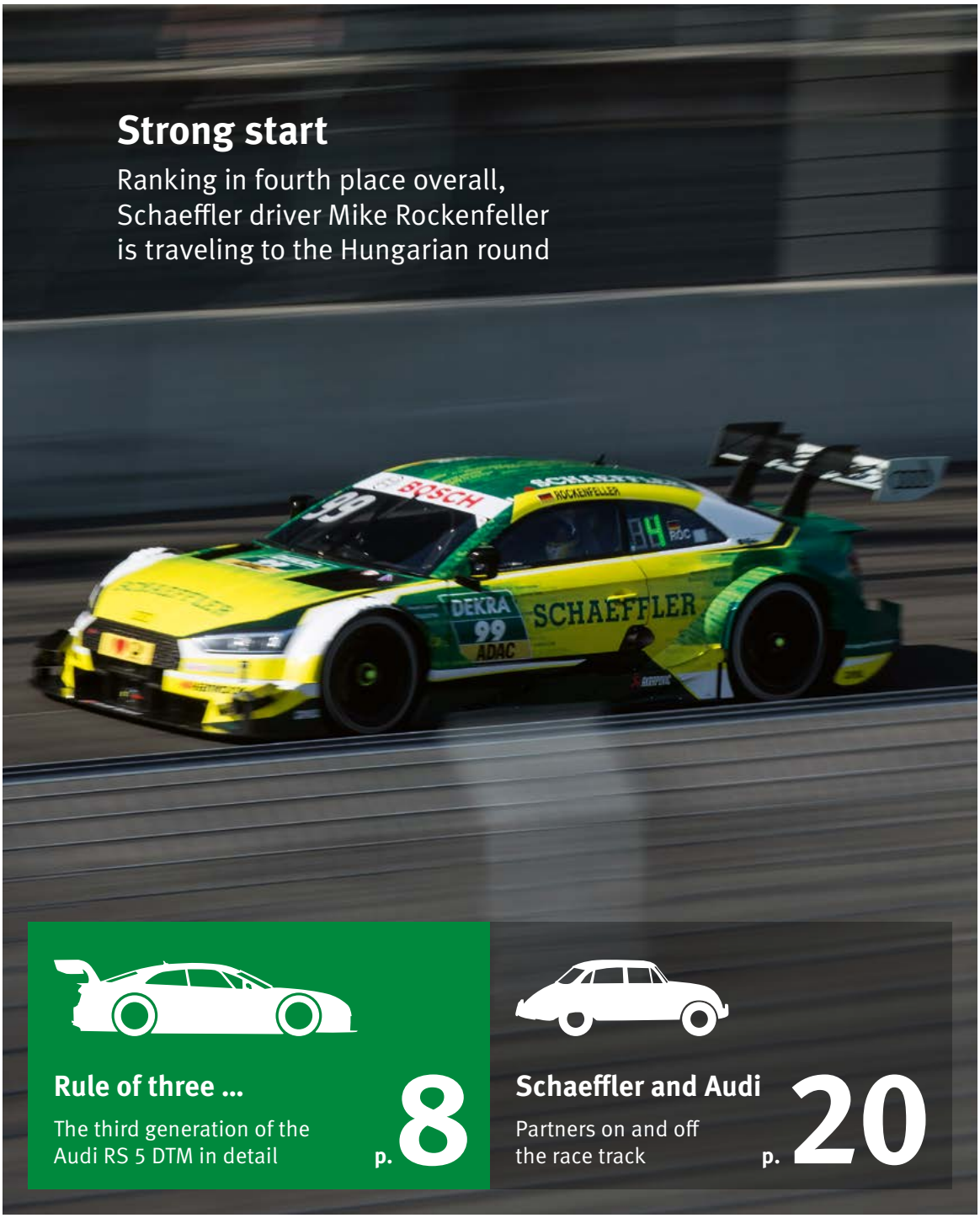
FACT SHEET XXL Round 3

DTM BUDAPEST

June 17/18, 2017

SCHAEFFLER



Rule of three ...
The third generation of the Audi RS 5 DTM in detail
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Schaeffler and Audi
Partners on and off the race track
p. 20

Editorial

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The 2017 DTM season promises to become an extremely balanced one. Following the two race weekends in Germany, the drivers from different manufacturers are taking turns in the top six positions of the standings. Now, the DTM is moving on to Budapest, its first event abroad. Obviously, at Schaeffler, we're again keeping our fingers crossed particularly for Mike Rockenfeller who managed an outstanding start to the season in his Audi RS 5 DTM. And to all the fans at the venue: Enjoy the event!

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Loyal Schaeffler ambassador
Mike Rockenfeller competes sporting the Schaeffler colors for the sixth time in 2017

Motorsp ort in a *cla ss of its own*

The DTM has been delivering top-class touring car racing for more than 30 years. The German manufacturers, Audi, BMW and Mercedes-Benz, and renowned drivers, battle for positions and points within the range of thousandths

The idea of a new touring car series was born in 1983 and, unlike other championships it did not group the field in various classifications. The driver to finish first was the winner: a transparent concept that was working well in the French Touring Car Championship too. The championship which in 1984 began as "Deutsche Produktionswagen-Meisterschaft" (German Production Car Championship) evolved into the most important international touring car series, DTM, over the period of more than three decades.

2017 marks a very special year for the DTM. For the first time, fans have the opportunity to watch the teams' activities at close range. Three garages are open, allowing visitors to take a look inside the inner sanctum – even during most of the sessions: another step of making the DTM as fan-friendly as possible.

A tight set of regulations has been ensuring a sporting competition on an equal footing for years. 18 vehicles, each delivering about 500 HP, are driven by top-class campaigners such as Mike Rockenfeller, Mattias Ekström, Gary Paffett, Bruno Spengler or Timo Glock. Six champions in total, including title defender Marco Wittmann, are aiming to again go down in the annals of DTM history.

Attractive for fans and partners

As usual, two races will be held at each event. However – another novelty – both of them now being equivalent. Each of the 18 classified rounds in the upcoming season covers a 55-minute distance plus one lap.

Schaeffler supported drivers and teams even in the DTM's early years. Stickers of the LuK product brand were displayed on driver suits and vehicles. In 2011, the technology group concentrated its commitments, gave its name to the Schaeffler Audi and celebrated impressive successes. In the year of its premiere, Martin Tomczyk won the title and in 2013, Mike Rockenfeller achieved the same feat. In 2017, Schaeffler, Audi Sport Team Phoenix and Rockenfeller are again forming a congenial trio that continues to make its mark on the DTM. ■

Tour of **Europe**

18 races, 9 events, 5 countries – facts & figures of the 2017 DTM

1 Champagne pleasures

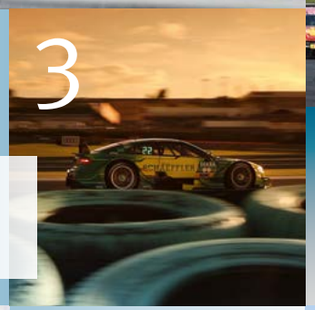
Hockenheim Germany

May 6/7, 2017
Mike Rockenfeller manages a good start to the season in his Schaeffler Audi RS 5 DTM, clinching a third and a seventh place in the opening races.

2 Rate: 100 %

Lausitzring Germany

May 20/21, 2017
Four races, four results in the points: Mike Rockenfeller in his Schaeffler Audi RS 5 DTM, having clinched two fifth places at "Lausitz," continues attracting attention.



3 Double comeback

Budapest Hungary

June 17/18, 2017
In 1988, the DTM raced at the Hungaroring for the first time and then not again until 2014. Following another break the following year, the circuit near Budapest saw the DTM returning in 2016.

4 The highlight

Norisring Germany

July 1/2, 2017
Summer feeling, lakeside venue, celebrities and entertainment galore – the city street race in the heart of Nuremberg is dubbed the "DTM's Monaco" for good reason.

6 Rocky's victory premiere

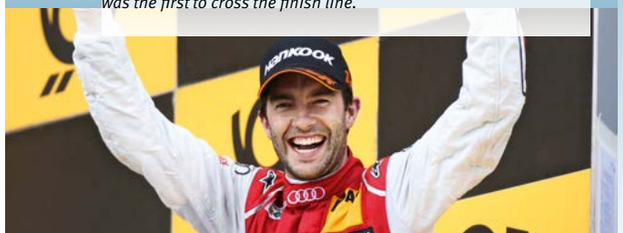
Zandvoort The Netherlands

August 19/20, 2017
In the first year of the Schaeffler Group's DTM commitment, in 2011, Mike Rockenfeller, at Zandvoort, celebrated his first ever DTM victory as well.

5 Russia record holder

Moscow Russia

July 22/23, 2017
In a third of the six DTM races held at the Moscow Raceway, the Schaeffler Audi RS 5 DTM with Mike Rockenfeller at the wheel was the first to cross the finish line.



7 A fixture since 1984

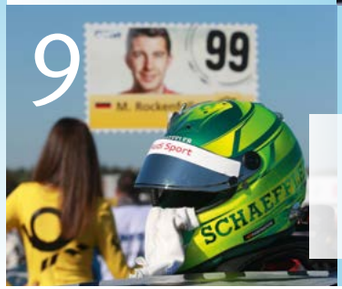
Nürburgring Germany

September 9/10, 2017
The Nürburgring is the only race track to have been consistently represented on the calendar since the DTM's inaugural season in 1984. The DTM races are run on the short version of the Grand Prix circuit.

8 Amidst nature

Spielberg Austria

September 23/24, 2017
An exciting roller coaster ride including an Alpine panorama – the Red Bull Ring features a unique flair. Rocky has been holding the lap record in Austria since 2014.



9 Showdown

Hockenheim Germany

October 14/15, 2017
Six times in the past ten years the title race was not decided before the season finale that is traditionally held at Hockenheim – on five of these occasions the decision was produced in the very last race.

Drivers' classification

P	Driver	Manufacturer	Pts
1	Lucas Auer (A)	Mercedes-Benz	69
2	Jamie Green (GB)	Audi	53
3	Gary Paffett (GB)	Mercedes-Benz	46
4	**Mike Rockenfeller (D)**	**Audi**	**41**
5	Robert Wickens (CDN)	Mercedes-Benz	38
6	Mattias Ekström (S)	Audi	32
7	René Rast (D)	Audi	31
8	Timo Glock (D)	BMW	25
9	Nico Müller (CH)	Audi	20
10	Edoardo Mortara (I)	Mercedes-Benz	19
11	Marco Wittmann (D)	BMW	18
12	Maxime Martin (B)	BMW	17
13	Paul Di Resta (GB)	Mercedes-Benz	12
14	Maro Engel (D)	Mercedes-Benz	3
15	Bruno Spengler (CDN)	BMW	2
16	Tom Blomqvist (GB)	BMW	2
	Loïc Duval (F)	Audi	0
	Augusto Farfus (BR)	BMW	0

Teams' classification

P	Team	Pts
1	Mercedes-AMG Motorsport BWT	88
2	Audi Sport Team Rosberg	84
3	Mercedes-AMG Motorsport Mercedes me	84
4	Audi Sport Team Abt Sportsline	52
5	**Audi Sport Team Phoenix**	**41**
6	BMW Team RMR	27
7	BMW Team RBM	19
8	BMW Team RMG	18
9	Mercedes-AMG Motorsport SILBERPFEIL Energy	15

Manufacturers' classification

P	Manufacturer	Pts
1	Mercedes-Benz	187
2	**Audi**	**177**
3	BMW	64

Changes at a glance

Besides opening the team garages to the fans, the DTM organizers have made further changes to the technical and sporting regulations in order to make the series as exciting and, at the same time, as transparent as possible. In addition, the drivers' skills are moving into focus in the 2017 season even more so than before. The changes in a nutshell

Technology

Engine

The 4-liter V8 engines in 2017 deliver more than 500 HP. The higher engine output results from the air restrictors in the intake system having been enlarged from 28 to 29 millimeters. In addition, special areas in the engine's intake system have been released for further development in order to optimize performance.

Aerodynamics

The specifications of the new Technical Regulations encompass reductions in aerodynamics in order to decrease downforce of the vehicles. For this purpose, the geometries of the front splitter, underfloor and rear diffusor were modified and ride height was increased. Use of the drag reduction system (DRS), which makes overtaking easier in the DTM, will be limited to twelve laps (a total of 36 activations) in all races.

Tires

In conjunction with the new Hankook specification tires that provide more short-term grip but degrade more heavily over time, the resulting overall handling characteristics of the new DTM race cars will be putting clearly greater demands on the driver.

Specification components

This year's body styles correspond to the most recent vehicle generations of their production counterparts. In order to limit the areas that permit cost-intensive high-tech developments by the manufacturers, clearly more areas for jointly developed specification components than before have been included in the new regulations.

Sport

Races

Each of the 18 classification races in the upcoming season will cover a 55-minute distance, plus one lap. As a result, the race duration of a weekend is extended by ten minutes compared with last year (60 and 40 minutes).

Radio

During the races, radio communications between the pit lane and the driver are prohibited. As a result, the driver has to assume clearly more responsibility and make decisions himself. The radio ban is only lifted in a few exceptional situations such as a safety car period.

Heating blankets

The utilization of heating blankets is prohibited. Consequently, the drivers have to first bring their tires up to the optimum temperature both at the start and after the pit stop. This opens up opportunities for additional overtaking maneuvers.

Pit stops

In each race, a mandatory pit stop, no earlier than after the first and no later than after the last race lap, has to be made. This results in many tactical opportunities to define the race strategy. The teams have to perform their tire changes with clearly fewer crew members than before and may use only two impact wrenches. As a result, the pitting time of the cars inevitably becomes longer and every single mechanic has additional tasks to perform and thus more responsibility than before.

Racing time

In 2017, the times at which the DTM race cars can be seen on track will be longer than before. In addition to the two races, they will continue to be out during the free practice sessions – each lasting for 30 minutes on Friday, Saturday and Sunday – plus in the two qualifying sessions of 20 minutes each. This results in a total driving time of four hours per race weekend. ■

Rule of *three* ...

The third-generation Schaeffler Audi RS 5 DTM was developed in parallel to the production model. It appears even more progressive and is even more extreme in terms of aerodynamics than the successful predecessor model. Mike Rockenfeller's DTM race car again represents the Schaeffler colors

Steering wheel

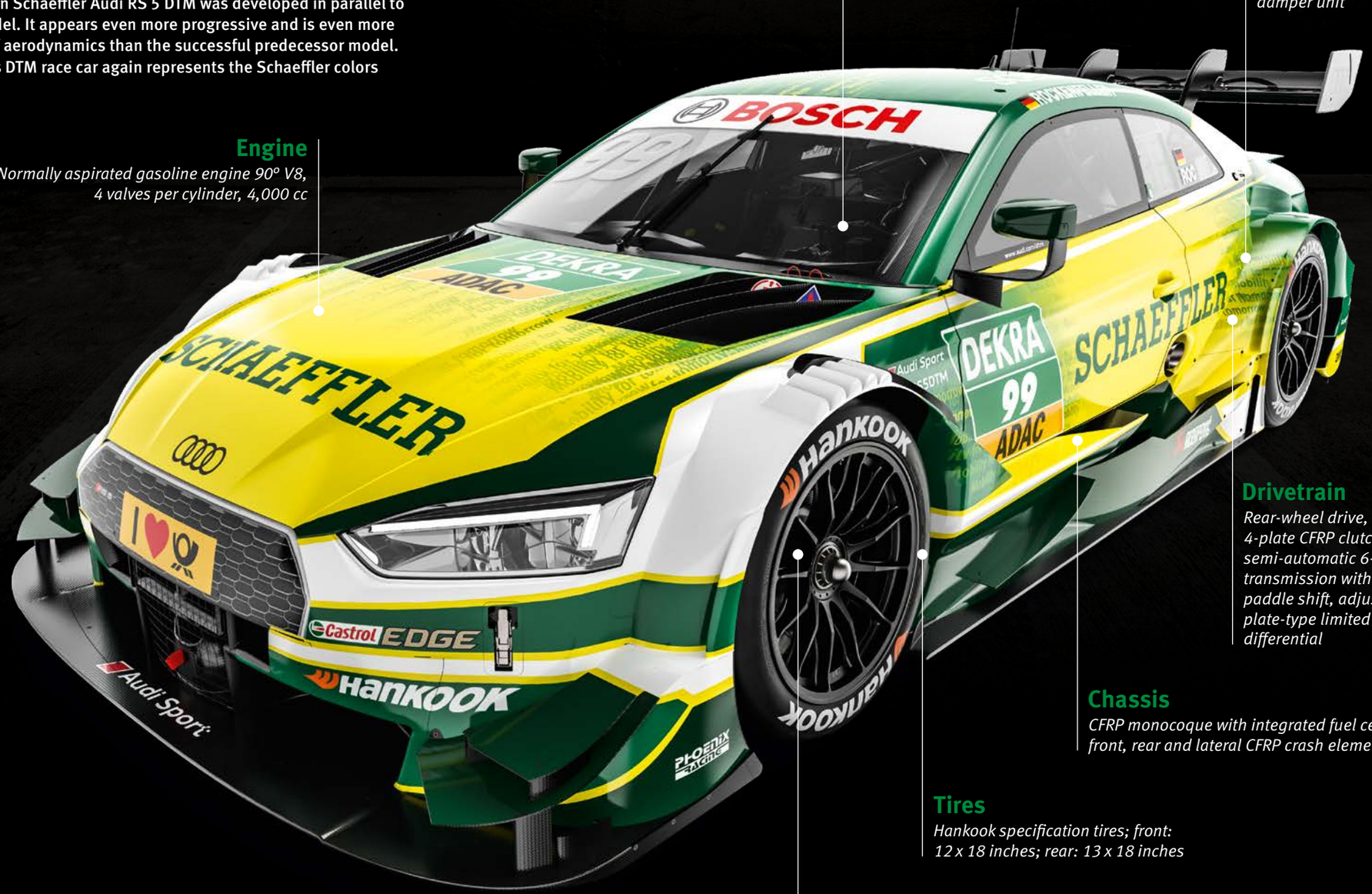
Servo-assisted rack and pinion steering

Suspension

Independent front and rear suspension, double wishbones, pushrod system with spring/ damper unit

Engine

Normally aspirated gasoline engine 90° V8, 4 valves per cylinder, 4,000 cc



Drivetrain

Rear-wheel drive, 4-plate CFRP clutch, semi-automatic 6-speed transmission with paddle shift, adjustable plate-type limited slip differential

Chassis

CFRP monocoque with integrated fuel cell (120 l), front, rear and lateral CFRP crash elements

Tires

Hankook specification tires; front: 12 x 18 inches; rear: 13 x 18 inches

Brakes

Hydraulic dual-circuit brake systems, adjustable brake balance, light alloy monobloc brake calipers

Dimensions

***Length** 5,010 mm (incl. rear wing)*
***Width** 1,950 mm*
***Height** 1,150 mm*
***Weight** 1,125 kg (incl. driver)*

Power output

*More than **500 HP***
*More than **500 Nm torque***

Decision-makers Matthias Zink (left) and Prof. Peter Gutzmer are members of Schaeffler's executive board

"The DTM reaches our *employees*"

Prof. Peter Gutzmer, Deputy CEO and Chief Technology Officer of Schaeffler AG, and Matthias Zink, CEO Automotive of Schaeffler AG, discuss the DTM commitment of their company in an interview

As early as in the 1980s, DTM cars sporting stickers of Schaeffler's LuK product brand competed in the DTM and since 2011 an Audi completely wrapped in Schaeffler colors has been attracting attention. What's the objective behind this commitment?

Peter Gutzmer: "Schaeffler has always been an innovation driver. About three decades ago, we extended our commitment from the factories to the race tracks in a manner of speaking in order to present our brands in the competitive motorsport environment. Not only in the DTM but also in other motorsport disciplines such as rally racing, logos of Schaeffler's LuK, FAG and INA brands have been emblazoned on many vehicles. Today, and this reflects the development of our company as well, we're communicating our brand values in motorsport under the central theme of 'One Schaeffler.'"

In 2017, Schaeffler brand ambassador Mike Rockenfeller is again competing in the DTM at the wheel of an Audi. The vehicle communicates a clear message.

Peter Gutzmer: "Exactly, and it does so even in its name: Schaeffler Audi RS 5 DTM. Besides the purposely selected conspicuous color scheme, the 'Mobility for tomorrow' inscriptions are unmistakable as a visual highlight. So the graphic layout of the vehicle carries the Group's strategy of 'Mobility for tomorrow' into motorsport. Schaeffler is actively involved in designing future mobility with its innovative products and technology expertise. Appearances in motorsport – and I include those in Formula E and in the WEC – are the optimum communicators of our messages."

In 2016, some 1,000 Schaeffler employees with banners, baseball caps and T-shirts of your company practically transformed the grandstands during the DTM season's highlight at the Norisring into a "green wall." What kind of a feeling was that?

Matthias Zink: "A wonderful one. The Schaeffler Audi has been showing the integrative power and mojo of motorsport from day one. Our employees identify with our company via motorsport. And they do so around the globe. Posters and stickers of the Schaeffler racer are displayed in numerous production halls, our research and development sites and in offices. Whenever Mike Rockenfeller visits a Schaeffler location and our employees have the opportunity to shake his hand during personal tech talks it becomes clear that this is a perfect partnership."

The technologies used in race cars and production vehicles in many cases are not very far apart. How do these two areas benefit from each other?

Matthias Zink: "The complexity and speed of motorsport commitments sharpen the focus on essentials and challenge our engineers to deliver feasible solutions by deadlines that are locked in concrete. In addition, motorsport promotes team spirit. All of this is beneficial in Schaeffler's day-to-day work as a globally active automotive and industrial supplier as well. The keyword is technology transfer, for instance in the field of hybridization, which is a very important topic on the road as well as in motorsport. That's why we're involved in the FIA World Endurance Championship (WEC) where we're able to demonstrate our expertise in this field together with our partner Porsche. This applies to Formula E, where the main focus is on the interaction between the electric motor and the transmission, in similar ways. Since the 2015/2016 season, Schaeffler, as the exclusive technology partner, has been developing the powertrain of the race cars together with Team ABT Schaeffler Audi Sport."

The DTM has always been racing with classic IC engines. By contrast, electrification is the predominant topic in the automotive industry at the moment. Will IC engines have a chance in the future?

Peter Gutzmer: "Yes, absolutely. Our future lies in electric mobility but, at the same time, electric mobility is the future of the IC engine as well. As a lot of research has shown, we will not be able to achieve the established targets by 2050 by means of purely battery-based electrification. Looking at the total system, this will only be possible if we create CO_2-neutral energy carriers based on renewable energies and those will be gaseous and liquid synthetic fuels as well as hydrogen, in other words energy carriers that are ideally suited for use in an IC engine system. The future of our personal mobility will be defined by a healthy mix of hybrids, efficient IC engines and electric powertrains." ■

Motorsport *in our genes*

Competition, momentum, vehicle control at the limit – motorsport has many facets that make it unique. But it also sharpens the senses and provides new ideas and motivation for routine tasks. All of these are reasons that motivate Schaeffler to be involved in motorsport

Be it in Formula E, the WEC or in the DTM – success in motorsport is closely tied to the ability of every individual and particularly to teamwork. Innovative prowess and dynamism, determination and courage are essential. This also applies to the daily endeavors of Schaeffler's employees and has resulted in Schaeffler successfully standing its ground as one of the world's leading automotive suppliers. The motorsport commitment has been a substantial element of the Schaeffler brand strategy for more than three decades and is anchored in the company's genes in Herzogenaurach – as well as around the globe where Schaeffler's nearly 87,000 employees are active. ■

E-mobility development laboratory

The first racing series for fully electric vehicles uniquely embodies what mobility for tomorrow stands for. At Schaeffler, involvement in shaping the electrification of the automobile is one of the central forward-thinking topics. Schaeffler is one of the innovation leaders in this field and frequently a pioneer. In Formula E, Schaeffler has been on board as the exclusive technology partner of Team ABT Schaeffler Audi Sport ever since the series' inaugural season of 2014/15. Since the second season, Schaeffler has been developing the vehicle's powertrain. The Brazilian Lucas di Grassi and the German Daniel Abt have been a well-gelled driver duo ever since the first race. Di Grassi has already finished overall runner-up twice and taken third place overall once.

Touring car action

In the DTM, the green-yellow Schaeffler Audi has been the eye-catcher since 2011. In addition to its striking colors, its sporting successes are remarkable too. In the first year of the partnership, Martin Tomczyk, in a previous-specification car, secured one of the most surprising title wins in DTM history. His successor, Mike Rockenfeller, followed suit when he became champion in 2013. Furthermore, as a Schaeffler brand ambassador, Rockenfeller impressively embodies the company's values. For the trained automotive mechanic, participating in events at the Schaeffler plants is not an unpleasant duty. He enjoys them and asks employees to explain their jobs to him. For the employees, it is both an honor and motivation to familiarize the champion with the enormous breadth of the Schaeffler product range in direct exchange and to see him in action at close range.

High-tech hybrids

Action at close range is something that Schaeffler experiences in the FIA World Endurance Championship (WEC) as well – together with Porsche. In 2014, the team based in Weissach returned to the top category, LMP1, following a 16-year abstinence but has not only been relying on Schaeffler's expertise since then. The partnership has historically grown and, in motorsport as well as in production, dates back to the 1940s, Schaeffler's cage-guided needle bearing having been installed in Porsche's first production model, the legendary 356. The WEC provides Schaeffler with a perfect opportunity to demonstrate technological expertise. With a set of Technical Regulations that limit the amount of usable energy while allowing substantial freedom in the areas of hybrid and powertrain technology, energy efficiency and forward-thinking technology are more important than ever – topics that drive the company in terms of automotive technology, the reliability and quality of production vehicles being of major importance to Schaeffler. Together, Schaeffler and Porsche won both the drivers' and the manufacturers' world championship title in 2015 and 2016 as well as the prestigious 24-hour race at Le Mans.

Magic word *efficiency*

A technology on its way out? Not by a long shot! The IC engine is far from having reached the end of its development and will be playing a key role in mobility for tomorrow as well

The coming decades will continue to see valves opening and closing, pistons traveling up and down, and crankshafts rotating. This much is certain, the only question is: in how many cars? Legions of futurists are struggling to come up with an answer to this question. Not least because of the large number of factors, from legal requirements to infrastructures to technical developments and prices, that influence market developments. “There continues to be a high level of uncertainty about the way in which things are going to develop,” says Klaus Rosenfeld, CEO of Schaeffler AG, describing the current state. Farsighted experts of the technology group assume that by 2030 a maximum of 30 percent of all automobiles will be propelled strictly by electricity. All others – in other words 70 percent and more – will have an IC engine on board. An overestimated number? Not when taking the fact into account that hybrid-electric vehicles have IC engines as well.

Combustion still has room for improvement

Especially because IC engines will be a driving force in mobility for tomorrow it’s important to make them fit for the future. Engineers at Schaeffler are working on projects that aim to maximize the output delivered by the amount of energy employed. And, by the way, they’ve been doing so for decades (see info column, right). There’s still considerable room for improvement, as only a fifth of the power in a fuel tank is actually put on the road at the moment. “We estimate the entire efficiency enhancement potential to be no less than 20 percent for gasoline and 10 percent for diesel engines,” reveals Schaeffler’s Chief Technology Officer Prof. Peter Gutzmer. Industry experts are in agreement that a single measure to achieve this does not exist. The reduction of fuel consumption requires a large number of individual ideas and improvements, in the IC engine itself and in the drivetrain.

This is how Schaeffler enhances efficiency

Reducing friction is one of these measures. Here Schaeffler leverages its wide-ranging know-how as a manufacturer of rolling bearings as well as its expertise in surfaces and coatings. In engine technology, for instance, fully variable “UniAir” valve control, the production of which Schaeffler launched in 2009 and has continuously improved ever since, significantly enhances efficiency. Combined with engine downsizing, the system makes it possible to reduce fuel consumption and CO_2 emissions by up to 25 percent. In addition, UniAir expands the possibilities of situational and demand-based engine operation. As a result, modern combustion strategies such as “Miller” and “Atkinson” can be achieved. Cylinder deactivation is possible without the need for any additional engineering modifications as well. In addition, Schaeffler’s electromechanical camshaft adjuster enhances efficiency compared with conventional hydraulic systems. Not only with cylinders, Schaeffler pursues the simple approach to saving of “shutting everything off that’s not needed at the moment.” All-wheel drive disconnect clutches, start-stop systems or electric clutches – the portfolio of the automotive and industrial supplier includes all of these. Another piece of the optimization puzzle: the thermal management module launched in 2011 that helps IC engines and transmissions reach their ideal temperature windows faster.

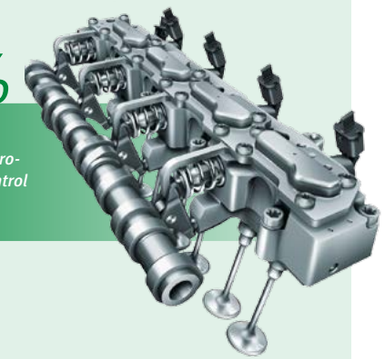
Actually, whether IC engines or electric motors will prevail is not the question at Schaeffler. A more appropriate statement would be that there will be both: IC engines and electric motors because without electrification/hybridization even mid-size cars like the Audi A5 will not be able to comply with future CO_2 limits. ■

3 examples from decades

Innovations for more efficiency
(Percentage: fuel savings)

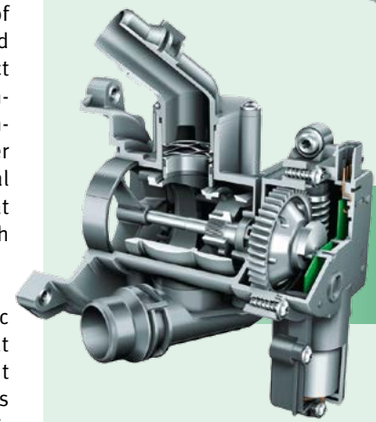
22 %

1985
Dual-mass flywheel (DMF) with centrifugal force pendulum absorber



25 %

2009
Fully variable electro-hydraulic valve control (UniAir)



4 %

2011
Thermal management module

Always focused on progress Schaeffler has a decades-long track record of delivering innovations to reduce the fuel consumption and emissions of IC engines, which enhances their efficiency

Experience *is a trump card*

Phoenix Racing is one of the few teams that have been racing in the DTM ever since the series' comeback in 2000. For the 2017 season, the Eifel-based team has partly reorganized

Audi and Phoenix Racing have been partners in the DTM since 2006. The squad based in Meuspath in the Eifel region has won the DTM drivers' title twice and provided the best Audi driver in the overall classification four times. Since the racing series' comeback in 2000, the team has been active in the DTM, which makes it one of the most experienced outfits in the field.

Alongside Team Director Ernst Moser and Team Manager Dirk Theimann, Jürgen Jungklaus has returned to the DTM as Head of the Team. The seasoned engineer led Mike Rockenfeller to the DTM title in the 2013 season and had to take a break last year for health reasons.

GT racing is Phoenix Racing's second pillar. The team has won the 24-hour race at the Nürburgring twice with the Audi R8 LMS. GT racing commitments are again planned for 2017. In addition, Phoenix Racing has intensified its activities in Asia, including those in the Audi R8 LMS Cup. ■

Major successes of Phoenix Racing

1st place	**2011, 2013** DTM (drivers)
1st place	**2013** DTM (teams)
1st place	**2000, 2003, 2012, 2014** 24 Hours of Nürburgring
1st place	**2007, 2012** 24 Hours of Spa
1st place	**2012** 12 Hours of Bathurst
1st place	**2009** FIA European GT3 Championship
1st place	**2009** Belgian GT3 Championship
1st place	**1999** Touring Car GP Macau

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A champion attacks again

Together with Phoenix Racing and Schaeffler Mike Rockenfeller in 2013 achieved his greatest success in motorsport to date when he became DTM Champion. In spite of two difficult years most recently, Rocky is confident for 2017

Position 14, position 7, position 6, position 4, position 1 – since 2009, Mike Rockenfeller has evolved into a top-class driver in the DTM. In 2013, his upward performance curve culminated in winning the drivers' title. In addition, he occupied a strong third place in the overall standings in 2014. In the past two years, the Schaffler ambassador remained below his expectations. No reason to bury his head in the sand. "I'm confident that we're going to make it back to the top," says Rockenfeller. "My team and I have to change a few things and we're ready for that. We're going to make a different showing again than we did in the past two years, especially better than the one in 2016." ■

Career highlights

2003	2nd Porsche Carrera Cup
2004	1st Porsche Carrera Cup
2005	1st GT2 class FIA GT Championship
	1st GT2 class 24 Hours of Le Mans
2006	1st 24 Hours of Nürburgring
2008	1st Le Mans Series
2010	1st 24 Hours of Le Mans
2013	1st DTM (with Schaeffler)
	"ADAC Motorsportler des Jahres"
2014	3rd DTM (with Schaeffler)

Biography

Date of birth	October 31, 1983
Place of birth	Neuwied (D)
Residence	Landschlacht (CH)
Marital status	Married to Susanne, two sons (Phil and Paul)
Height	1.75 m
Weight	68 kg
Motorsport since	1995

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Champion Sporting stickers of Schaeffler's product brand LuK, the Swede Mattias Ekström wins the DTM in 2007

Showing the colors

Schaeffler and its product brands have become "permanent fixtures" in the DTM. Small stickers marked the beginning and title wins have been some of the highlights to date – a success story

Represented by its product brands as early as in the DTM's pioneering days, Schaeffler concentrates its commitments for the 2011 season and starts sporting a new look. Colorful and ready to attack – the green-yellow Schaeffler Audi. It was visually conspicuous and conspicuously fast right from the beginning. Be it with the A4 DTM or the RS 5 DTM, with Martin Tomczyk or with Mike Rockenfeller at the wheel – Schaeffler stands for success in the DTM. For pole positions, fastest race laps, for victories and for title wins.

The globally active automotive supplier has started to sponsor a complete race car with its name and in a major project at that. The company has opted for a commitment in the tradition-steeped DTM – the most popular international touring car series with millions of fans throughout Europe. The vehicle is wrapped in the company's colors, its name, Schaeffler, and the logos of its product brands, LuK, FAG and INA, are emblazoned on the bodywork in several places – Schaeffler, from now on, will be inevitably linked to the results of this car.

From underdog to dominator

The venture proves successful. The Schaeffler Audi A4 DTM, which the racing scene affectionately nicknames "caipirinha express" at the time, soon evolves into the revered "Schaeffler Audi." Thanks to the outstanding work of driver Martin Tomczyk and his team, Audi Sport Team Phoenix, Schaeffler can call itself champion right in the debut year of its DTM commitment, not only from a sporting perspective but from a business one as well. "Motorsport evokes emotions and promotes bonding particularly when you're successful," says Schaeffler's Chief Technology Officer Prof. Peter Gutzmer. "At Schaeffler and the Schaeffler brands, motorsport has traditionally been enjoying particular importance – as befits a technology company driven by innovation."

30 years ago: The Schaeffler brands mark the beginning

The tradition dates as far back as the mid-nineteen eighties when the LuK, FAG and INA brands are first featured on the race cars in international touring car series for advertising purposes. Among others, in the 1986 DTM, the Rover Vitesse is on track sporting the LuK logo, with Kurt Thiim at the wheel. In the first event at Zolder, the Danish rookie races to victory from second place on the grid, marking Thiim's first DTM success and the first triumph for a vehicle with LuK branding as the beginning of a long success story. Following two other victories that season, Thiim clinches the title. In the following DTM years, the INA and LuK logos are featured on many other cars of the Alpina, BMW, Ford, Mercedes-Benz and Opel marques, as well as on the racing suits of their drivers. The conspicuous presence and numerous race victories in the subsequent years enhance the level of awareness the company enjoys within the DTM scene with a lasting effect.

In 2007, Mattias Ekström and Mike Rockenfeller in their Audi A4 DTM cars are racing under the banner of Schaeffler's product brands LuK and INA, respectively. Ekström clinches the title. And this success really sets things in motion. 2011: Martin Tomczyk becomes champion. 2012: Mike Rockenfeller succeeds the title defender who has switched to BMW as the Schaeffler campaigner. In his Audi A5 DTM, on clinching fourth place overall, he achieves his best DTM result. 2013: Rockenfeller drives the season of his life and claims the title. For Schaeffler, this marks the second triumph in its third year as the main sponsor of a vehicle. And in 2014, "Rocky," in third place overall, makes the Schaeffler colors shine again. ■

Schaeffler's brand history in the DTM

The journey of the product brands, LuK, INA and FAG, to the Schaeffler umbrella brand

1986

1987

1988

1989

2007

2013

2017

From *day one*

Schaeffler and Audi have not only been enjoying a longstanding partnership in the DTM. The technology group based in Herzogenaurach and the OEM based in Ingolstadt have been working together in automobile production for many decades as well

Schaeffler's success story begins in 1949 when brothers Georg and Wilhelm Schaeffler file a patent application for the cage-guided needle bearing that sets new standards. The "needles" as the long, cylindrical rolling elements are called, are not loosely inserted into the bearing but guided in a cage that prevents contact between them. Friction losses due to counter-rotating movements are thus eliminated. As a result, such bearings can be exposed to higher dynamic loads than so-called full-complement bearings. As early as in 1950, the cage-guided needle bearing has become an integral component of the Auto Union DKW F89. Auto Union is a company that preceded today's AUDI AG. From 1952 on, the invention of the Schaefflers can be found as well in the transmission of the Beetle made by Volkswagen – today's parent corporation of Audi – and starts selling by the millions within a short period of time.

Schaeffler and Audi intensify their partnership

As a systems supplier, Schaeffler develops tension and idler pulleys, hydraulic and mechanical belt tensioner systems and alternator de-couplers. In 1995, Schaeffler's overrunning alternator pulley is used in the Audi A4. Among other things, it reduces rotational irregularities in the belt drive, resulting in higher running smoothness and refinement, improved NVH performance and longer component life. Just four years later, Schaeffler presents another innovation in an Audi A6: continuously variable transmission is now possible thanks to a link-plate chain and a variator whose cone-shaped plates alter the diameter of the contact area and thus continuously vary the gear ratios. The solution from Schaeffler's LuK brand transmits torque of up to 400 newton meters.

Innovation Schaeffler's mechatronic roll stabilizer was the first system of its kind on the market

Award winner

Schaeffler's mechatronic roll stabilizer which is installed in the current Audi SQ7, for example, was recognized in 2016 with the "German Innovation Award" in the "large enterprise" category. A compact electric motor with a three-stage planetary gear-set separates the two halves of the stabilizer. On a bumpy road, they are actively isolated from each other for enhanced ride comfort.

Going forward

Schaeffler in 2013 pioneered the "48 Volt" that pointed the way toward mobility for tomorrow. Since then, this automotive technology has made it possible to realize a wide range of ideas, from hybridization through to vehicle dynamics and comfort features. Thanks to these new possibilities, automobiles become both more fuel-efficient and dynamic – at very moderate prices. The latest showcase demonstrating 48-volt technology is the "Schaeffler High Performance 48 V" (big picture, left). It represents cost-efficient hybridization combined with maximum dynamics and permanently provides all-electric power output of 20 kW. This power flows to the two rear wheels, complementing the IC engine that is linked to a 48-volt belt-driven starter-generator. The powerful electric motor generates starting torque of up to 2,000 newton meters, allowing the vehicle to travel in all-electric mode up to 35 km/h. Active coasting at constant speed is even possible at speeds of more than 70 km/h. The electric motor can assist the IC engine as well – causing the car to accelerate with even greater momentum.

In the decades ahead, Schaeffler and Audi are going to jointly shape mobility for tomorrow as well, in the forward-thinking field of e-mobility, among others. ■

Auto Union DKW F89
How everything began

In 1950, the revolutionary cage-guided needle bearing is used for the first time in the vehicle called "Meisterklasse."

Audi 80 quattro
Competitive

An example from motorsport: Armin Schwarz and Hans-Joachim Hösch compete in the 1986 Rally Bohemia – with stickers of Schaeffler's INA brand.

Audi A4
Calming component

In 1995, volume production of the overrunning alternator pulley is launched. It reduces vibrations and improves the energy efficiency of engines.

Audi A6
Perfect harmony

In 1999, Audi for the first time relies on Schaeffler technology for a continuously variable transmission in its "Multitronic."

Audi SQ7
Prize winner

Schaeffler's mechatronic roll stabilizer that won an award in 2016 enhances ride comfort on bumpy roads.

Audi RS 5 DTM
DTM guarantor of success

In 2017, Mike Rockenfeller is again racing in the DTM sporting the Schaeffler livery. In 2011 and 2013, Schaeffler wins the title in the touring car racing series.

Mobility *for tomorrow*

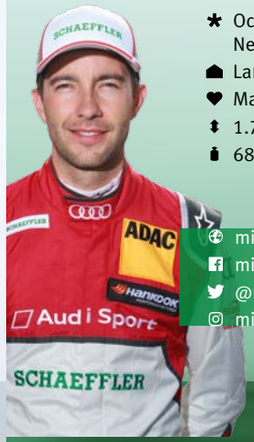
For Schaeffler, innovation has been part of its corporate DNA since the foundation of the company. It is based on lateral and interdisciplinary thinking

Schaeffler is known as an innovative leader delivering a wealth of technologies that make automobiles more fuel-efficient, environmentally friendly, and safer, as well as products for trains, aircraft, wind turbines, and many other industrial sectors. Schaeffler can be found wherever things are in motion – and motion also means mobility. The challenges facing mobility of the future are immense. That's why Schaeffler is committed to its holistic "mobility for tomorrow" concept, geared to finding sustainable solutions for the world of tomorrow. ■

Mobility for tomorrow Under this concept, Schaeffler concentrates on four focus areas: environmentally friendly drive systems, urban mobility, interurban mobility and energy chain

Compact *info*

#99 Mike Rockenfeller



- ✱ October 31, 1983, Neuwied (D)
- Landschlacht (CH)
- Married, two sons
- 1.75 m
- 68 kg

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Schaeffler Audi RS 5 DTM

- **Chassis** CFRP monocoque, front, rear and lateral CFRP crash elements
- **Drivetrain** Rear-wheel drive, 4-plate CFRP clutch, semi-automatic 6-speed transmission with paddle shift, adjustable plate-type limited slip differential
- **Engine** Normally aspirated V8, 4,000 cc, more than 500 HP
- **Suspension** Independent front and rear suspension, double wishbones, pushrod system with spring/damper unit
- **Weight** 1,125 kg (including driver)
- **Dimensions** Length 5,010 mm, width 1,950 mm, height 1,150 mm

Rockenfeller in the DTM

1 *drivers' championship title (2013)*

6 #1 *pole positions*

5 *fastest race laps*

121 *races*

4 *wins*

Schaeffler Audi RS 5 DTM facts

3rd *generation (1st 2013, 2nd 2014, 3rd 2017)*

3.1 **Seconds** *in the sprint from 0 to 100 km/h*

280 km/h *top speed*

Schaeffler in the DTM (2011–2017)

79 *races*

6 #1 *pole positions*

6 *wins*

4 *fastest race laps*

2 *drivers' championship titles (2011, 2013)*

Schaeffler facts

≈ 87,000	employees worldwide
13.3	billion Euro turnover in 2016
› 2,300	registered patents in 2016
25,000	active and pending patents
170	locations in 50 countries
75	factories worldwide
60	Schaeffler components in automobiles worldwide (average)
17	R&D centers worldwide

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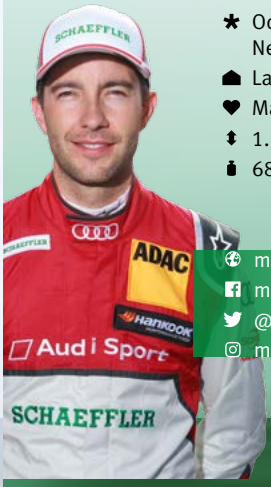

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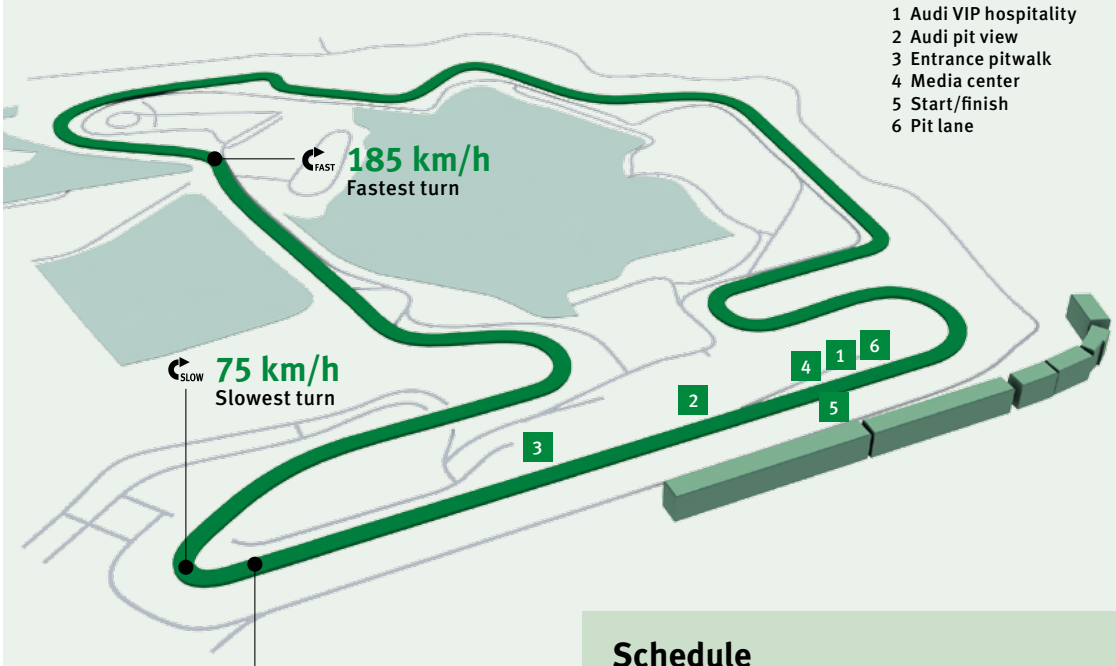
The race track

Hungaroring



4,381 m

Track length

Schedule

Friday, June 16

13:30 – 15:00	FIA Formula 3	Free practice 1 & 2
15:15 – 15:45	TCR International	Free practice 1
17:00 – 17:30	DTM	Free practice 1
18:00 – 18:20	FIA Formula 3	Qualifying 1

Saturday, June 17

09:40 – 10:10	DTM	Free practice 2
10:40 – 11:15	FIA Formula 3	Race 1
11:40 – 12:00	DTM	Qualifying 1
12:15 – 12:45	TCR International	Free practice 2
14:48 – 15:43	DTM	Race 1
16:15 – 16:35	FIA Formula 3	Qualifying 2 & 3
16:50 – 17:25	TCR International	Qualifying

Sunday, June 18

09:10 – 09:35	TCR International	Race 1
10:00 – 10:30	DTM	Free practice 3
11:05 – 11:40	FIA Formula 3	Race 2
12:00 – 12:20	DTM	Qualifying 2
13:00 – 13:25	TCR International	Race 2
15:18 – 16:13	DTM	Race 2
17:00 – 17:35	FIA Formula 3	Race 3