorporating its own CO<sub>2</sub> air canister and a 9V power supply.

The Emergency Clutch Release does not influence normal clutch operation – the driver retains full control over the clutch paddle. It can be integrated with blip operation. Visit the Shiftec booth to find out more.

**Shiftec**

**Booth 1058**



## Modular solutions for decarbonized high-performance propulsion systems

Modular solutions for future propulsion systems is Ricardo's theme at this year's PMW Expo. The company will showcase a range of products and services designed to give the performance automotive and motorsport industries a cost-effective solution for the development of bespoke powertrain and driveline technologies to improve performance.

Ricardo's flexible battery module is customizable and scalable, including voltage, capacity level and packaging, enabling low-volume OEMs to create a cost-effective, bespoke solution for their high-performance and specialized product portfolios.

The modular design, featuring InoBat pouch cells with high-performance operation and fast charging capability, is tailored for ease of integration into existing platforms with

complex performance, efficiency and packaging requirements. It features a streamlined assembly process for ease of manufacture and in-service maintenance.

Ricardo will also launch Element at the show. The company's new range of baseline transmission products is designed to enable clients to rapidly prototype high-performance driveline solutions and easily configure them to suit a wide variety of real-world applications. These lightweight units are ideal for direct integration into space-constrained environments and are designed to speed up product development of electrified portfolios.

**Ricardo**  
Booth 3074



## High-flow fuel pump

Visitors to the DeatschWerks booth at PMW Expo can see for themselves how the DW810 pump provides unprecedented high fuel flow in a reliable, quiet and compact package. Its optimized impeller design achieves peak efficiency at target flow rates while careful engineering of internal fluid flow eliminates restrictions. Its brushless motor technology reduces friction and heat, vastly improving durability, especially when using aggressive fuels such as ethanol and methanol.

Features include: 5/16in, 3/8in, -6AN and -8AN anodized fittings; 810LPH at 40psi, 680LPH at 80psi (13.5V); compact size optimized for in-tank use; universal bulkhead harness and fitment kit; compatibility with all fuels including methanol and E100; and excellent durability due to there being no brushes or commutator.

**DeatschWerks**  
Booth 4100



## Seating with advanced cooling technology

ASP Seat's engineering of its lightweight driver race seat incorporates a cooling system and also reduces weight. In its first year of trading, ASP Seat has earned the trust of 50% of the FIA WEC Hypercar drivers to keep them cool during the demanding endurance races, with lightweight seats seen regularly in the FIA junior formula categories.

The company's partnership with NCS Engineering Solutions ensures that the structure of the FIA-homologated base material is not compromised

during the reverse engineering process, and also ensures that all cover materials are selected for their high-quality finishes, comfort and fireproof qualities.

ASP Seat attends trackside to ensure its products enhance driver performance. Visit the booth to find out more about ASP Seat and its partnership with NCS Engineering Solutions.

ASP Seat  
Booth 1040



## Ultrasonic flow-metering tech

Allengra is the supplier to the FIA WEC Series, the single supplier of the mandatory fuel flow meter for the WorldSBK, and the newly selected sole supplier of the 2026-2030 fuel flow meter for Formula 1 - the first seasons to switch to 100% sustainable e-fuels. This selection pinpoints the technological advantage of Allengra's ultrasonic technology for onboard fuel, other liquids and gas metering in challenging environments.

The ultrasonic flow meters are designed, tested and homologated to suit precise measurement, performance enhancement

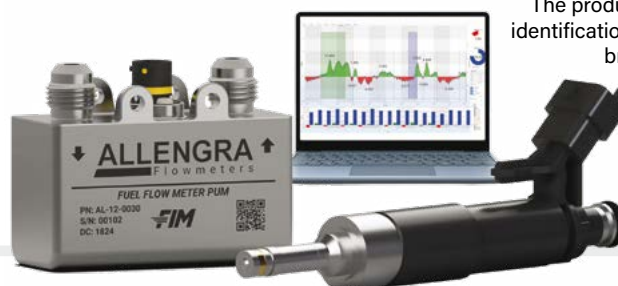
and future-oriented development for all teams and manufacturers in motorsport - hydrogen, ICE, battery and others.

The features of Allengra's flow-metering products include: ±0.5% precision with all

kinds of fuels, oils and cooling liquids; 20 bar (350 bar on demand) pressure domain; 6kHz (100kHz possible) scanning frequency; and high-accuracy pressure and temperature metering.

The product range covers fuel identification, injection flow metering, brake diagnosis, cooling circuit monitoring and air intake. Find out more at Allengra's booth at PMW Expo in Cologne.

**Allengra**  
Booth 1078





## High-performance applications using metal additive manufacturing

➤ Additure, part of the Kingsbury Machine Tools group, is a UK-based accredited manufacturing solution provider using laser powder bed fusion. As the Nikon SLM Solutions distributor and service provider in the UK and Ireland, Additure supports its clients with in-house capabilities for delivering complex

manufacturing solutions via laser powder bed fusion, depowdering, material testing and machining.

At the expo, Additure will unveil its development and capability to offer the new CP1 aluminum alloy in the SLM280 and SLM500 platforms, using the larger bed size of 280 x 500 x 365mm. The new alloy has key

benefits including strength and ductility, excellent thermal and electrical conductivity, superior corrosion resistance and simplified post processing. Due to the lack of silicon content observed in more traditional alloys, it offers an extended in-service lifespan.

Harnessing the design flexibility and material

characteristics of the CP1 alloy via the laser powder bed process opens up a plethora of applications focused on heat transfer, fluid flow and integrated assemblies.

Talk to Additure's experts at the company's booth at PMW Expo in Cologne.

**Additure / Kingsbury**  
**Booth 1088**



## Spherical bearings for motorsport

➤ Carl Hirschmann's high-performance bearings series is now available for motorsport. Maintenance-free spherical bearings and rod ends offer the performance needed in motorsport. The outer parts of the rod ends are 100% crack-tested, high-strength, rustproofed and available as right-hand and left-hand threads.

The company's patented aluminum-titanium lightweight bearings are also available in the high-performance series for motorsport. For bearing technology with V-groove, Carl

Hirschmann also offers its rolling-in tool and rolling-in service. Further information and all sizes can be found in the company's product database and at its booth.

**Carl Hirschmann**  
**Booth 3038**



**REGISTER ONLINE NOW FOR YOUR FREE PASS!**



### SPEAKER SPOTLIGHT

AM for High-Performance Automotive Symposium

**Ralf Frohwerk**

Global head of business development, Nikon SLM Solutions



**Nikon SLM SOLUTIONS**

*Redefining speed and performance: additive manufacturing in motorsport and hypercars*

➤ This presentation will provide insights into the industrialization goals of additive manufacturing in the automotive industry, highlighting the expertise and potential of metal AM throughout the product lifecycle. During the presentation, Ralf Frohwerk will delve into how the powder bed fusion metal AM process fits within the automotive sector to reduce the total cost per part while adhering to quality process standards and ensuring repeatability and sustainability.

He will also showcase the added value of metal AM applications through several case studies, primarily from the motorsport and hypercar industries.

Please visit the website for the latest conference information

## Lightweight race and rally brake calipers

➤ AP Racing will showcase its new Pro Sport brake caliper range, designed for race, rally (including R2/R4) and other cost-conscious motorsport series. Fully compatible with CP3215 brake pads, the lightweight, four-piston calipers use aluminum construction and stainless-steel pistons

for optimal performance. An anodized surface treatment ensures durability, which is enhanced by an optional bleed screw shield for greater protection.

Developed at AP Racing's state-of-the-art UK facility, the Pro Sport range prioritizes cost-effective performance without sacrificing quality.



This new collection reinforces the company's commitment to technological advances and its established presence across diverse motorsport disciplines. Alongside the Pro Sport range, AP Racing will showcase its latest range of innovative brake and clutch systems.

**AP Racing**  
**Booth 4040**

## Adaptive ride height

At the expo, TracTive will share details of its new technological advance that will debut on the BMW M3. The TracTive Lift System (TLS) is engineered to offer flexibility and control over a vehicle's ride height, allowing drivers to raise the ride height of the car when encountering speed bumps and parking entries/exits. The vehicle's ride height can be adjusted by 30-45mm with a touch of a button.

Furthermore, the company's Length Adjustment System (LAS) offers an easy switch between different ride heights for



road or track use. This is also convenient when encountering speed bumps or steep driveways, enabling the vehicle's ride height to easily be adjusted by 15-60mm at the press of a button.

**TracTive Suspension**

**Booth 5076**

## Testing, cleanliness and calibration services

Founded 30 years ago, Young Calibration is an impartial laboratory providing component cleanliness, thermal fluid component testing and ISO 17025 calibration services. It specializes in heat exchanger performance and durability

testing, and accredited calibration of flow measurement systems by virtue of its UKAS accreditation.

Find out more about its services at its booth in Cologne.

**Young Calibration**

**Booth 1030**



## Configurable GT calipers

Alcon will be showcasing its new GT brake caliper range at PMW Expo. The forged monobloc GT brake calipers combine the strength of forging with innovative topological design to deliver impressive performance and durability. Forged from a high-strength aluminum alloy that maintains strength at sustained elevated operating temperatures, the calipers are designed to offer structural rigidity, reducing deformation



and fluid volume consumption during high-pressure, high-torque braking applications.

Patented options of the calipers include Alcon's award-winning SMART piston technology (which has been redesigned for the GT applications), bleed screw and dry-break protection and alignment features, and caliper bolt retention for endurance race hot brake changes.

The new range caters for both GT4 and GT3, which has closed and open pad box

configurations. Each forging is precisely CNC machine finished and assembled in Alcon's UK factory – enabling customer-focused bespoke options for bore sizing, piston material, caliper cooling configuration and sensor options to be provided.

Find out more at Alcon's booth and during the free-to-attend presentation – 'The design and delivery of high-performance GT brake calipers' – by principal brake engineer David Clegg on the Technology Presentation Stage.

**Alcon**

**Booth 4020**

## High-precision sensors and measurement

Since 1999, Texys Group has been designing, developing, manufacturing and distributing embedded and laboratory solutions for the measurement of physical quantities, mastering various technologies such as infrared, fiber optics and wireless communication. Its solutions are known globally through Texense and Optel-Texys.

At PMW Expo, the company will highlight its EC-CAN electrical conductivity sensor, which has already been used on the dyno of its H2-K hydrogen fuel cell racing motorcycle proof of concept. The sensor is a reliable choice for projects requiring high-precision electrical conductivity measurements, suitable for confined spaces, and is designed for use in pure water and hydrogen ecosystems.

Also on show will be the company's innovative microbolometer-based thermal camera system, which it says is the most accurate form of external tire temperature measurement on the market with accuracy of <1% FS over 240 pixels. The system is available with varying lens options to give a field-of-view of 66° or 113° and the data is output via CAN. Temperature data can be configured to 4 x 60 pixels or 2 x 70 pixels (other pixel matrix options available on request). New for 2024 is the MIB-S-P – an IP67 waterproof version of the race-proven device.

**Texense**

**Booth 2010**



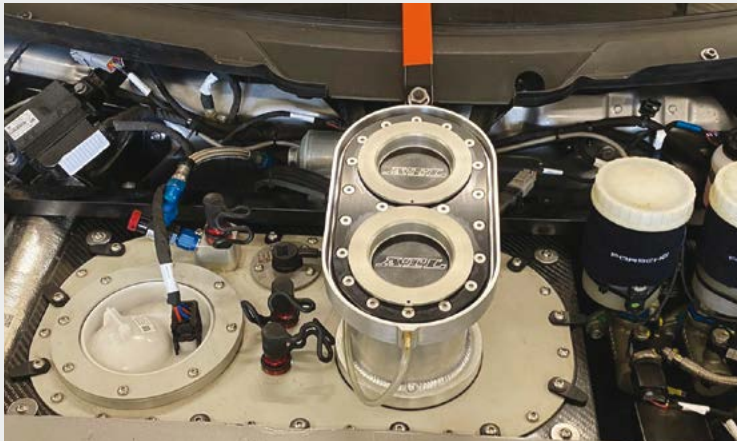
## Innovative motorsport brake pads

> For over 125 years, Ferodo has displayed an ongoing commitment to innovation, superior performance and durability, with brake pads that play an important role in the most iconic motorsport competitions.

The company will be displaying its pad range at the expo. Available

in several compounds, it caters to a wide range of applications and driver preferences. It has recently been enhanced by three new heavy-duty track compounds: TL180, TL66 and TL163.

**Ferodo Racing**  
**Booth 5046**



## Dual dry break valve for Porsche Endurance Cup

> ATL has partnered with Creventic and Porsche Motorsport to develop an innovative dual dry break conversion kit that, for the first time ever, allows Porsche 911 GT3 Cup (992) cars to participate in endurance racing events that require quick refueling.

This new bolt-on refueling solution requires no modifications to the safety fuel cell's top plate, and converts the standard filler neck to accept the series' mandatory dual, 2in dry break female valve.

The valve was rapidly prototyped and successfully tested during the 24H Series at Misano in July 2024, under extreme racing conditions. With approval from Porsche

Motorsport, 45 units were swiftly manufactured and delivered to all 30 teams participating in the first-ever 992 Endurance Cup at Spa Francorchamps (September 2024). ATL's dual dry break conversion kit proved to be a reliable, high-performance solution that greatly improved refueling efficiency and safety, enhancing the overall endurance racing experience for teams and drivers.

ATL plans to introduce this kit as a standardized part number, set to launch to the public in Q1 2025. Find out more at the company's booth at PMW Expo in Cologne.

**ATL**  
**Booth 4030**

**REGISTER ONLINE NOW  
FOR YOUR FREE PASS!**



## SPEAKER SPOTLIGHT

Exhibitor Program

**Chris Blockley**

Head of high-performance mechatronics, Xtrac

Race-to-road hypercar projects



> For this presentation, Xtrac's Chris Blockley will draw on the company's 10+ years of experience in designing and developing weight-optimized and high-performance transmissions for a number of OEMs in the hypercar sector. He will discuss how making full use of in-house manufacturing can significantly improve prototype development timescales and reduce lead times.

Please visit the website for the latest conference information

## Electric shifting actuators

> SaReNi and Holinger are leaders in the field of gearboxes and gearbox components. With precise craftsmanship and an in-house engineering office, they guarantee products of the highest quality. Their latest development – which will be on display at PMW Expo – is the ESA V2 as an upgrade to the SaReNi ESA. The electric shifting actuators ensure users are well prepared for all challenges in drift and racing vehicles. Thanks to the plug-and-play system that fits other electric switching systems, users can easily switch to SaReNi and get back on the racetrack without major modifications.

**Holinger Europe/SaReNi**  
**Booth 2072**





## Custom (low-quantity) OEM high-performance engines

Elmer Racing has worked out how to provide high-performance, low-quantity OEM engines at a very low design and development cost: the design, manufacturing and performance must all work together to achieve economic feasibility.

With five back-to-back world time attack championships under its belt, Elmer's Thor engine – on display at the expo – is a prime example. Having been developed and manufactured in under eight months at very low cost, it offers the highest power-mass ratio of any circuit-racing OEM engine.

Taking full advantage of stronger alloys, thinner walls and a much lower manufacturing stage count than traditional manufacturing, the Elmer Racing billet design creates engines that are lighter, more compact and reliable, with higher performance, reduced lead times and low design cost.

In use cases where performance (be it power/mass, efficiency or other criteria), reliability and development costs and time are of greater importance than minimizing series production cost, Elmer Racing is the ideal business partner.

**Elmer Racing**

**Booth 1062**

## Wheel alignment system for road and race cars

Precision in suspension setup is crucial in motorsport. Accurate wheel alignment and wheel load measurement ensure optimal vehicle dynamics and traction, enhance handling and extend tire life. All of this is important to effectively control the car on different tracks or in different weather conditions.

Drawing on its many years of experience in international motorsport, Manthey Racing has designed a wheel alignment system for motorsport vehicles and road cars, facilitating measurements locally or at events – even on uneven surfaces. Laser-based alignment pads guarantee precise leveling. All essential components, including the wheel load scale and the laser system, are enclosed in a portable flight case. See it for yourself at Manthey's booth at PMW Expo.

**Manthey Racing**

**Booth 6008**



## New brake compound

Visitors to Performance Brake Solutions' booth can find out all about the ProComp compound – a semi-metallic material that has greater initial bite than the ProRace compound. With excellent stopping

power – 0.55-0.65mu – this compound is used in time attack series and is suitable for cars with and without servo. The pad compression is very low, so pedal travel is short and remains consistent.

**Performance Brake Solutions**

**Booth 3086**



## Fast refueling under absolute control

Caseliner will display its RMS-200 system to continuously monitor and record the refueling process of a race car and monitor the fuel level in the RF200 refueling tank. The system uses state-of-the-art ultrasonic measurement technology in compliance with current FIA regulations. Weights for fuel rigs are not required. The RMS-200 system is modular, with the possibility of using the main basic unit and an external timer unit for direct control of

the refueling phase by a second mechanic who has an overview of the amount of fuel filled and the time taken in the process. The RMS-200 does not use a standard weighing system. It can be used in any racing series, mounted directly on the RF200 brackets in two positions from the left or right. The timer module will be placed on Stäubli SAF, Krontec RFC or PP20M valves.

**Caseliner**

**Booth 3028**



## Customizable racing suit

➤ The MyMOMO racing suit, premiering at PMW Expo 2024, redefines customization in FIA homologated motorsport gear. Tailored to meet the unique needs of each driver, this innovative suit offers total personalization, allowing any graphic, logo or image to be printed seamlessly onto the fabric.

Beyond its high-level safety and lightweight materials, the MyMOMO suit stands out for its cutting-edge

printing technology, enabling teams and sponsors to fully brand the suit, practically without limitations. Whether intricate logos or bold color schemes, the possibilities are endless.

This fusion of protection, comfort and aesthetic freedom marks a new era for drivers seeking both performance and personal expression on the track.

**MOMO**  
**Booth 2076**



## Expert cast and machining solutions

➤ Grainger & Worrall will demonstrate how the evolution of prototype casting technologies is playing an important role in increased performance, reduced lead times and decarbonization. As regulatory changes continue to drive technological innovation, GW helps world-class companies in the motorsport, aerospace, defense and automotive industries to pioneer new technologies.

From complex electric drive units to industrial casings for power generation, GW leverages its casting

expertise, material knowledge and rapid prototyping capabilities to tackle the challenges of lightweighting, part count reduction and material optimization. Aluminum castings enable the company to produce lightweight, complex metal shapes that reduce fuel consumption and emissions while still meeting increased performance demands in powertrain, transmission and body-in-white structural components. Find out more at PMW Expo.

**GW Cast**  
**Booth 3092**



**REGISTER ONLINE NOW  
FOR YOUR FREE PASS!**



### SPEAKER SPOTLIGHT

**AM for High-Performance  
Automotive Symposium**

**Dr Frank  
Beckmann**

*Deputy director, Fraunhofer  
Research Institution for Additive  
Manufacturing Technologies IAPT*



**Fraunhofer  
IAPT**

*Next-gen additive  
manufacturing for high-  
performance materials  
and components*

➤ This presentation will cover the progress and potential of the latest generation of additive manufacturing. This enables, for example, use of new materials with equivalent properties to conventionally produced materials, making it possible for the first time to print crash-capable high-performance alloys.

The enormous potential of 3D printing in terms of lightweight construction and functional integration will be demonstrated using various automotive components, such as ultra-light brake calipers, hybrid brake discs and components with integrated acoustic or vibration damping, as well as integrated electrical circuits. Even complete bionic optimized chassis structures are possible and save significant weight or improve performance.

*Please visit the website for the latest conference information*

# PRESENTATION AGENDA



**»** There are some brand-new presentation elements at PMW Expo this year, including the Advanced Powertrain Technology Forum and the AM for High-Performance Automotive Symposium. Plus, the exhibitor presentations will give companies the opportunity to present their cutting-edge solutions. Visitors will be able to uncover the latest developments across motorsport, performance automotive, powertrain and additive manufacturing.

Whether you're looking to find out more about the latest developments in energy management strategies, how to harness design for AM in your engineering workflow, or the role of cloud computing resources in democratizing advanced simulation, PMW Expo will have the answers.

## **FREE TO ATTEND**

### **Exhibitor presentations**

Highlights within the exhibitor presentation line-up on the Technology Presentation Stage on both days include Tom Brown, head of motorsport programs, Cosworth; Chris Blockley, head of high-performance mechatronics, Xtrac (see speaker spotlight, p57); Prof. Andrea Genovese, CEO, VESevo; and Stuart Cooper, market head, motorsport, Ricardo.

## **NEW FOR 2024 - FREE TO ATTEND**

### **Advanced Powertrain Technology Forum**

Speaker highlights within the Advanced Powertrain Technology Forum, taking place during Day 1 on the PMW Magazine Stage, include Selin Tur, technical director at Williams GP (see speaker spotlight, p51); Pierre-Jean Tardy, chief engineer, hydrogen at Alpine Racing (see speaker spotlight, p53); Julien Jehanne, site director, Ligier Automotive; and Neil Palmer, head of electrification, motorsport, at PMW Expo's headline sponsor, McLaren Applied.

### **AM for High-Performance Automotive Symposium**

Highlights on the PMW Magazine Stage on Day 2 will include Ralf Frohwerk, global head of business development at Nikon SLM (see speaker spotlight, p55); Dr Frank Beckmann, deputy head of institute at Fraunhofer Research Institution for Additive Manufacturing Technologies IAPT (see speaker spotlight, p59); Eric Fritzsche, director of additive technology at Brose; and Roger Estrada, MD at R53 Engineering.

*For full details of the speakers and agenda, visit the expo website: [www.pmw-expo.com](http://www.pmw-expo.com)*

## **ENTRY IS FREE – REGISTER NOW!**

Visit the website to view the full program: [www.pmw-expo.com](http://www.pmw-expo.com)



## PMW Awards

The Professional MotorSport World Awards returned in 2023 with a revised format and will be a highlight of the show once again in 2024. The awards will be presented on the PMW Magazine Stage at the end of Day 1, following the conclusion of the Advanced Powertrain Technology Forum.

The awards, intended to recognize excellence in the motorsport and high-performance automotive supply chain, were a roaring success with visitors and exhibitors alike. Without the expertise of the many companies that make up the motorsport and high-performance automotive industry, the racing machines and hypercars that take the limelight would not exist.

In 2023 the awards were judged live at the expo for the first time, by a panel of industry experts spanning various motorsport specializations from rallying to sportscar racing and niche automotive, and with experience in powertrain, chassis and race engineering. This live judging approach continues for 2024, with an expanded panel of judges adding even greater rigor to the process.

### The categories are:

- Powertrain Technology of the Year
- Chassis Technology of the Year - Mechanical
- Chassis Technology of the Year - Bodywork and Aerodynamics
- Safety Innovation of the Year
- Data and Electronics Solution of the Year
- Pit and Support Equipment of the Year
- Overall Engineering Innovation of the Year

## Expert masterclass

LIMITED SPACE, BOOK NOW!



This year's PMW Expo sees the launch of its first expert masterclass: **Designing spring rates for race cars**

The half-day masterclass\* on Day 2 (Thursday, November 14), will arm participants with the knowledge and skills to analyze the current springs of a car and design new ones to better fit requirements – as soon as they return to the workshop! It will kick off with a discussion on spring basics, then look at setting design goals, frequencies and how to calculate a spring. Participants will receive a full-color copy of the slides for reference.

The masterclass will be run by renowned race car performance engineer Ton Serné. Serné is co-author of *Race Car Handling Optimization* and runs seminars for engineers and drivers, with alumni including Max Verstappen and Rinus VeeKay. Visit [www.handlingracingcars.com](http://www.handlingracingcars.com) for more information.

\*Rates apply

## The masterclass will cover...

### 1 Basic knowledge about springs

- Relationship between a torsion bar and a coil spring;
- Calculation of a coil spring;
- Linear vs progressive coil springs;
- Analysis from parallel positioned springs and serial positioned springs;
- Influence of push/pull rod mechanisms on the spring rates;
- Motion ratio (spring deflection vs the wheel travel) – analysis of the motion ratios for springs and dampers;
- Creating a progressive spring rate@wheel with a linear main spring;
- Pre-load: what it is and its function;
- Anti-roll bars: function and calculation;
- Third element springs: function and calculation;
- The relationship between the main spring, anti-roll bar and third element spring;
- The function of the springs in the distribution of the % front static load, of the % front load transfer and of the % front roll resistance.

### 2 The designing of springs

- How to set design goals and then work through the process step by step;
- Geometric construction of the (force-based) roll arm and pitch arm;
- Calculation of the roll moment and pitch moment;
- Calculation of the required spring rates@wheel;
- Calculation of the main spring rates and anti-roll bar rates.

### 3 Frequencies

- Calculation of frequency per wheel (to be used for damper analysis in a later stadium);
- Calculation of the locations of the dynamic bounce and motion centers.

### 4 Calculation of several examples and scenarios

- Participants will make calculations throughout the workshop;
- The final roll-angle and pitch-angle will be calculated.

## Book your place now!

To secure your spot on this exciting new masterclass (€250 per person), scan the QR code or visit: [www.pmw-expo.com](http://www.pmw-expo.com)



# Professional MotorSport

## WORLD EXPO

KÖLN MESSE, GERMANY



LIMITED  
SPACE,  
BOOK  
NOW!



NEW FOR 2024

### EXPERT MASTERCLASS DESIGNING SPRING RATES FOR RACE CARS

Thursday, November 14, 2024

» This masterclass\* will arm participants with the knowledge and skills to enable them to analyze the current springs of a car and design new springs to better fit requirements – as soon as they return to the workshop!

The session will kick off with a detailed discussion on spring basics before moving on to look at setting design goals, frequencies and how to calculate a spring. Participants will receive a very useful full-color copy of the slides for later reference.

#### Topics covered

- » Basic knowledge about springs
- » The designing of springs
- » Frequencies
- » Calculation of several examples and scenarios

The masterclass will be run by renowned race car performance engineer Ton Serné (visit [www.handlingracingcars.com](http://www.handlingracingcars.com) for more information). \*Rates apply



4-HOUR  
COURSE  
€250

SCAN THE  
QR CODE TO  
SECURE YOUR  
PLACE TODAY!



#PMWExpo  
Get involved online!



[www.pmw-expo.com](http://www.pmw-expo.com)