

# RACECARD

2019 ANTOFAGASTA MINERALS SANTIAGO E-PRIX



**SATURDAY,  
JANUARY 26  
2019**

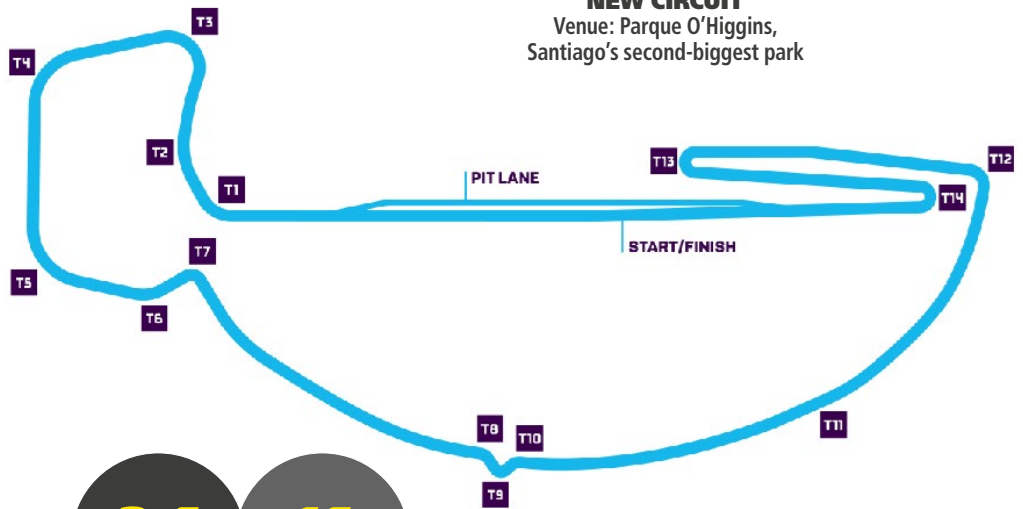
**ROUND 3**  
2018/2019 ABB  
FIA FORMULA E  
CHAMPIONSHIP

SANTIAGO  
CHILE



## THE CIRCUIT

**NEW CIRCUIT**  
Venue: Parque O'Higgins,  
Santiago's second-biggest park



**2.4**  
KM

**14**  
TURNS

ANTI-  
CLOCKWISE

### THE 2018 SANTIAGO E-PRIX

**WINNER:**

Jean-Eric Vergne (Techeetah/Michelin),  
37 laps

**POLE POSITION:**

Jean-Eric Vergne (Techeetah/Michelin),  
1m19.161s

**FASTEST RACE LAP:**

Sam Bird (DS Virgin Racing/Michelin),  
1m20.235s

A one-two finish for Techeetah with Jean-Eric Vergne and André Lotterer

A tough race for Audi Sport Abt Schaeffler and the outgoing champion Lucas di Grassi

A thrilling scrap for third place involving Buemi, Rosenqvist, Bird and Piquet Jr



### THE 2019 SANTIAGO E-PRIX

2<sup>nd</sup> running

The first of this season's four American races

**1 race (45 minutes + 1 lap)**

### TIMETABLE

**FRIDAY, JANUARY 25**

**3:00pm** 30 minutes Shakedown

**SATURDAY, JANUARY 26**

**8:00am** 45 minutes Free Practice 1

**10:15am** 30 minutes Free Practice 2

**12:00 noon** 4 groups, 6 minutes Qualifying

**12:45pm** SuperPole

**4:00pm** 45 minutes + 1 lap Race

**5:00pm** Podium ceremony

LOCAL TIME



## THE SANTIAGO E-PRIX AND CHILEAN MOTORSPORT

- » A Chilean Grand Prix (Formula Libre) was held in Santiago on December 17, 1950. The winner was Juan-Manuel Fangio.
- » Juan Zanelli was the first Chilean to win a European grand prix (1929 Bugatti GP). He was also the European Hillclimb Champion in 1931.

- » Last year, Chile's most famous racing driver Eliseo Salazar (24 F1 grands prix, Le Mans, Indy 500, etc.) performed a parade run in Santiago in an electric single-seater to promote the race.



- » Chile has hosted numerous Dakar Rally stages since 2009, as well as the finish of the 2013 event in Santiago. That year's winner was Stéphane Peterhansel (Mini/Michelin).
- » Concepcion, Chile, will host Round 6 of the 2019 FIA World Rally Championship in May.
- » Santiago's Jedimar Museum, South America's biggest motor museum, has a collection of some 150 vehicles.

## THE SANTIAGO E-PRIX AND SUSTAINABLE ENERGY

- » Chile sits on considerable reserves of lithium, a key constituent of electric vehicle batteries.
- » Chile was the first Latin American country to invest in renewable energies. It stands out today as the South American leader in the field.
- » Chile is aiming to generate 90 percent of its electricity needs using sustainable sources (notably solar energy) by 2025.
- » Santiago recently acquired a fleet of electric buses.

## SANTIAGO AND CHILE

- » Santiago is located halfway up the Chilean coastline which extends some 4,300km from south to north. The country is an average 180km wide from west to east.
- » The Chilean capital sits between the Andes and the Pacific Ocean.
- » The population of the Santiago agglomeration is 7 million.
- » The Atacama in northern Chile is the world's most arid desert.
- » There are around 2,000 volcanoes in Chile, some 50 of which are active.
- » Much of Chile sits on the junction of the Nazca and South American tectonic plates, making it particularly prone to earthquakes.
- » Cape Horn at Chile's southern tip is the southernmost part of South America.



## SERGE GRISIN

Formula E Championship  
Programme Manager,  
Michelin Motorsport

"This 14-turn, 2.407-kilometre circuit features an exceptionally long left-hander where the cars will lean on their right-side tyres for some time, with a hairpin bend about halfway along it. This portion promises to be a big challenge for the drivers and engineers alike. The track's asphalt was recently re-laid in places but elsewhere it is made up of abrasive

concrete slabs, a little like the apron of Berlin's former Tempelhof Airport where we will race later in the season.

### "A WHOLE NEW EXPERIENCE FOR THE DRIVERS AND TEAMS."

Grip levels and wear rates will consequently vary depending on the individual turns. I think it's going to be an interesting E-Prix for our engineers, and a whole new experience for the drivers and teams."

## MICHELIN AND THE 2019 SANTIAGO E-PRIX

### TECHNICAL DATA

**MICHELIN PILOT SPORT**  
FRONT: 245/40R18 &  
REAR: 305/40R18

- 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 all the race



<b>Size (front/rear)</b>	24/64-18 / 27/68-18
<b>Width (front/rear)</b>	245mm / 305mm
<b>Tread width (front/rear)</b>	240mm / 270mm
<b>Side wall height (front/rear)</b>	98mm / 122mm (i.e. 40 percent of tread width)
<b>Rim diameter</b>	18 inches
<b>Weight (front/rear)</b>	8kg / 9.9kg
<b>Type of tread pattern</b>	Asymmetric, non-directional
<b>Usage</b>	Circuits, street circuits, asphalt, concrete, wet or dry weather
<b>Number of tyres taken to each race</b>	176 (22 cars x 8 tyres)
<b>Weight saving (compared with the MICHELIN Pilot Sport EV)</b>	-2kg front -2.5kg rear





# MICHELIN PILOT SPORT

THE REVOLUTIONARY NEW  
MICHELIN PILOT SPORT:  
LIGHTER AND MORE ENERGY-  
EFFICIENT THAN EVER

## A REVOLUTIONARY RACING TYRE, IN MORE WAYS THAN ONE!

Developed specifically for the world's first all-electric single-seater motor racing championship, the new MICHELIN Pilot Sport is an exceptionally versatile tyre that was designed by Michelin Motorsport's engineers to cover the entire race day (free practice, qualifying, race), whatever the weather, as required by the technical regulations that govern the series.

**Another exceptional characteristic of the tyre is its size.** The MICHELIN Pilot Sport was effectively the first ever single-seater tyre to feature an interior diameter of 18 inches, a disruptive concept put forward by Michelin Motorsport and approved by the FIA (Fédération Internationale Automobile). The fact that 18-inch wheels have become a common

feature of road cars enables Michelin Motorsport's engineers and chemists to **carry over the lessons they learn on the racetrack to everyday tyres, in keeping with the firm's 'track to street' policy.**

The MICHELIN Pilot Sport (front: 245/40 R 18 / rear: 305/40 R 18) is tall and narrow in the interests of energy efficiency, which equates to longer range. Its low sidewalls also flex less, resulting in the generation of less heat, which **in turn means reduced energy consumption**, a valuable benefit for Formula E's latest-generation 'Gen2' Spark SRT 05Es.

**The MICHELIN Pilot Sport is a connected tyre, too**, thanks to an embedded RFID chip which facilitates tracking, from production through to recycling.



### FRONT

#### Size

24/64-18 equivalent to 245/40R18

#### Side wall height

40% - 98mm



### Usage

Wet or dry weather

#### Type of tread pattern

Asymmetric, non-directional

#### Rim diameter

18 inches



### REAR

#### Size

27/68-18 equivalent to 305/40R18

#### Side wall height

40% - 122mm





# THE 2018/2019 CALENDAR

15/12  
2018



**AD DIRIYAH E-PRIX**  
(SAUDI ARABIA)

12/01  
2019



**MARRAKESH E-PRIX**  
(MOROCCO)

26/01  
2019



**SANTIAGO E-PRIX**  
(CHILE)

16/02  
2019



**MEXICO CITY E-PRIX**  
(MEXICO)

10/03  
2019



**HONG KONG E-PRIX**  
(HONG KONG, CHINA)

23/03  
2019



**SANYA E-PRIX**  
(CHINA)

13/04  
2019



**ROME E-PRIX**  
(ITALY)

27/04  
2019



**PARIS E-PRIX**  
(FRANCE)

11/05  
2019



**MONACO E-PRIX**  
(MONACO)

25/05  
2019



**BERLIN E-PRIX**  
(GERMANY)

22/06  
2019



**BERN E-PRIX**  
(SWITZERLAND)

13-14/07  
2019



**NEW YORK CITY E-PRIX**  
(USA)



# ENTRY LIST

## 2019 SANTIAGO E-PRIX

### ENVISION VIRGIN RACING (AUDI E-TRON FE05)



**N°2 SAM BIRD** (GBR)

Victory: 7      Fastest race laps: 5  
Pole position: 5      Podium: 16



**N°4 ROBIN FRIJNS** (NLD)

Victory: 0      Fastest race laps: 0  
Pole position: 0      Podium: 2

### PANASONIC JAGUAR RACING (JAGUAR I – TYPE III)



**N°3 NELSON PIQUET JR** (BRA)

Victory: 2      Fastest race laps: 5  
Pole position: 1      Podium: 5



**N°20 MITCH EVANS** (NZL)

Victory: 0      Fastest race laps: 1  
Pole position: 1      Podium: 1

### HWA RACELAB (VENTURI VFE05)

ROOKIE



**N°5 STOFFEL VANDOORNE** (BEL)

Victory: 0      Fastest race laps: 0  
Pole position: 0      Podium: 0

ROOKIE



**N°17 GARY PAFFETT** (GBR)

Victory: 0      Fastest race laps: 0  
Pole position: 0      Podium: 0

### GEOX DRAGON (PENSKE EV-3)

ROOKIE



**N°6 MAX GÜNTHER** (DEU)

Victory: 0      Fastest race laps: 0  
Pole position: 0      Podium: 0



**N°7 JOSE-MARIA LOPEZ** (ARG)

Victory: 0      Fastest race laps: 1  
Pole position: 0      Podium: 2

### NIO FORMULA E TEAM (NIO SPORT 004)



**N°8 TOM DILLMANN** (FRA)

Victory: 0      Fastest race laps: 0  
Pole position: 0      Podium: 0



**N°16 OLIVER TURVEY** (GBR)

Victory: 0      Fastest race laps: 0  
Pole position: 1      Podium: 1

### VENTURI FORMULA E TEAM (VENTURI FVE05)

ROOKIE



**N°19 FELIPE MASSA** (BRA)

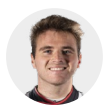
Victory: 0      Fastest race laps: 0  
Pole position: 0      Podium: 0



**N°48 EDOARDO MORTARA** (CHE)

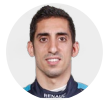
Victory: 0      Fastest race laps: 0  
Pole position: 0      Podium: 1

### NISSAN E.DAMS (NISSAN IM01)



**N°22 OLIVER ROWLAND** (GBR)

Victory: 0      Fastest race laps: 0  
Pole position: 0      Podium: 0



**N°23 SÉBASTIEN BUEMI** (CHE)

Victory: 12      Fastest race laps: 9  
Pole position: 11      Podium: 21

### DS TECHEETAH (DS E-TENSE FE19)



**N°25 JEAN-ERIC VERGNE** (FRA)

Victory: 5      Fastest race laps: 1  
Pole position: 8      Podium: 15



**N°36 ANDRÉ LOTTERER** (DEU)

Victory: 0      Fastest race laps: 2  
Pole position: 0      Podium: 2

### BMW I ANDRETTI MOTORSPORT (BMW IFE.18)

ROOKIE



**N°27 ALEXANDER SIMS** (GBR)

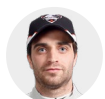
Victory: 0      Fastest race laps: 0  
Pole position: 0      Podium: 0



**N°28 ANTONIO FELIX DA COSTA** (PRT)

Victory: 2      Fastest race laps: 0  
Pole position: 1      Podium: 2

### MAHINDRA RACING (MAHINDRA M5ELECTRO)



**N°64 JÉRÔME D'AMBROSIO** (BEL)

Victory: 3      Fastest race laps: 1  
Pole position: 2      Podium: 8



**N°94 PASCAL WEHRLEIN** (DEU)

Victory: 3      Fastest race laps: 3  
Pole position: 6      Podium: 7

### AUDI SPORT ABT SCHAEFFLER FORMULA E TEAM (AUDI E-TRON FE05)



**N°11 LUCAS DI GRASSI** (BRA)

Victory: 8      Fastest race laps: 4  
Pole position: 3      Podium: 27



**N°66 DANIEL ABT** (DEU)

Victory: 2      Fastest race laps: 5  
Pole position: 2      Podium: 8



# FIA FORMULA E

## DRIVERS STANDINGS

																TOTAL
			SA	MA	CL	MX	HK	CN	IT	FR	MC	DE	CH	US	US	
1	▲	<b>64 J. D'AMBROSIO (BEL)</b> MAHINDRA RACING	15	25	-	-	-	-	-	-	-	-	-	-	-	40
2	▼	<b>28 A. DA COSTA (PRT)</b> BMW I ANDRETTI MOTORSPORT	28	0	-	-	-	-	-	-	-	-	-	-	-	28
3	▼	<b>25 J.E. VERGNE (FRA)</b> DS TECHEETAH FORMULA E TEAM	18	10	-	-	-	-	-	-	-	-	-	-	-	28
4	▲	<b>36 A. LOTTERER (DEU)</b> DS TECHEETAH FORMULA E TEAM	11	8	-	-	-	-	-	-	-	-	-	-	-	19
5	▲	<b>4 R. FRIJNS (NLD)</b> ENVISION VIRGIN RACING	0	18	-	-	-	-	-	-	-	-	-	-	-	18
6	▲	<b>2 S. BIRD (GBR)</b> ENVISION VIRGIN RACING	0	18	-	-	-	-	-	-	-	-	-	-	-	18
7	▼	<b>20 M. EVANS (GBR)</b> PANASONIC JAGUAR RACING	12	2	-	-	-	-	-	-	-	-	-	-	-	14
8	▲	<b>27 A. SIMS (GBR)</b> BMW I ANDRETTI MOTORSPORT	0	12	-	-	-	-	-	-	-	-	-	-	-	12
9	▼	<b>23 S. BUEMI (CHE)</b> NISSAN E.DAMS	8	4	-	-	-	-	-	-	-	-	-	-	-	12
10	▼	<b>11 L. DI GRASSI (BRA)</b> AUDI SPORT ABT SCHAEFFLER	2	7	-	-	-	-	-	-	-	-	-	-	-	9
11	▼	<b>22 O. ROWLAND (GBR)</b> NISSAN E.DAMS	6	0	-	-	-	-	-	-	-	-	-	-	-	6
12	▼	<b>66 D. ABT (DEU)</b> AUDI SPORT ABT SCHAEFFLER	4	1	-	-	-	-	-	-	-	-	-	-	-	5
13	▼	<b>3 N. PIQUET JR. (BRA)</b> PANASONIC JAGUAR RACING	1	0	-	-	-	-	-	-	-	-	-	-	-	1
14	●	<b>7 J.M. LÓPEZ (ARG)</b> GEOX DRAGON	0	0	-	-	-	-	-	-	-	-	-	-	-	0
15	●	<b>6 M. GÜNTHER (DEU)</b> GEOX DRAGON	0	0	-	-	-	-	-	-	-	-	-	-	-	0
16	●	<b>16 O. TURVEY (GBR)</b> NIO FORMULA E TEAM	0	0	-	-	-	-	-	-	-	-	-	-	-	0
17	●	<b>48 E. MORTARA (CHE)</b> VENTURI FORMULA E TEAM	0	0	-	-	-	-	-	-	-	-	-	-	-	0
18	●	<b>8 T. DILLMANN (FRA)</b> NIO FORMULA E TEAM	0	0	-	-	-	-	-	-	-	-	-	-	-	0
19	●	<b>5 S. VANDOORNE (BEL)</b> HWA RACELAB	0	0	-	-	-	-	-	-	-	-	-	-	-	0
20	●	<b>19 F. MASSA (BRA)</b> VENTURI FORMULA E TEAM	0	0	-	-	-	-	-	-	-	-	-	-	-	0
21	●	<b>94 F. ROSENQVIST (SWE)</b> MAHINDRA RACING	0	-	-	-	-	-	-	-	-	-	-	-	-	0
22	●	<b>17 G. PAFFETT (GBR)</b> WA RACELAB	0	0	-	-	-	-	-	-	-	-	-	-	-	0
23	●	<b>94 P. WEHRLEIN (DEU)</b> MAHINDRA RACING	-	0	-	-	-	-	-	-	-	-	-	-	-	0



# FIA FORMULA E

## TEAMS STANDINGS

															TOTAL
		SA	MA	CL	MX	HK	CN	IT	FR	MC	DE	CH	US	US	
1	● DS TECHEETAH FORMULA E TEAM	29	18	-	-	-	-	-	-	-	-	-	-	-	47
2	▲ MAHINDRA RACING	15	25	-	-	-	-	-	-	-	-	-	-	-	40
3	▼ BMW I ANDRETTI MOTORSPORT	28	12	-	-	-	-	-	-	-	-	-	-	-	40
4	▲ ENVISION VIRGIN RACING	0	36	-	-	-	-	-	-	-	-	-	-	-	36
5	▼ NISSAN E.DAMS	14	4	-	-	-	-	-	-	-	-	-	-	-	18
6	▼ PANASONIC JAGUAR RACING	13	2	-	-	-	-	-	-	-	-	-	-	-	15
7	▼ AUDI SPORT ABT SCHAEFFLER	6	8	-	-	-	-	-	-	-	-	-	-	-	14
8	● GEOX DRAGON	0	0	-	-	-	-	-	-	-	-	-	-	-	0
9	● NIO FORMULA E TEAM	0	0	-	-	-	-	-	-	-	-	-	-	-	0
10	● VENTURI FORMULA E TEAM	0	0	-	-	-	-	-	-	-	-	-	-	-	0
11	● HWA RACELAB	0	0	-	-	-	-	-	-	-	-	-	-	-	0

# REGULATIONS

## 2018/2019 ABB FIA FORMULA E CHAMPIONSHIP

### CARS (SINGLE-SEATERS)

- » **Spark STR-05e / chassis:** Dallara / battery: McLaren Applied Technologies
- » **Maximum length:** 5,200mm,
- » **Maximum width:** 1,800mm,
- » **Maximum height:** 1,250mm
- » **Minimum weight:** 900kg, including driver and battery/capacitor (385kg)
- » **Maximum power, electric powertrain:** 250kW (335hp) for free practice and qualifying, 200kW (270hp) during races.
- » 2 MGUs can be used
- » **Allocation per race number:** 2 electric motors, 2 gearboxes, 2 inverters and 1 battery pack for the season

### TYRES

- » A single type of tyre (pattern and construction)
- » No mid-race tyre changes
- » 4 new front tyres and 4 new rear tyres per driver per event
- » Can be inflated using air only
- » Minimum tyre pressure: 1.3 & 1.6 bar (measured at the end of races)
- » Tyre warmers not authorised

### EVENT FORMATS

- » A **Shakedown** session of a maximum duration of 30 minutes may be organised the day before the race. Power is restricted to 110kW. A maximum of six laps per car.
- » **Practice:** Two practice sessions (45 and 30 minutes) in the course of the morning of Race Day. Maximum power: 250kW.
- » **Qualifying:** The drivers are divided into four

groups as a function of their championship positions (or of the previous championship order in the case of the season's first race). Each driver has six minutes and up to two flying laps to post a qualifying time. The six fastest drivers go on to take part in the Super Pole shootout. Maximum power: 250kW.

- » **Super Pole:** Start order is based on the times posted in qualifying, with the 'slowest driver' to lap first, etc. One flying lap only.
- » **Grid:** The six places at the front of the grid are reserved for the drivers who take part in the Super Pole session.
- » **Race:** Standing start. Maximum duration: 45 minutes + 1 lap. Use of two power outputs mandatory: Normal Mode (200kW / regeneration: 250kW) and Attack Mode (225 kW / regeneration: 250kW) which must be activated twice per race, for a period of four minutes. The car's halo head protection device lights up (Blue) when the Attack Mode is activated.
- » **Attack Mode:** For the 2018/2019 season, drivers have two power options during the race: Normal Mode (200kW) and Attack Mode (250kW). Attack Mode must be activated twice per race. To trigger it, the driver must run off the ideal racing line through the corner specified for this purpose by the race organiser, a little like in Mario Kart. Attack Mode is activated for four minutes. The car's halo head protection device lights up when it is activated.
- » **FanBoost:** A temporary 100kJ power boost (240kW-250kW) for five drivers chosen by a fan vote. To be activated once when in Attack Mode. The car's halo head protection device lights up (Magenta).



### POINTS-SCORING SYSTEM RACE

1<sup>st</sup>: 25 points / 2<sup>nd</sup>: 18 points / 3<sup>rd</sup>: 15 points  
 4<sup>th</sup>: 12 points / 5<sup>th</sup>: 10 points / 6<sup>th</sup>: 8 points  
 7<sup>th</sup>: 6 points / 8<sup>th</sup>: 4 points / 9<sup>th</sup>: 2 points  
 10<sup>th</sup>: 1 point  
**POLE POSITION** 3 points  
**FASTEST RACE LAP** 1 point  
 (if a top-10 finisher)

