The final races of the 2018 DTM season at the Hockenheimring promise to be thrilling for fans and Schaeffler driver Mike Rockenfeller.
Some of the world’s most notable drivers fight gripping duels in high-tech race cars with more than 500 horsepower on race tracks throughout Europe. The internationally most popular touring car series has been captivating fans since 1984 with a mix of attractive motorsport and a pro-program featuring a variety of entertainment. Three German premium manufacturers pitted against each other in high-caliber racing, an enhanced event calendar, two races per weekend, six different countries hosting the DTM – the overall conditions for the 2018 season could not be better.

For Rockenfeller, however, the title is out of reach this year. Instead, he will lend as much support as possible to his brand colleague Rast at the Hockenheimring. After his seven straight top ten results, Mike Rockenfeller is a hot candidate for podium spots at rounds 19 and 20 of the season. We at Schaeffler wish him every success in the exciting final spurt and we highly recommend a visit to the track to witness the action. This brochure provides you with all the important information and facts.

Editorial

One thing is clear after René Rast’s four recent consecutive wins: The Audi teammate of Schaeffler driver Mike Rockenfeller has the chance to defend his 2017 driver’s title at the 2018 DTM season finale at Hockenheim.

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The touring car elite

Some of the world’s most notable drivers fight gripping duels in high-tech race cars with more than 500 horsepower on race tracks throughout Europe.

Even in the DTM’s early years, Schaeffler supported drivers and teams with its motorsport and technical know-how, emphasizing its passion for technology. Since 2011, the company has been giving its name to the Schaeffler Audi and has celebrated major successes including two title wins. This season, Schaeffler, Audi, Phoenix Racing, the Schaeffler Audi RS 5 DTM and driver Mike Rockenfeller are again forming a unit that promises to deliver success.

#DTMHockenheim

A small German town with a big name in the worldwide motorsport scene – that’s Hockenheim.

Country and people

Hockenheim is located in the Rhine-Neckar county not far from Mannheim, the “cradle of the automobile” where Karl von Drais in his day invented the “draisine” running machine and Carl Benz developed the first automobile with an internal combustion engine. The 55-kilometer long Kraichbach river divides Hockenheim into two parts. In 2019, the town will celebrate the 1,250th anniversary of its first official mentioning in the “Lorscher Codex,” the volume of official documents of the Abbey of Lorsch.

Race track

Initially established in 1932 as a triangular track of some twelve kilometers in length on unpaved trails in the Hardtwald forest, the Hockenheimring went on to become one of the country’s most important race tracks. In the DTM, the Grand Prix circuit enjoys a special role as well. Ever since the racing series’ relaunch in 2000, it has, with one exception, been hosting both the opening and the final event each season. With 88 races the Hockenheimring ranks ahead of the Nürburgring (79) as the most frequently used DTM track.

Mobility

Hockenheim’s population of some 20,000 residents benefits from the town’s geographic location with good travel connections in the Northern Baden’s Upper Rhine valley. Two freeways, A6 and A61, are routed directly past Hockenheim and A5 is just a few kilometers away. As a result, in spite of its small area of only 35 square kilometers, Hockenheim is one of Germany’s most important “automobile towns.” A train station, connections to federal roads and two country roads plus the nearby regional airports in Speyer and Mannheim underpin the town’s central location.

Picturesque Hockenheim’s historic center

Inhabitants

21,625

Days of rain/month

8

Hours of sunshine/day

10

Nighttime temperature

5 °C

Daytime temperature

15 °C
More racing action

20 races in six European countries – the 2018 DTM calendar is more extensive than it has ever been since the 1996 season

1 & 2

Rocky in contention at the front

May 5/6, 2018

With his second place clinched in race two, Mike Rockenfeller was the best Audi driver in the season opener at Hockenheim. In the drivers’ standings he is in third position tied on points with another contender.

Damage limitation

May 19/20, 2018

On a weekend that was difficult for Audi across the board, Schaeffler driver Mike Rockenfeller still managed to stand out. In race two, Rocky took eighth position.

3 & 4

Spearhead

June 2/3, 2018

With a fourth place scored in race two at the Hungaroring that was heavily influenced by the weather, Rocky defended his top spot within the Audi lineup.

No points

June 23/24, 2018

For the first time this season, Rockenfeller goes home from a weekend completely empty-handed. The highlight: his best time in the second free practice.

5 & 6

Misfortune for Rockenfeller

July 14/15, 2018

In race two, while lying in fifth place, Mike Rockenfeller’s car suffers a puncture. However, on setting the fastest race lap, Rocky shows his potential.

11 & 12

Countable success

August 11/12, 2018

After two events without points, Mike Rockenfeller finishes in the top ten twice. In the aggregate of the two races, he makes up eleven positions after starting from the grid.

13 & 14

In good form

August 25/26, 2018

Mike Rockenfeller finishes both of the first night races in DTM history in the points. His performances in the qualifying sessions are impressive as well.

15 & 16

Back on the podium at last

September 22/23, 2018

At Saturday’s race, Mike Rockenfeller finished second just behind his Audi colleague René Rast. On Sunday, Rocky was blocked in qualifying, and came from P13 to finish P8.

17 & 18

Fair to middling jubilee

September 8/9, 2018

The round on Saturday was Mike Rockenfeller’s 150th DTM race: sixth place, eight points, and none on Sunday: a braking mistake, later on a spin and finished only in 13th position.

Drivers’ standings

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Driver</th>
<th>Manufacturer</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paul Di Resta (GB)</td>
<td>Mercedes-Benz</td>
<td>229</td>
</tr>
<tr>
<td>2</td>
<td>Gary Paffett (GB)</td>
<td>Mercedes-Benz</td>
<td>225</td>
</tr>
<tr>
<td>3</td>
<td>René Rast (D)</td>
<td>Audi</td>
<td>199</td>
</tr>
<tr>
<td>4</td>
<td>Marco Wittmann (D)</td>
<td>BMW</td>
<td>143</td>
</tr>
<tr>
<td>5</td>
<td>Edoardo Mortara (CH)</td>
<td>Mercedes-Benz</td>
<td>139</td>
</tr>
<tr>
<td>6</td>
<td>Timo Glock (D)</td>
<td>BMW</td>
<td>127</td>
</tr>
<tr>
<td>7</td>
<td>Lucas Auer (A)</td>
<td>Mercedes-Benz</td>
<td>118</td>
</tr>
<tr>
<td>8</td>
<td>Pascal Wehrlein (D)</td>
<td>Mercedes-Benz</td>
<td>108</td>
</tr>
<tr>
<td>9</td>
<td>Philipp Eng (A)</td>
<td>BMW</td>
<td>98</td>
</tr>
<tr>
<td>10</td>
<td>Mike Rockenfeller (D)</td>
<td>Audi</td>
<td>79</td>
</tr>
</tbody>
</table>

Teams’ standings

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Team</th>
<th>Points</th>
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<tbody>
<tr>
<td>1</td>
<td>Mercedes-AMG Motorsport PETRONAS</td>
<td>333</td>
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<tr>
<td>2</td>
<td>Mercedes-AMG Motorsport REMUS</td>
<td>250</td>
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<tr>
<td>3</td>
<td>SILBERPFEIL Energy Mercedes-AMG Motorsport</td>
<td>257</td>
</tr>
<tr>
<td>4</td>
<td>Audi Sport Team Phoenix</td>
<td>123</td>
</tr>
</tbody>
</table>

Manufacturers’ standings

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Manufacturer</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mercedes-Benz</td>
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</tr>
<tr>
<td>2</td>
<td>BMW</td>
<td>563</td>
</tr>
<tr>
<td>3</td>
<td>Audi</td>
<td>481</td>
</tr>
<tr>
<td>4</td>
<td>Audi Sport Team Phoenix</td>
<td>123</td>
</tr>
</tbody>
</table>

Showdown October 13/14, 2018

The grand finale not to be missed: In nine of the past 15 seasons, the DTM title was only awarded on the last race weekend.
Congenial quintet

Premium partner Schaeffler, manufacturer Audi, fielding team Phoenix Racing, driver Mike Rockenfeller and the Schaeffler Audi RS 5 DTM race car – these players are jointly battling for points and trophies in the 2018 DTM.
The DTM has been thrilling its fans for more than three decades, thanks to the organizers and the governing body who keep working on making the popular touring car series even more attractive and exciting with ever new ideas. A summary of sporting and technical aspects that define the DTM.

### Aerodynamics

- **2017**
  - One flick less at front wheel well
  - Side channel and floor plate modified
  - Flick at rear wheel omitted

- **2018**
  - 25 percent less downforce resulting in greater spectacle for fans

### Race format

<table>
<thead>
<tr>
<th>Day</th>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRIDAY</strong></td>
<td>Free practice</td>
<td>30 minutes</td>
</tr>
<tr>
<td></td>
<td>Qualifying</td>
<td>20 minutes</td>
</tr>
<tr>
<td><strong>SATURDAY</strong></td>
<td>Race</td>
<td>55 minutes + 1 lap</td>
</tr>
<tr>
<td><strong>SUNDAY</strong></td>
<td>Qualifying</td>
<td>20 minutes</td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>55 minutes + 1 lap</td>
</tr>
</tbody>
</table>

### Points

- **Qualifying**
  - 1st
  - 2nd
  - 3rd

- **Race**
  - 1st
  - 2nd
  - 3rd

### Pit stop

- 1 pit stop per race
- Mechanics (max.), 1 impact wrench per side
- Tires are changed
- Driver decides when to pit

### Tires

- 8 sets of new slicks for entire weekend (+ 6 sets of wets)
- 2 sets returned after free practice on Saturday
- Tire warmers banned for slicks

### Radio

- Laurent Fedacou
  - Race engineer (trackside)
- Mike Rockenfeller
  - Driver (in the car)

1. Exception: safety relevant reports, in the pit lane and during caution periods.
As far back as in the 1980s, DTM cars were racing with stickers of Schaeffler’s LuK brand and since 2011, an Audi fully wrapped in Schaeffler’s colors has been attracting attention. What’s the objective that drives 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 environment of motorsport. Many cars not only in the DTM but also in other motorsport disciplines such as rally racing were emblazoned with logos of Schaeffler’s LuK, FAG and INA. Today, we’re communicating our brand values in motorsport under the ‘One Schaeffler’ theme. In addition, motorsport not only reflects the competitiveness of our products, but also strengthens the skills of our young engineers who increasingly often join us with experience from the Formula Student engineering design competition.”

Talking about technology transfer: The technologies in race cars and production automobiles are frequently not so far apart from each other. How do these two fields benefit from each other?

Matthias Zink: “The complexity and speed in motorsport commitments sharpen the focus on what’s essential and require our engineers to deliver feasible solutions at a fixed point in time. In addition, motorsport promotes team spirit. All this is beneficial for Schaeffler’s daily work as a globally active automotive and industrial supplier as well.”

As an official technology partner of Team Audi Sport ABT Schaeffler you are active in the Formula E electric racing series as well. This is a totally different field particularly in terms of the type of powertrain. IC engines and electric mobility – how do these two fit together in a portfolio in your case?

Peter Gutzmer: “Electric mobility is our future but, this said, electric mobility is the future of the IC engine as well. As many studies have shown, we’re not going to achieve the envisioned targets by 2050 with purely battery-based electrification. Looking at it from the perspective of total systems, this will only be possible if we create CO₂-neutral energy carriers using renewable energy sources which can ideally be achieved in an IC engine system. The future of our personal mobility will be defined by a sound mix of hybrids, efficient IC engines and electric powertrains.”

From small stickers to full vehicle branding – Schaeffler has been progressively extending its DTM commitment over the past 30 years. Success in racing has proved the company right.

The beginnings

The logo of Schaeffler’s LuK product brand is featured on Kurt Thim’s racing suit and car, among others. In the first event, at Zolder 1986, the Danish rookie races from second on the grid to victory. At the end of the season, Thim even wins the title. In the following DTM years, the LuK, INA and FAG logos can be seen on many other cars of the Alpina, Audi, BMW, Ford, Mercedes-Benz and Opel marques and on the racing suits of their drivers.

2011

Triumph in Schaeffler’s colors

For the 2011 season, Schaeffler concentrates its commitments and becomes the naming sponsor of a full race car of Audi Sport Team Phoenix. The Schaeffler Audi A4 DTM sporting conspicuous colors and dubbed “Caipirinha express” in the hands of campaigner Martin Tomczyk turns out to be a guarantee for points. In all ten races of the season, the Bavarian driver claims a place in the top five, celebrating three victories in the process. At the end of the season, he scores the title win. The whole Schaeffler Group is the champion in its DTM debut year.

2013

Repeating the feat

In the 2013 season, the Schaeffler campaigner’s name is Mike Rockenfeller. In just his second race, at Brands Hatch, he celebrates his first victory that season and takes the lead of the standings. Victory number two, at Moscow, produces an early decision in Rocky’s favor in the title race with BMW driver Bruno Spengler. After the penultimate event at Zandvoort, Rockenfeller can no longer be bumped from the top spot in the overall standings.
In the medium term, 70 percent of all newly registered vehicles – hybrid models included – will have an IC engine on board, according to a forecast by a Schaeffler scenario for 2030. In the light of future climate and emission targets, it is all the more important to make established powertrain technology fit for the future.

For the globally active automotive and industrial supplier, it is clear that an either-or philosophy will not be sufficient on the road toward mobility for tomorrow. “Important keys to success lie in the ability to think systematically and in ambidexterity, the gift of acting with ‘both hands.’ This means continuing to develop the things that have proven viable while breaking new ground at the same time,” explains Prof. Peter Gutzmer, Schaeffler’s Chief Technology Officer.

The further development of things that have proven viable include, for example, rolling bearings for engines and transmissions with particularly low friction, as well as mechanically and electronically optimized control systems such as the UniAir fully variable electrohydraulic valve control and electromechanical camshaft adjusters or VCR systems enabling variable compression ratios. Another highly attractive and effective technology: Schaeffler is testing three-cylinder engines with so-called rolling cylinder deactivation where a different combustion chamber is shut off after every four cycles. This is where Schaeffler’s patented dual-mass flywheels with pendulum-type absorbers for vibration absorption are utilized as well – an invention that for many years has been responsible for perfectly smooth running of ICE powertrains in a wide variety of configurations. In addition, it enables driving in particularly low engine speed ranges and thus yields additional savings potential.

45 percent efficiency realistic

In spite of continuous improvements, it is also clear that without additional electrification of the powertrain the IC engine will not be able to comply with future emission limits. Schaeffler has developed a large number of production solutions in this context, ranging from the thermal management module derived from the internal combustion engine to electric clutch systems to 48-V and hybrid technologies.

In 2030, Schaeffler expects that annual production just of so-called P0 hybrid drives, in which the electric motor is connected with the crankshaft of the IC engine via a belt, will amount to some 20 million units. These belt-driven starter-generators make it possible to recuperate braking energy to be stored in small, cost-effective lithium-ion batteries. The recovered energy can be used to restart the engine in start-stop or in coasting modes and to boost acceleration. To enable the dynamic alternation between various operating modes, Schaeffler, among other things, developed an electrically operated active belt tensioner. With these technologies Schaeffler expects that an efficiency increase of gasoline engines to 45 percent is realistic. That would raise it to the level of modern diesel units.

An important aspect of looking at efficiency is that Schaeffler goes beyond the consumption of the powertrain, instead considering the entire energy chain of mobility, from well (source) to wheel. In terms of emissions, the IC engine no longer compares so poorly with its electric competition if the analysis is based on the current electricity mix in which fossil fuels throughout the EU account for 44 percent. But even a complete switch to electricity produced from renewable sources would not necessarily mean the end of the IC engine. The combustion of synthetic fuels produced with green electricity is low in emissions and CO\textsubscript{2}-neutral. Synthetic fuels achieve a vehicle range comparable to that of fossil fuels and can be easily sold via existing filling station networks.

“Crucial for success is a holistic view of the powertrain and the interaction of the electric motor, the internal combustion engine and the related infrastructure,” explains Matthias Zink. “With its expertise in electric mobility as well as in engine and transmission systems and chassis Schaeffler is superbly positioned.”

Efficiently into the future

More efficiency – innovative technologies from Schaeffler

With the rolling cylinder deactivation of a three-cylinder engine different cylinders are shut off every four cycles

Electromechanical camshaft adjusters offer higher adjustment speeds than hydraulic systems

Electromechanical belt tensioners enable dynamic variation of the engine’s operating modes

The UniAir fully variable valve train system delivers the optimum amount of air to the combustion chamber for every operating point
Mobility for tomorrow

For Schaeffler, innovation has been part of its corporate DNA ever since the company was founded. Lateral and interdisciplinary thinking is part of the program Schaeffler is known as an innovation leader delivering a wealth of technologies that make automobiles more fuel-efficient, environmentally friendly and safer. Additionally, the company offers products for trains, aircraft, wind turbines and many other industrial sectors. Schaeffler can be found wherever things are in motion. And motion means mobility as well. The challenges facing mobility of the future are immense. That’s why Schaeffler is committed to its holistic “Mobility for tomorrow” strategy concept geared to finding sustainable solutions for the world of tomorrow.

“Progressive climate change, increasing urbanization and globalization, as well as digitalization will have a substantial impact on our lives and work. This particularly applies to the field of mobility”

Klaus Rosenfeld, Chief Executive Officer Schaeffler

Compact info

Mike Rockenfeller

- mike-rockenfeller.de
- mike.rockenfeller
- @m_rockenfeller
- mike_rockenfeller

Rockenfeller in the DTM

- 1 driver title (2013)
- 153 races
- 8 fastest race laps
- 6 pole positions
- 5 victories

Schaeffler facts

- > 92,000 employees worldwide
- 14 bn euros in sales in 2017
- 2,400 patent applications filed in 2017
- 26,000 active patents and patent applications
- 170 locations in 50 countries
- 75 plants worldwide
- 60 Schaeffler components in automobiles worldwide (average)
- 18 research and development centers worldwide


- 2 driver titles (2011, 2013)
- 112 races
- 7 fastest race laps
- 6 pole positions
- 7 victories

Schaeffler Audi RS 5 DTM

- Chassis: CFRP monocoque with integrated fuel cell, CFRP crash elements at the sides, front and rear
- Engine: Gasoline V8 aspirated engine, 4 valves per cylinder, 4,000 cc, more than 500 horsepower
- Driveline: Rear-wheel drive, 4-plate CFRP clutch, Semi-automatic 6-speed transmission with paddle shifters, adjustable plate-type limited-slip differential
- Suspension: Independent front and rear, Double wishbones, Pushrod system with spring/damper unit
- Basic weight: 1,115 kg (including the driver)
- Length: 5,010 mm, width: 1,950 mm, height: 1,150 mm
- Top speed: 285 km/h
- 3rd generation
  - 1st 2013, 2nd 2014, 3rd 2017
- In sprint from 0 to 100 km/h: 2.8 seconds

Energy chain

Eco-friendly powertrain technologies

Interurban mobility

Urban mobility

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@m_rockenfeller
mikerockenfeller
The race track
Hockenheimring

Schedule (local time)

FRIDAY, OCTOBER 12
09:05 – 10:30  FIA Formula 3 European Championship Free practice 1 & 2
11:50 – 12:20  Touring Car Classics Free practice
13:15 – 13:35  FIA Formula 3 European Championship Qualifying 1
15:45 – 16:15  DTM Free practice 1
17:30 – 17:50  FIA Formula 3 European Championship Qualifying 2 & 3

SATURDAY, OCTOBER 13
09:00 – 09:30  DTM Free practice 2
10:00 – 10:35  FIA Formula 3 European Championship Race 1
10:55 – 11:15  DTM Qualifying 1
11:40 – 12:00  Touring Car Classics Qualifying 1
13:33 – 14:28  DTM Race 1
16:30 – 17:05  FIA Formula 3 European Championship Race 2
17:20 – 17:40  Touring Car Classics Qualifying 2

SUNDAY, OCTOBER 14
09:00 – 09:30  DTM Free practice 3
10:05 – 10:40  FIA Formula 3 European Championship Race 3
11:10 – 11:30  DTM Qualifying 2
13:33 – 14:28  DTM Race 2
15:20 – 16:00  Touring Car Classics Race

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