



## FORMULA E, BRAKING GUIDE FOR THE CHALLENGING MARRAKESH E-PRIX

*The circuit's most demanding braking points according to Brembo*

Stezzano (Italy), 24 February 2020 – **Brembo**, global leader in braking systems, is the sole supplier of the entire standard braking system of the FIA Formula E through constructor Spark Racing Technology. The group's race engineers have analyzed the **Circuit International Automobile Moulay El Hassan in Marrakesh**, where the 24 drivers will race on Saturday, February 29<sup>th</sup>, to determine **the most challenging sections for the brakes**.

**Braking in Marrakesh can be extreme.** The circuit is one of the longest of the season, almost 3 km, it has extended straights and multiple tight corners where the brakes are put under severe stress. The Moulay El Hassan circuit builds up the pressure on the brakes corner by corner, with around 27 percent of the racing time in a lap spent braking. The **most critical brake point** is just before Turn 7, a highly demanding section to manage. To slow down the car, Brembo brakes need to generate a power almost four-times the one delivered by the power unit. Speed needs to go down of more than 100 km/h in around 100 meters and in less than 3 seconds before entering the left-hander. There's more, the remaining corners are all medium-high level difficulty and thus they keep the brakes under relentless pressure. At the end of a lap, the amount of energy involved in the process of braking is more than 2.5 percent of the battery's capacity. Only a small amount of this energy can be regenerated on the rear axle, the majority of it is dissipated through heat.

The combination of short bursts, long straights, tight corners and the usually high African air temperatures makes this particular circuit highly aggressive on the brakes, which don't have enough time to cool during the lap. Discs need to remain within the **400-800°C range** to perform at their best. This means that making the best use of the brakes is key to successfully managing the Marrakesh E-Prix.

In order to ensure that safety and performance standards of the brakes are met during every race and in every condition, Brembo conducts **several tests** on the Formula E bespoke system to assess stress resistance, temperatures capabilities and overall performance. The carbon discs and pads and aluminum calipers are pushed during testing to limits far over their optimal range of use to assure their performance under the most competitive race conditions.

**To discover more on Brembo bespoke brakes for the Formula E visit**

[www.brembo.com/en/company/news/brembo-brakes-supplier-formula-e-2019-2020](http://www.brembo.com/en/company/news/brembo-brakes-supplier-formula-e-2019-2020)

### About Brembo SpA

Brembo SpA is the world leader and acknowledged innovator of disc brake technology for automotive vehicles. Brembo supplies high performance brake systems for the most important manufacturers of cars, commercial vehicles and motorbikes worldwide, as well as clutches and other components for racing. Brembo is also a leader in the racing sector and has won more than 400 championships. Today the company operates in 14 countries on 3 continents, with 24 production and business sites, and a pool of over 10,600 employees, about 10% of whom are engineers and product specialists active in the R&D. 2018 turnover is € 2,640 million (12.31.2018). Brembo is the owner of the Brembo, Breco, AP, Bybre, and Marchesini brands and operates through the AP Racing brand.

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