

# FACT SHEET XXL ROUND 7

## FORMULA E PARIS

APRIL 23, 2016

SCHAEFFLER



## FORMULA E ARRIVES IN EUROPE

Team ABT Schaeffler Audi Sport with Daniel Abt and Lucas di Grassi is aiming to celebrate on the podium at the race in the heart of Paris



### INNOVATIONS

New technologies  
for Formula E

p. **4**



### MOBILITY FOR TOMORROW

How Schaeffler successfully tackles  
the challenges of the future

p. **18**

## EDITORIAL



**Jörg Walz**  
Head of  
Communications and  
Marketing Schaeffler  
Automotive

*The double podium clinched by Lucas di Grassi and Daniel Abt in Long Beach three weeks ago was not only important in the title race but, above all, another clear demonstration of the power and reliability of our ABT Schaeffler FE01. As its exclusive technology partner, we developed*

*the car's powertrain together with the team. Formula E's next stop: the premiere in the heart of the French capital, followed by our team's home round in Berlin. In this booklet, we're providing you with background info and all the facts about the race in Paris.*

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# TEAMING UP FOR A MOTOR

**New locations, new stars and innovative technologies: Team ABT Schaeffler Audi Sport is in contention at the very front again in the second Formula E season**



**190 million live TV viewers, more than 360,000 trackside fans and over five billion interactions in social media channels. The inaugural Formula E season was an immediate resounding success.** In its second year, the electric racing series continues directly where it left off – featuring spectacular venues such as Paris or Mexico City and a new circuit for the German home round leading through the center of the German capital, Berlin, on May 21, 2016.

In addition to international top stars, diverse technological concepts meet with each other in Formula E as well. The powertrain, released for proprietary development from the second

# NEW ERA OF SPORTS



**Double party** Daniel Abt and Lucas di Grassi celebrated in Long Beach



**Successful model** Formula E visits megacities

season on, offers plenty of room to maneuver for the engineers. Schaeffler, together with ABT, forms the “German national team” in an illustrious field of nine international outfits. The company’s role far exceeds that of a sponsor.

As its exclusive technology partner, Schaeffler, together with the team named ABT Schaeffler Audi Sport, developed the entire powertrain of the new race car: the motor, transmission, suspension and customized software. The hard work invested in the project is paying off: following six podium places, including two victories, the squad is in second place of the teams’ standings.

Sitting in the cockpits of the all-electric single-seater cars are Daniel Abt (23) and Lucas di Grassi (31) who in the inaugural season had captured third place in the teams’ classification. Lucas di Grassi was even battling for the drivers’ title up to the final race and, before the round in Paris, is leading the standings with a one-point advantage.

After its visit to France’s capital, Formula E will continue its European tour. The event in Berlin will be followed by the race along the Kremlin in Moscow (June 4) and the final weekend in London (July 2 and 3) featuring two races.



# ABT SCHAEFFLER FE01 AT THE FRONT

Formula E is also a competition between various technologies. Team ABT Schaeffler Audi Sport is tackling the challenge with proprietary developments

**One or two motors. One, two, three or five gears: Formula E in its second season is an innovation lab for proprietary developments that drive electric mobility forward.** As the exclusive technology partner of Team ABT Sportsline, the company has developed the powertrain of the new 'ABT Schaeffler FE01.' While in the Formula E's inaugural season all the teams were still competing with standard-specification cars, the development of the entire powertrain has been allowed for the 2015/2016 season. Its core element is the electric motor named 'ABT

Schaeffler MGU 01.' The project was focused on achieving the best possible efficiency, high reliability and optimal thermal management due to modified cooling. "Our motor has better torque and higher efficiency than its predecessor," says Prof. Peter Gutzmer, who as Chief Technology Officer is responsible for the developments at Schaeffler and was faced with a tight schedule: "The first meetings took place about ten months ago and, only half a year later, the first parts were produced. The timing was tight, as always in motorsports."



## NEW TRANSMISSION IS STIFFER AND MORE COMPACT

Schaeffler also developed a new transmission that is coordinated with the motor and was produced by the company's renowned partner Hewland according to special specifications. It is stiffer and more compact. To achieve the goal of minimizing the number of shifting events per lap, the engineers opted for a three-speed variant.

The suspension has been optimized as well, now featuring higher stiffness and

improved kinematics. The connecting link between all the elements is the newly developed software that manages the interaction between all the components. The perfection of its functionality has been one of the focal aspects of the tests.

"For us, it was clear from the beginning that we wouldn't do anything by halves. That's why we looked at all the areas released by the regulations and developed optimized solutions of our own together with our partners," says Prof. Peter Gutzmer. This

is a standard to which Schaeffler is committed outside motorsports as well. Gutzmer: "Electric mobility as a whole, including hybrid solutions as well as fully electric driving, will significantly define mobility of the future. The Formula E commitment is an ideal way of being at the forefront of this technology and sets an example: we want our engineers to push limits and to seek competition – in produc-

tion just like in motorsports."

Schaeffler has been involved in Formula E as a partner of the only German team from day one and is now taking the next step. "The collaboration with ABT Sportsline is outstanding. The team gelled in the first season, goes about its work in a success-oriented manner, and is the perfect ambassador for our vision of 'Mobility for tomorrow,'" says Prof. Peter Gutzmer. ■



Joining forces for success Prof. Peter Gutzmer (in the middle), Daniel Abt and Lucas di Grassi are again forming a strong team in the second Formula E season



Ready to attack The ABT Schaeffler FE01 sporting a new livery

## AERODYNAMICS

*Front and rear wing adjustable*

## SUSPENSION

*Optimized suspension featuring higher stiffness and improved kinematics*

## STEERING WHEEL

*Specification steering wheel with paddles for shifting and recuperation, controls for various motor settings and display for all the key information*

## TIRES

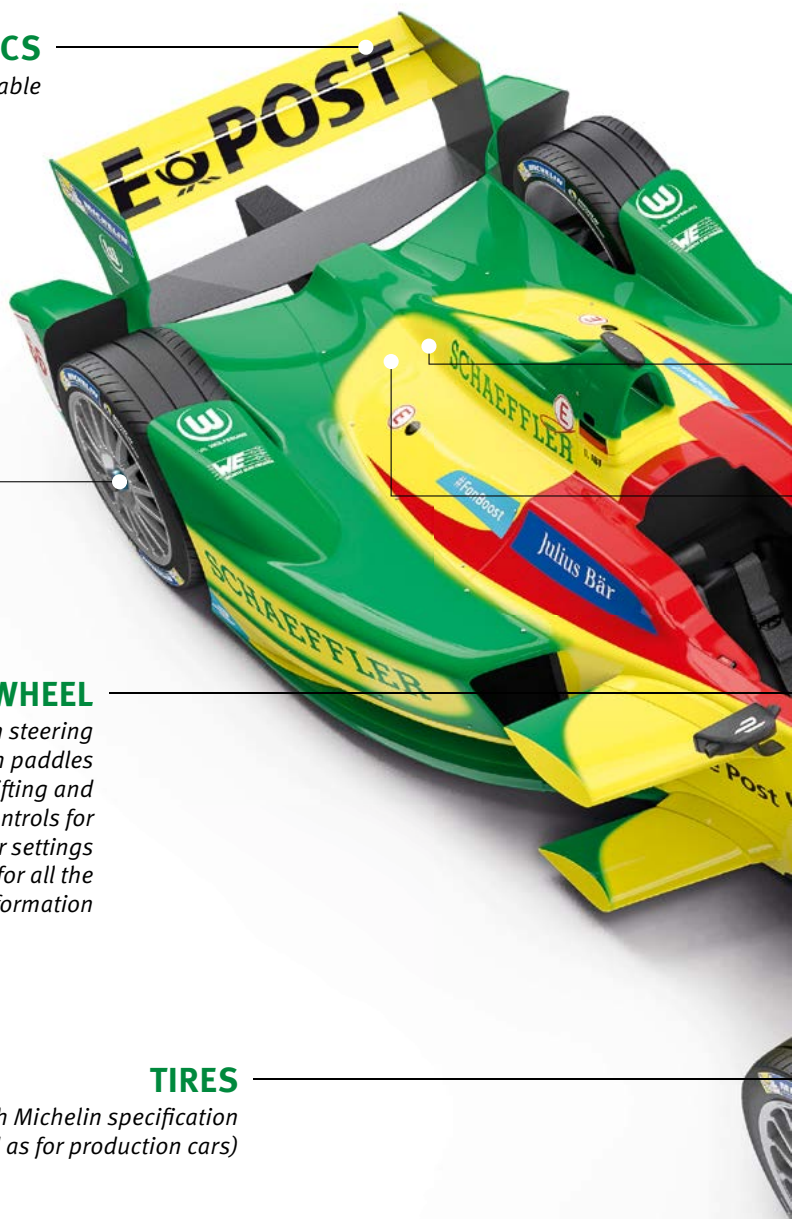
*18-inch wheels with Michelin specification tires (same tread as for production cars)*

## POWER OUTPUT

**Practice and qualifying** 200 kW (270 hp)  
**Race** 170 kW (231 hp) plus FanBoost

## DIMENSIONS

**Length** 5,000 mm  
**Width** 1,800 mm  
**Height** 1,250 mm  
**Weight** min. 888 kg including driver





# HIGH-TECH FOR THE RACE TRACK

The ABT Schaeffler FE01 is a true race car loaded with high tech. While most of the components, including the battery and the entire aero kit, are still identical for all teams, ABT and Schaeffler have developed the entire powertrain

## POWERTRAIN

*Electric motor ABT Schaeffler MGU o1,  
three-speed transmission*

## BATTERY

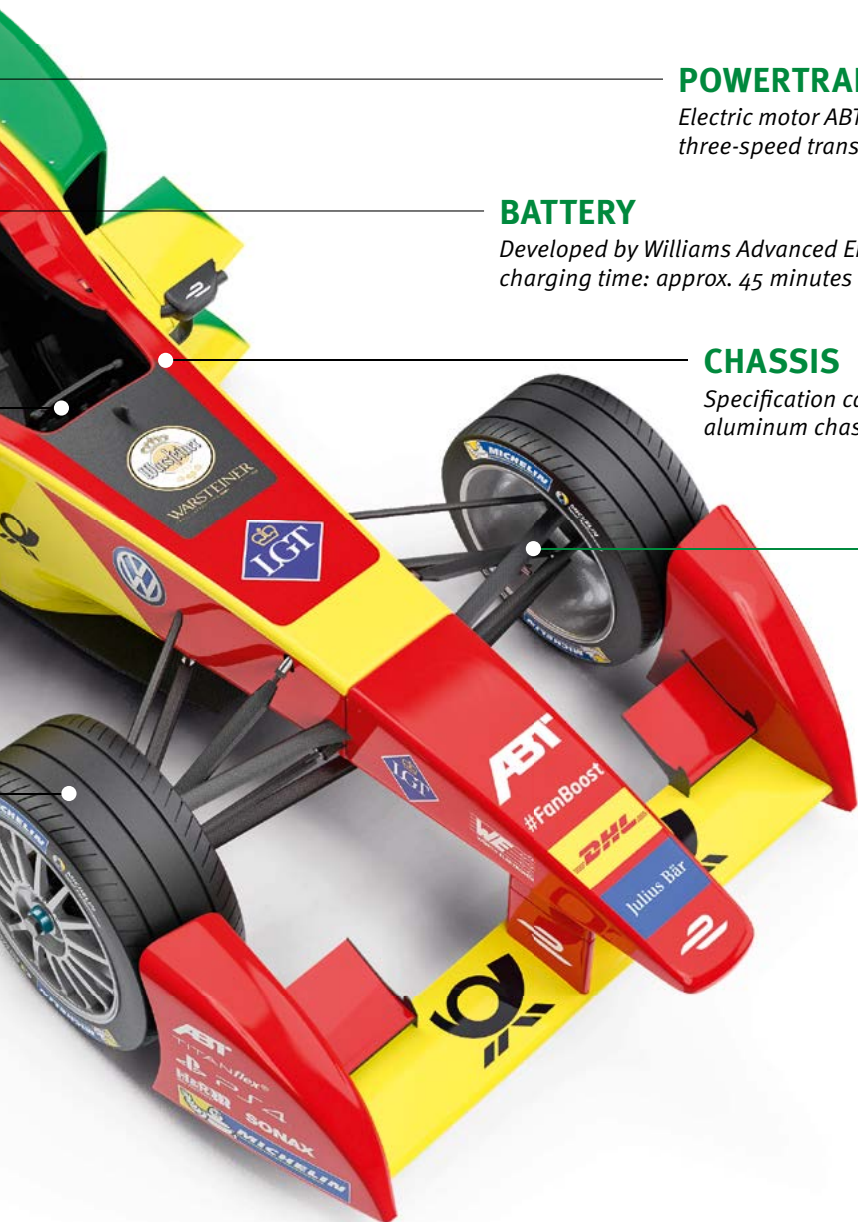
*Developed by Williams Advanced Engineering,  
charging time: approx. 45 minutes*

## CHASSIS

*Specification carbon fiber/  
aluminum chassis by Dallara*

## BRAKES

*Hydraulic dual-circuit  
braking system,  
adjustable brake force  
distribution*



# FORMULA E GLOBETROTTING

From Asia via South and North America to Europe: Formula E travels around the world again in its second season, before the new Champion is named in Great Britain at the beginning of July 2016. A summary of events so far

## 1 BEIJING CHINA

### LUCAS DI GRASSI ON THE PODIUM

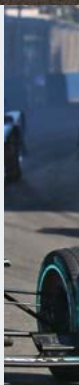
76,000 spectators, the iconic bird's nest stadium as backdrop and action aplenty on the track: the opener in Beijing was everything motorsport fans could have hoped for. A cool head coupled with a perfect pit stop saw Brazilian Lucas di Grassi race from fourth to second and cross the finish line after 26 laps behind only the Swiss driver Sébastien Buemi. Teammate Daniel Abt lost the points for a hard fought ninth place after being awarded a time penalty after the race.



## 2 KUALA LUMPUR MALAYSIA

### DI GRASSI STAYS IN CONTROL IN HEAT CHAOS

The race in Kuala Lumpur was one of the most chaotic ones Formula E's 'young' history has seen to date. Again and again, positions would change, and the favorites be involved in a certain amount of drama. Lucas di Grassi was the driver to keep the coolest head in brutally hot temperatures of about 35 degrees centigrade. The Brazilian won the race thanks to perfect teamwork and Daniel Abt completed the good result in seventh place.







### 3 PUNTA DEL ESTE URUGUAY

## THIRD RACE, THIRD TROPHY

*With his tenth podium finish in the 14th Formula E race, Lucas di Grassi has once again firmly established himself in the title battle for the electric racing series, which starts its second season. One element of the success in Punta del Este was the perfect pit stop that catapulted him from fourth to second place. Team mate Daniel Abt started from seventh place and had made up several positions before touching the wall lining the track. Afterwards, he chose to concentrate on bringing home eighth place.*

### 4 BUENOS AIRES ARGENTINA

## NEXT TROPHY FOR TEAM ABT SCHAEFFLER

*Lucas di Grassi impressively continued his string of success in Buenos Aires: Round four of the season saw the Brazilian mount the podium for the fourth time. In third place, he remains the closest rival of leader of the standings Sébastien Buemi from the Renault works team. After encountering a number of issues, Daniel Abt only took position 13.*





## 5 MEXICO CITY MEXICO

### SETBACK AT PREMIERE IN MEXICO

At Formula E's first visit to Mexico the team and Lucas di Grassi had to accept a setback. Although the Brazilian scored a commanding win after starting from position three on the grid, he was subsequently taken out of the classification, as one of his cars was 1.8 kilograms too light. "We apologize to Lucas for this mistake by the team that deprived him of his deserved reward," said team boss Hans-Jürgen Abt. Daniel Abt managed the leap into the Super Pole shoot-out and finished the race in seventh place.

## 6 LONG BEACH USA

### DOUBLE PARTY ON THE PODIUM

At Formula E's only U.S. round, Lucas di Grassi and Daniel Abt managed a perfect comeback. The Brazilian commandingly won the race from position two on the grid, took the championship lead, and thus made the setback in Mexico fade into the background. His teammate Daniel Abt completed Team ABT Schaeffler Audi Sport's most successful race day so far by taking third place. Before the start of the European season, the squad now only has a deficit of six points to the factory-backed Renault team.





# FACTS AND FIGURES

## DRIVER STANDINGS

P	DRIVER	TEAM	PTS.
1	Lucas di Grassi (BR)	ABT Schaeffler Audi Sport	101
2	Sébastien Buemi (CH)	Renault e.Dams	100
3	Sam Bird (GB)	DS Virgin Racing FE Team	71
4	Jérôme D'Ambrosio (B)	Dragon Racing	64
5	Stéphane Sarrazin (F)	Venturi FE Team	48
6	Loïc Duval (F)	Dragon Racing	48
7	Nick Heidfeld (D)	Mahindra Racing FE Team	39
8	Nicolas Prost (F)	Renault e.Dams	38
9	Robin Frijns (NL)	Andretti FE Race Team	31
10	<b>Daniel Abt (D)</b>	<b>ABT Schaeffler Audi Sport</b>	<b>31</b>
11	Bruno Senna (BR)	Mahindra Racing FE Team	22
12	Antônio Félix da Costa (P)	Team Aguri	16
13	Oliver Turvey (GB)	NEXTEV TCR FE Team	10
14	Jean-Éric Vergne (F)	DS Virgin Racing FE Team	6
15	Nathanaël Berthon (F)	Team Aguri	4
	Nelson Piquet jr. (BR)	NEXTEV TCR FE Team	4
17	Simona de Silvestro (CH)	Andretti FE Race Team	2
18	Mike Conway (GB)	Venturi FE Team	1
19	Salvador Duran (MEX)	Team Aguri	0
	Oliver Rowland (GB)	Mahindra Racing FE Team	0
	Jacques Villeneuve (CDN)	Venturi FE Team	0

## TEAM STANDINGS

P	TEAM	PTS.
1	Renault e.Dams	138
2	<b>ABT Schaeffler Audi Sport</b>	<b>132</b>
3	Dragon Racing	112
4	DS Virgin Racing FE Team	77
5	Mahindra Racing FE Team	61
6	Venturi FE Team	49
7	Andretti FE Race Team	33
8	Team Aguri	20
9	NEXTEV TCR FE Team	14

## 2015/2016 CALENDAR

October 24	Beijing (CN)
November 7	Kuala Lumpur (MAL)
December 19	Punta del Este (ROU)
Februar 6	Buenos Aires (RA)
March 12	Mexico City (MEX)
April 2	Long Beach (USA)
<b>April 23</b>	<b>Paris (F)</b>
May 21	Berlin (D)
June 4	Moscow (RUS)
July 2./3.	London (GB)





# A TRADITION OF INNOVATION



**The world's leading tuner of vehicles from the Volkswagen Group and successful motorsports team in the DTM: together with Schaeffler, ABT Sportsline enthusiastically tackles a new motorsports challenge in Formula E**

**ABT Sportsline is one of the most successful motorsport teams in Germany and Europe.**

Its history in racing dates back more than 60 years and began with initial victories scored by Johann Abt in the 1950s. The first recorded success took place in a dirt track race, followed by victories and titles in touring car, sports car and formula racing. 2009 has gone down in the

company's history as the most successful year to date: Timo Scheider won the DTM, Christian Abt the ADAC GT Masters in the Audi R8 and youngster Daniel Abt was victorious in the ADAC Formula Masters. Previously, in 2007, Schaeffler and ABT had jointly celebrated success as well: with the logos of LuK, INA and FAG on his A4, Mattias Ekström won his DTM title number two.



**Hall of Fame** Success not only in single-seater racing

Founded as a smithy in 1896, the ABT company has been continually developing ever since. Just one thing has never changed: the family still runs the company with about 170 employees and partners in 50 countries around the world. CEO Hans-Jürgen Abt now represents the fourth generation at the helm. For ABT Sportslines, the commitment in Formula E also marks a return to the roots, as the team celebrated success in formula racing as far back as in the early 90s – among others, with Ralf Schumacher in the cockpit back then. ■

## MOMENTS

1970



**Johann Abt** († 2003), father of Hans-Jürgen and Christian Abt, becomes European Touring Car Champion

1999



The **STW Championship** marks the first major title for Christian Abt and the team

2007



Sporting the logos of the Schaeffler Group, **Mattias Ekström** becomes DTM champion

2009



**Christian Abt, Daniel Abt and Timo Scheider** clinch three titles in a single year

2014



**ABT and Schaeffler** win the first ever Formula E race

# „WE OPERATE AS A TEAM“

In an interview, Dr. Simon Opel, Head of Special Projects Motorsport at Schaeffler, looks back on the first half of the Formula E season and explains Schaeffler's commitment

## WHAT FINDINGS HAVE YOU GAINED FROM THE SEASON SO FAR?

*The successes in the current season show that we work well as a team and have been making the right decisions to date. We're in contention at the very front – that's also the reward for the hard work invested in the development of the new powertrain used in the ABT Schaeffler FE01. Basically, the competition between the teams has been elevated to yet another level. Formula E has evolved into a top motorsport event.*



**On the spot** Dr. Simon Opel follows Formula E around the globe



**LAST YEAR, THE TEAMS COMPETED WITH IDENTICAL CARS. SINCE THIS SEASON, INDIVIDUAL POWERTRAIN CONCEPTS HAVE BEEN PERMITTED. YOUR CONCEPT SEEMS TO HAVE PANNED OUT.**

*For the development of powertrains and technologies, motorsports provide an ideal environment. At Schaeffler, we look at the motor, the electrical components and the transmission as a composite. This is one of the great strengths of our company on the road toward optimum total system solutions. We would like to tackle the fierce competition in motorsports and use Formula E as a testbed. The future might belong to electric mobility.*

### **HOW IS SCHAEFFLER POSITIONED IN THIS FIELD?**

*With its expertise and experience in electric mobility, Schaeffler is the perfect partner for the challenges of the future. We offer solutions and innovations across the entire range of powertrain electrification. From the electric axle, to hybrid modules and through to wheel hub motors, Schaeffler products can be integrated with hybrid and fully electric vehicles. Our global research and development team in the field of electric mobility is working full-speed on solutions for tomorrow's mobility. ■*



# A STRONG TEAM

In Lucas di Grassi (31) and Daniel Abt (23) the squad of Hans-Jürgen Abt has its dream team filling the cockpits of the two Formula E race cars. The experienced Brazilian and youngster Daniel Abt are not only fast and technically adept but perfectly harmonize with each other off the race track as well



# #11



## LUCAS DI GRASSI

### HIGHLIGHTS

- 2005** 1st in Macau GP
- 2006** Formula 1 Test
- 2007** 2nd GP2 series,  
Formula 1 test driver
- 2008** 3rd GP2 series,  
Formula 1 reserve driver
- 2009** 3rd GP2 series,  
Formula 1 reserve driver
- 2010** Formula 1
- 2013** 3rd in Le Mans 24 Hours
- 2014** 2nd in Le Mans 24 Hours,  
4th WEC
- 2015** 4th in Le Mans 24 Hours,  
3rd FIA Formula E

### VITA

- Date of birth** August 11, 1984
- Place of birth** São Paulo (BR)
- Domicile** Monaco (MC)
- Height** 1.79 m
- Weight** 75 kg

- [lucasdigrassi.com.br](http://lucasdigrassi.com.br)
- [lucasdigrassiofficial](#)
- [@LucasdiGrassi](#)
- [lucasdigrassi](#)

**FORMULA E IS A YOUNG RACING SERIES. WHAT IS YOUR INTERIM CONCLUSION?** “We can only pay a big compliment to the organizers: Formula E has been successfully turned into a top motor-sports event within a single season – off-track with professional marketing and a wealth of new ideas and on-track with eleven thrilling races.”

**HOW DO YOU RATE THE FIRST HALF OF THE SEASON?** “With two victories and three further podium places in the first six races we were often very successful but also had to accept a setback in Mexico. Now the door to the title is ajar again – we’re going to take advantage of that.”

**WHAT ARE YOUR SPORTING AIMS FOR 2015/2016?** “They’re the same as those of our team and our partners. We want to be in contention for victories and battle for the title.”

# IN THE COCKPIT

## SIDE JOBS

Lucas di Grassi is an Audi factory driver and in 2016 will be competing in the WEC and at Le Mans in an R18. In June 2015, he took fourth place in the 24-hour race. Daniel Abt drives a Bentley Continental GT3 for Bentley Team ABT in the ADAC GT Masters this year besides his Formula E commitment.

# #66





 **DANIEL ABT**

## HIGHLIGHTS

- 2007**     **2nd** in ADAC Kart Championship
- 2008**     **8th** in ADAC Formula Masters
- 2009**     **1st** in ADAC Formula Masters
- 2010**     **2nd** in ATS Formula 3 Cup
- 2011**     **4th** in FIA Formula 3 International Trophy,  
**7th** in Formula 3 Euro Series
- 2012**     **2nd** in GP3 series
- 2013**     GP2 series
- 2014**     GP2 series, FIA Formula E
- 2015**     **1st** in Le Mans 24 Hours (class),  
**11th** in FIA Formula E

## VITA

- Date of birth**     December 3, 1992
- Place of birth**     Kempten (D)
- Domicile**         Kempten (D)
- Height**             1.79 m
- Weight**             70 kg

-  danielabt.de
-  abtdaniel
-  @Daniel\_Abt
-  daniel\_abt



**HOW HAPPY ARE YOU WITH THE WAY THE SEASON HAS BEEN GOING SO FAR?** “The team and our technology partner, Schaeffler, worked hard to prepare a perfect car for us. With two participations in the super pole and the podium in Long Beach we hope that we’ve finally broken our duck and will continue to stay on the fast track in the European races.”

**WHAT DO YOU PARTICULARLY LIKE ABOUT FORMULA E?** “The tremendous locations, the fact that we race on narrow city street circuits, plus the special challenges of this series: not just accelerating, braking and steering, but also thinking about energy management and clever driving.”

**WHAT DO YOU EXPECT OF THE SEASON?** “The first season was a year of learning for me with a number of highlights and a number of setbacks. Now, I’d like to consistently battle for silverware.”



# MOBILITY FOR TOMORROW

**Sustaining mobility for the future and helping to successfully shape it – this is the strategy pursued by Schaeffler. Alternative drive systems or the continuous development of renewable energy sources are just two key words in this context**

**The Schaeffler Group is a global integrated automotive and industrial supplier.** Highest quality, outstanding technology, and strong innovative ability represent the basis for the Schaeffler Group's lasting success. The Schaeffler Group makes a key contribution to "Mobility for tomorrow" with high-precision components and systems in engine, transmission, and chassis applications as well as rolling and plain bearing solutions for a large number of industrial applications.

## LOCATIONS IN 50 COUNTRIES

The technology company generated sales of approximately 13.2 billion euros in 2015. With around 84,000 employees worldwide, Schaeffler is one of the world's largest family companies and, with approximately 170 locations in over 50 countries, has a world-wide network of manufacturing locations, research and development facilities, and sales companies.

**The world of Schaeffler** Since 2001, a gigantic FAG roller bearing has been operating in the 'London Eye' Ferris wheel (above), the 48-volt concept car combines the pleasures of driving and saving (far right), double clutch (right)

As a global development partner and supplier, Schaeffler maintains stable long-term relationships with its customers and suppliers.

## 225,000 PRODUCTS IN THE PORTFOLIO

Today, Schaeffler's portfolio includes about 225,000 products – from tiny high-precision bearings for dental drills, to roller bearings and linear guides for machine tools, to heavy-weights for roadheaders or wind turbines. The customer base covers 60 sectors.



# DATA & FACTS

## 361,500

spectators attended the races last season



## 10.76 billion

worldwide media contacts in the 2014/2015 season

## 56 kWh

of energy is available to a driver per race



The ABT Schaeffler FEO1 accelerates from 0–100 km/h in



## 2.9 seconds

## 200 kW

output in qualifying

## 170 kW

output in the race

**NEW**

2-person household (6 days)

refrigerator, 150 l (210 days)

light bulb, 60W (39 days non-stop)

TV set (15 days non-stop)

dishwasher (70 washing cycles)

## NEW RULES

**NEW**



## 3

driver changes per team/season max

## 5

**NEW**



drivers compete in Super Pole

## 1



**NEW**

FanBoost in the second car

## 10,000

conventional AA batteries have the same energy as the battery of the ABT Schaeffler FEO1



## SCHAEFFLER FACTS

≈ 84,000.....employees  
13.2.....bn. Euro revenues in 2015  
› 2,300.....registered patents in 2015  
24,000.....active patents and patents pending  
170.....locations in 50 countries  
74.....factories worldwide  
60.....Schaeffler components in automobiles worldwide (average)  
4.....titles for Schaeffler touring cars in DTM

**NEW**





## 3

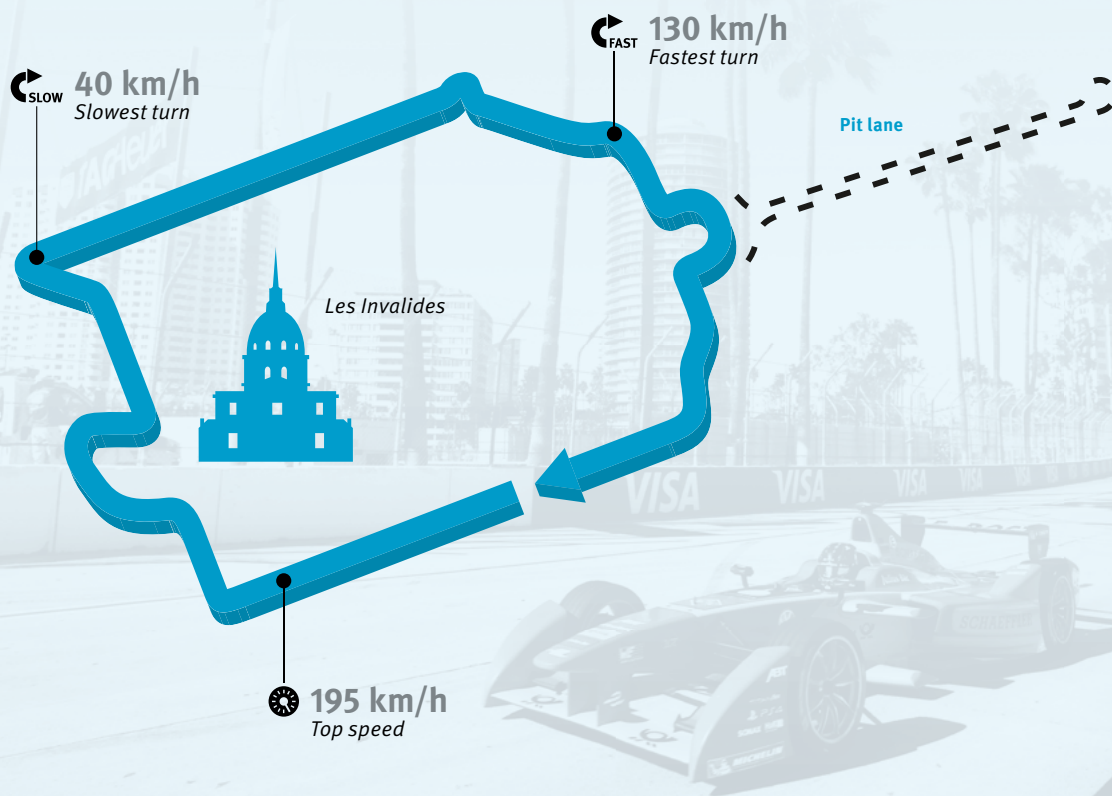
drivers receiving the most votes in the #FanBoost have 100 kJ more energy

[fanboost.fiaformulae.com](http://fanboost.fiaformulae.com)

# FACTS ABOUT FORMULA E AT PARIS

 **1,920 m**  
Track length






 **59.000s**  
Lap time (Qualifying, according to simulation)



## SCHAEFFLER

 [schaefflergroup](#)  
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 [schaeffler.com](#)  
 [Schaeffler](#)

## TEAM ABT

 [abtmotorsport](#)  
 [@abt\\_formula\\_e](#)  
 [abt-sportsline.de](#)  
 [ABTSportslineTV](#)  
 [abt\\_fe](#)

## SCHEDULE SATURDAY, APRIL 23 (LOCAL TIME, CEST)

08:15 – 09:00	Free practice 1
10:30 – 11:00	Free practice 2
11:10 – 11:40	Pitwalk
12:00 – 12:36	Qualifying (4 groups)
12:45 – 13:00	Super Pole
14:00 – 14:30	Autograph Session (eVillage)
14:10 – 14:40	VIP pitwalk and VIP laps
15:23	Pit lane open
16:00	Race
17:15 – 17:30	Press conference (Media Center)



Learn more about  
mobility for  
tomorrow

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