

PRESS KIT

MICHELIN IN FIA FORMULA E 2017/2018 SEASON



MICHELIN



« We were the first company to commit as a partner of this innovative new discipline. »

Pascal Couasnon
Michelin Motorsport Director

MICHELIN AND FORMULA E: PARTNERS FROM THE START

As the 2018 Paris E-Prix speeds into view and the 2017/2018 season enters its final third, the time is ideal to take a look back at the key moments in Michelin's Formula E history. As many of you are aware, we were the first company to commit as a partner of this innovative new discipline – in March 2013 – with the first E-Prix taking place in September of the following year. This commitment has enabled us to make a number of important technological breakthroughs, most notably with regard to the MICHELIN Pilot Sport EV, the very first 18-inch single-seater tyre to feature in a world class FIA-endorsed series.

This impressively versatile tyre, which benefits from a carefully designed tread pattern that guarantees both speed and safety in all conditions, has eradicated the need for us to make and provide bespoke wet weather tyres. That translates into a significant saving in terms of raw materials and harmful emissions linked to tyre

production, transportation and recycling. Then, at the beginning of Season 3, we launched the more lightweight MICHELIN Pilot Sport EV2, the enhanced energy efficiency of which single-handedly extended the cars' operating range by a lap. What's more, the greater durability of the MICHELIN Pilot Sport EV2 allows for economies of scale, since each car uses only four tyres over the course of a race day. After Paris, the 2017/2018 calendar features four more rounds, but our sights are already focused even further ahead since we have developed a new tyre for the futuristic new cars that will take to the track in Season 5.

The third-generation MICHELIN Pilot Sport – which is even more efficient and lightweight than its predecessors – will showcase our ability to consistently break new ground in a discipline that is still comparatively young, in the context of a partnership that is already very firmly established.

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THE MICHELIN PILOT SPORT EV2 TAKES ALL SCENARIOS IN ITS STRIDE





Launched at the start of season three, the MICHELIN Pilot Sport EV2 tyre has attracted considerable praise for its eye-catching developments – not least of which being a 16 percent reduction in rolling resistance compared with its predecessor, a factor that has a direct influence on the energy consumption of any vehicle.

This forward-thinking concept of energy efficiency is one of the key pillars of Formula E, in which drivers are tasked with continuously managing their car's energy, which entails conserving battery life. However, given that tyres are responsible for between 25 and 30 percent of a

car's energy consumption due to rolling resistance, it is easy to understand why Michelin's new tyre received such an effusive welcome. The French manufacturer estimated that without even taking the improvements made to the cars into account, the MICHELIN Pilot Sport EV2 would have enabled drivers to complete an extra lap (equivalent to approximately 2km) compared with the previous season. This impressive progress was the result of work carried out over the course of more than two years by Michelin engineers who have since focused on the development of a next-generation tyre for Formula E's fifth season.

One tyre across two seasons

Between seasons one and two, as teams switched from running identical cars to developing their own in-house innovations, the sport's governing body – the FIA – asked Michelin to maintain the same tyre specification so as to ensure an element of consistency in the series' technical regulations. The MICHELIN Pilot Sport EV had already exceeded expectations, which meant that from both a technological and cost point-of-view, it made perfect sense to freeze development on it while teams got to grips with a raft of significant rule changes. In essence, entrants were tasked with designing and producing their own bespoke powertrains (electric

motor, gearbox and electronic control unit) as well as rear suspension pick-up points. It is a similar story with the MICHELIN Pilot Sport EV2. Although the season four cars are not radically different to their predecessors, the teams have now had a year to refine and perfect their set-ups for the new tyre, which will help them to be even more competitive during the 2017/2018 campaign.

High performance, fewer raw materials

Constantly at the cutting-edge of tyre technology, Michelin works tirelessly to simultaneously evolve every single aspect that influences tyre performance. This corporate philosophy is



known as Michelin Total Performance, which is etched into the company's DNA in both its motorsport activities and the manufacture of its mass-market products. The fact that the MICHELIN Pilot Sport EV2 strikes such an envious balance between performance and durability – while continuing to reduce rolling resistance – owes much to this pioneering approach. Thanks to the use of new technologies and advanced materials, the latest-generation MICHELIN Pilot Sport EV2 is lighter than its predecessor, too, with the brand successfully shaving 1.1kg and 1.4kg off the weight of the

front and rear tyre respectively – equating to a total saving per car of 5kg. This adds up to a reduction in weight of 11 per cent per set of four tyres – similar to a human dropping from 90kg to 80kg – and the impressive feat underscores the Michelin Group's dedication to achieving more with less while echoing Formula E's innate philosophy of promoting sustainable mobility and energy efficiency. Although outwardly, it may look like a standard road tyre, the MICHELIN Pilot Sport EV2 is packed with avant-garde technology, making it unquestionably one of the most ground-breaking tyres ever produced.



MOTORSPORT AS A LABORATORY FOR DEVELOPMENT

In motorsport, one of the keys to success is the ability to collect and analyse data in order to understand the performance of a car. Accordingly, as was the case with its predecessor, every MICHELIN Pilot Sport EV2 incorporates an RFID (Radio Frequency Identification Device) chip embedded in its side wall. First and foremost, this chip makes tyres traceable and allows the FIA to verify that all drivers are using the tyres they

have been allocated. After three successful seasons in Formula E, Michelin continues to trial pioneering technologies in its motorsport tyres, whose benefits are duly transferred across to the brand's mass-market products. The first road tyre to benefit from the lessons learned on the racetrack with the Pilot Sport EV was the MICHELIN Pilot Sport 4, which is currently available for all cars with rim diameters of between 17 and 20 inches.

THE 2018/2019 SEASON

NEW CARS AND A NEW TYRE... MEET THE MICHELIN PILOT SPORT



From the start of the 2018/2019 season, drivers in the FIA Formula E Championship will have at their disposal the series' new-generation race car, with greater power than before and twice the range. To complement the arrival of these new single-seaters, Michelin has developed

a new-generation solution that pushes back all the boundaries associated with racing tyres. Lighter and more efficient than ever, the new MICHELIN Pilot Sport has undergone a painstaking development programme and stands out through the following three qualities:

> LIGHTER

In motorsport, weight is the enemy, in terms of environmental credentials as much as outright performance. The less material used, the less weight there is to transport to circuits and the less there is to recycle. The new MICHELIN Pilot Sport tips the scales at almost 2kg (front) and 2.5kg (rear) less. In comparison with its first-generation predecessor, that represents an overall saving of close to 10kg per car – equivalent to almost 20 per cent of the total weight of the tyres!

> LOWER ROLLING RESISTANCE

Tyres directly influence a car's autonomy. The French manufacturer has worked hard on the structure and rolling resistance of the new MICHELIN Pilot Sport in order to achieve the greatest possible energy efficiency. Accordingly, this new tyre will enable the Formula E single-seaters to increase their range without compromising either their high level of performance or driver safety.

> PHYSICALLY THE CLOSEST TYRE YET TO ITS PRODUCTION COUNTERPART

At 18-inches in diameter, the MICHELIN Pilot Sport is a treaded tyre which bears a striking resemblance to a road-going tyre. It is only the graphic sidewall motifs that give the game away. The composition of its tread compound and construction nevertheless conceal a number of significant technological innovations, which can be more easily incorporated into the brand's production tyres in light of their physical similarities.



THREE QUESTIONS TO...

SERGE GRISIN
FIA FORMULA E PROGRAMME
MANAGER, MICHELIN MOTORSPORT

What is your analysis of the first half of the 2017/2018 Formula E season and, more generally, of the championship as a whole?

In choosing to be an active partner of what was little more than a concept five years ago, there is no doubt that we took something of a risk. But when you look at the success that the championship is enjoying, as well as the calibre of the manufacturers that are both already involved and about to join the fray, it would be fair to describe it as a visionary move. As far as the 2017/2018 campaign is concerned, the championship battle remains wide open with five of the 12 races still to go, and the on-track action has been truly spectacular. This is a series that attracts first-rate drivers and, when you see more than ten cars all blanketed by less than a second around some of the sport's most challenging circuits, you begin to understand the intensity of the competition.

With the MICHELIN Pilot Sport EV2 now in the middle of its second season, how do you assess its evolution?

As it conducts its second 'world tour', the MICHELIN Pilot Sport EV2 continues to confirm its high level of performance, both at circuits that we have visited before, as well as at tracks that are new additions to the calendar this season, like Santiago and Rome. This tyre is lighter and more efficient than its predecessor, while its lower rolling resistance helps to reduce the car's energy consumption. It allows the drivers to duel hammer-and-tongs from the first lap to the last, irrespective of the circuit or the conditions,

while at the same time serving its purpose as a technological guinea pig for our upcoming road tyres. The 40 E-Prix to date have enabled our tyres to showcase their exceptional versatility and, whilst they have still not had the opportunity to show what they can do on a wet track surface, we are fully confident that the MICHELIN Pilot Sport EV2 is capable of coping with rain!

Season 5 will herald the arrival of the Formula E cars of the future, and with them, the new-generation MICHELIN Pilot Sport tyre. Can you tell us a little more about its development?

We began developing this tyre during the second half of 2017, using a car fitted with this season's chassis but a more powerful motor. Subsequently, we were granted access to a Season 5 car with which to complete our work. The first tyres were made available to the constructors in March 2018, allowing them to start working with the new-generation MICHELIN Pilot Sport. The feedback we have received to-date has been extremely positive. The tread pattern incorporates a pioneering new design, which you will similarly see in the next-generation versions of the MICHELIN Pilot Sport road tyre. The innovative touches extend as far as the distinctive graphic motifs that are visible on the sidewalls but, to my mind, the most extraordinary measure of the progress we have achieved is that four Season 5 tyres will weigh the same as three from Season 1, while at the same time generating greater performance. We have truly pushed back the boundaries in every area.



TECHNICAL DATA

THE MICHELIN PILOT SPORT EV2



- Developed specifically for the FIA Formula E Championship
- The first 18-inch single-seater racing tyre
- The first single-seater racing tyre capable of competing in dry and wet conditions
- The first tyre capable of lasting an entire race meeting
- **Size (front/rear):** 24/64-18 / 27/68-18, in accordance with the system used by Michelin Motorsport, i.e. tread band width (cm) / exterior diameter (cm) – rim diameter (inches). This is equivalent to 245/40R18 / 305/40R18 using the road tyre system, i.e. overall tyre width (mm) / aspect ratio (%) / rim diameter (inches). The letter 'R' indicates that it is a radial tyre.
- **Width (front/rear):** 245mm / 305mm
- **Tread width (front/rear):** 240mm / 270mm
- **Side wall height (front/rear):** 98mm / 122mm (i.e. 40 percent of tread width)
- **Exterior diameter:** 18 inches
- **Weight (front/rear):** 8.8kg / 10.9kg
- **Type of tread pattern:** asymmetric, non-directional
- **Usage:** circuits, street circuits, asphalt, concrete, wet or dry weather
- **Number of tyres taken to each race:** 200 (160 new tyres + 40 from the previous race).
- **Weight saving (compared with the MICHELIN Pilot Sport EV):** 1.1kg front / 1.4kg rear
- **Weight saving per set of four tyres:** 5kg (11 percent)
- **Rolling resistance:** lowered by 16 percent (equivalent to more than 2km, or one lap).

SEASON 2017-2018

FORMULA E TEAMS AND DRIVERS



Renault-e.dams (France)

#8 **Nicolas Prost** - French - 36 years-old - born in Saint-Chamond (France)

#9 **Sébastien Buemi** - Swiss - 29 years-old - born in Aigle (Switzerland)

Audi Sport ABT Schaeffler (Allemagne)

#1 **Lucas Di Grassi** - Brazilian - 33 years-old - born in São Paulo (Brazil)

66 **Daniel Abt** - German - 25 years-old - born in Kempten im Allgäu (Germany)

Mahindra Racing (Inde)

#23 **Nick Heidfeld** - German - 40 years-old - born in Mönchengladbach (Germany)

#19 **Felix Rosenqvist** - Swedish - 26 years-old - born in Värnamo (Sweden)

DS-Virgin Racing (France et Grande-Bretagne)

#2 **Sam Bird** - British - 31 years-old - born in Roehampton (United Kingdom)

#36 **Alex Lynn** - British - 24 years-old - born in London (United Kingdom)

Techeetah (Chine)

#25 **Jean-Eric Vergne** - French - 27 years-old - born in Pontoise (France)

#18 **André Lotterer** - German - 36 years-old - born in Duisburg (Germany)

NIO Formula E Team (Chine et Angleterre)

#68 **Luca Filippi** - Italian - 32 years-old - born in Savillan (Italy)

#16 **Oliver Turvey** - British - 31 years-old - born in Penrith (United Kingdom)

MS + AD Andretti Formula E (Etats-Unis)

#28 **Antonio Felix Da Costa** - Portuguese - 26 years-old - born in Lisbon (Portugal)

#27 **Tom Blomqvist** - British/Swedish - 24 years-old - born in Cambridge (United Kingdom)

Dragon Racing (Etats-Unis)

#7 **Jérôme d'Ambrosio** - Belgian - 32 years-old - born in Etterbeek (Belgium)

#6 **José María López** - Argentina - 35 years-old - born in Rio Tercero (Argentina)

Venturi Formula E Team (Monaco)

#5 **Maro Engel** - German - 32 years-old - born in Munich (Germany)

#4 **Edoardo Mortara** - Italian/Swiss - 31 years-old - born in Geneva (Switzerland)

Panasonic Jaguar Racing (Angleterre)

#20 **Mitch Evans** - New Zealander - 23 years-old - born in Auckland (New Zealand)

#3 **Nelson Piquet Jr** - Brazilian - 32 years-old - born in Heidelberg (Germany)

Teams listed in 2016/2017 championship classification order

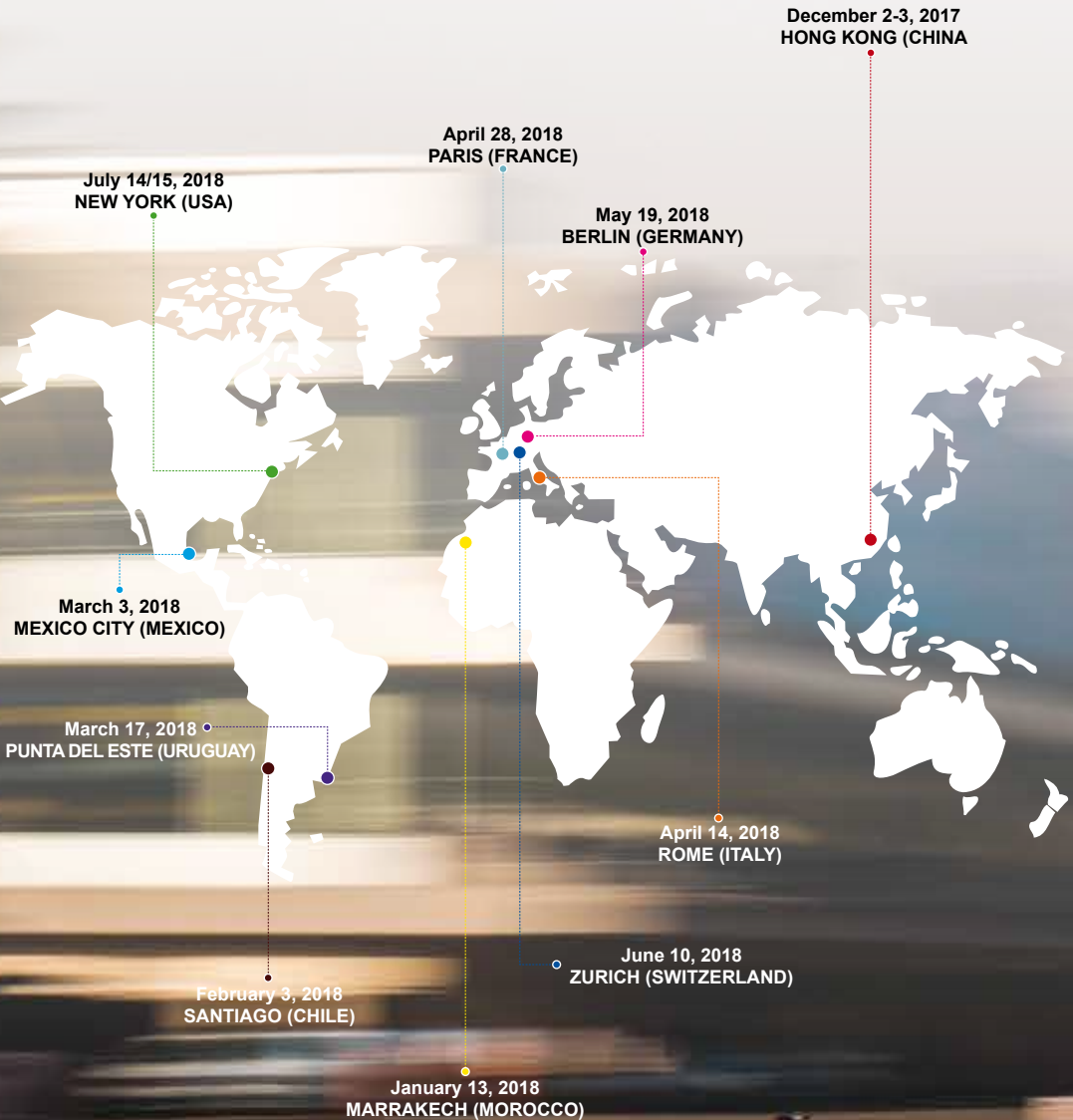
SEASON 2017-2018

CALENDAR



This season, the FIA Formula E Championship will visit 10 very different locations, from Asia to the United States with stop-offs along the way in South America, North Africa and Europe. All present their own particular challenges and conditions, which the MICHELIN

Pilot Sport EV2 will once again tackle head on. There are three new additions to the schedule in the shape of Santiago (Chile), Rome (Italy) and Zurich (Switzerland). There will be 12 E-Prix in total, with Hong Kong and New York both serving up double-headers.



December 2-3, 2017
HONG KONG (CHINA)

After kicking off in Beijing in 2014 and 2015, Formula E will blast into life in Hong Kong for the second consecutive year in 2017. The 2km circuit counts ten corners and a long main straight where the cars exceed speeds of 200kph. All of the action takes place in a tourist hotspot, around the port and close to the famous Hong Kong Maritime Museum. The Asian heat and humidity will not pose a problem for MICHELIN's Pilot Sport EV2 tyre which successfully conquered low grip levels during Formula E's first race in Hong Kong in October 2016.

January 13, 2018
MARRAKECH (MOROCCO)

Morocco is similarly set to welcome Formula E for a second consecutive season but, unlike Hong Kong, Marrakech will stage just one race. The asphalt of the semi-permanent Circuit Moulay El Hassan is in good condition, so it is not unduly tough on tyres. This is the longest track on the calendar at 3km, allowing the cars to reach their top speed of 225kph. However, with the event featuring two months later on the schedule than last time, somewhat cooler conditions could be in store.

February 3, 2018
SANTIAGO (CHILE)

In preparation for hosting its first ePrix, the Chilean capital designed a circuit right in the heart of the city, with its 2.46km layout comprising 12 corners. The track was officially unveiled during a high-profile ceremony attended by numerous VIPs. Situated at the foot of the Andean mountain range, the city of Santiago is home to some five million inhabitants – many of whom are enthusiastic motorsport fans.

March 3, 2018
MEXICO CITY (MEXICO)

For the third year in a row, Formula E will grace the Autódromo Hermanos Rodríguez, where a huge crowd – almost 40,000 for the last ePrix held there – guarantees a warm welcome and an irresistible buzz. Mexico's Formula E track is unique in that it uses part of the city's now-defunct baseball stadium – making for a bumpy ride in places, as well as several surface changes – and squeezes 18 corners into just a short 2.1km lap. Here, the tyres must contend with regular changes in grip level, with the circuit composed of a number of different grades of asphalt.

March 17, 2018
PUNTA DEL ESTE (URUGUAY)

For the third time in four seasons, Formula E visits this South American coastal resort. Coined the 'Saint Tropez' of Uruguay, Punta Del Este is unique in that the circuit runs along the seafront, where the wind is omnipresent. This has the effect of blanketing the track in a fine coating of sand, which the tyres fitted to the electric race cars sweep away lap after lap.



April 14, 2018
ROME (ITALY)

Another new addition to the schedule in 2017/2018, the circuit in Rome will be the second-longest of the season at 2.84km. Its 21-turn layout will see drivers race along the famous Via Cristoforo Colombo and around the iconic Marconi Obelisk and Palace of Italian Civilisation. The track was presented during an official ceremony attended by the three Formula E champions to-date – Nelson Piquet Jnr, Sébastien Buemi and Lucas Di Grassi.

April 28, 2018
PARIS (FRANCE)

This race is the jewel in Formula E's crown, set against the backdrop of some of Paris' most beautiful buildings and monuments. Last year, no fewer than 46,000 people packed into the city's Les Invalides district to watch the city's second ePrix. Homologated for five years, the 1.9km track layout – characterised by 14 turns (six left-handers and eight right) – will be unchanged from 2017. The Parisian circuit is reasonably straightforward from a technical perspective, but the straight at the end of the lap is extremely bumpy and the grip level changeable from one corner to the next. Last season, the speed with which Michelin's Pilot Sport EV2 tyres reached peak operating temperature proved to be a lifeline for many drivers.

May 19, 2018
BERLIN (GERMANY)

Formula E will travel for the third time in four seasons to the historic Tempelhof Airport in the German capital. This circuit is notable for its outstanding viewing – with spectators able to see virtually the entire lap from the grandstands – as well as its surface, which is very aggressive on the tyres. It is by far the most abrasive venue on the calendar for Michelin's Pilot Sport EV2 but, as was proved last season, tyre durability is not in doubt.

June 10, 2018
ZURICH (SWITZERLAND)

Formula E is the first circuit-based motorsport discipline to be allowed to compete in Switzerland since 1955. The Swiss government modified the relevant law in 2015, after many of the people pushing for the return of motor racing to the country got behind the electric vehicle movement, highlighting its promotion of clean, sustainable mobility. Michelin, which shares the same values as Formula E when it comes to protecting the environment, is proud to be associated with this change in Swiss law. Precise details of the circuit will be revealed closer to the date.

July 14/15, 2018
NEW YORK (USA)

As happened this year, two ePrix will take place in the Red Hook neighbourhood of the city, with sweeping views over Manhattan and the Statue of Liberty. The 1.95km track features 13 corners, with one part of the lap very bumpy and the other benefitting from a recent resurfacing. Last season, it rained in New York during the shakedown, but that did not affect the behaviour of the cars, with drivers able to carry on as normal in the knowledge that MICHELIN's Pilot Sport EV2 was carefully designed to cope with all types of surface and all types of weather.



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