*4 Big Ben bells, 2,500 barbecues and Westminster Hall to explain brake use on the British circuit*

# The Great Britain GP according to Brembo

## *An X-ray view of the demand on Formula 1 brakes at the Silverstone circuit*

From 8 to 10 July, the Silverstone circuit will host the 10th round of the 2016 Formula 1 season.

Theatre for the opening race of the Formula 1 World Championship in 1950, the British track has undergone various modifications over the years. The length of the track went from the original 4,649 km to its current 5,891 km. The average speed, although lower, is still among the top 3 in the championship. Last year the pole winner touched 230 km/h on average per lap. In fact, it is a flowing track with long, fast turns that translate into braking sections that are not too demanding.
According to the Brembo engineers, who have classified the 21 tracks in the Championship on a scale from 1 to 10, the Silverstone circuit is, along with Interlagos, one of the least demanding tracks for brakes. The British track earned a difficulty index of 3. This does not mean that the drivers do not use the brakes, but simply that the stress to which they are subjected, although greater than that of the single-seaters a decade ago, is lower than the other tracks.
In the event of adverse weather conditions, however, given the low energy levels at play, problems can occur connected to the excessive cooling and "glazing" of the friction material. In fact, the carbon used to make discs and pads does not guarantee correct generation of friction material at temperatures that are too low, thereby compromising braking performance.

**Brake use during the GP**
Many of the 18 turns on the track do not require any use at all of the brakes, which are employed only 9 times per lap. It is not by chance that the time the single-seaters fitted with Brembo brakes spend braking is 10% of the total race time, a record low for the entire World Championship. However, when they brake, the drivers do it hard, as the 4.1 g average deceleration would indicate. The combination of these two values translates into 86 kWh of energy dissipated in braking by each vehicle during the entire race, in other words, the electricity consumed by an English toaster in 6 and a half years.
From the start to the chequered flag, each driver applies a total load on the pedal of 56 and a half tonnes, in other words, 4 times the weight of the enormous Big Ben bell.

**The most demanding braking sections**
Of the 9 braking sections on the Silverstone circuit, Brembo engineers have classified 5 as demanding for the brakes, with 2 being medium difficulty and 2 light.
The most demanding is the left-hander at turn 16. The drivers approach at 327 km/h and then, in just 71 metres, slightly less than the length of Westminster Hall, they slow to 194 km/h. In order to do this they use only 87 hundredths of a second with an impressive 5.5 g of deceleration (similar to that of fighter pilots who, however, wear anti-G suits) and they apply 166 kg of pressure to the brake pedal.
The Brooklands braking section (turn 6) is also a hair-raiser. Deceleration is 5.4 g, but the time on the brakes is longer, 1.07 seconds, to go from 323 to 152 km/h. On the other hand, there are only 19 metres in the turn 12 braking section, but that is long enough to shed 71 km/h (from 311 to 240 km/h).
The most contained braking section in terms of the efforts required is the one at The Loop (turn 4): 58 kg of load on the pedal and 2 g deceleration.

**Brembo victories**
The single-seaters with Brembo brakes have won 17 of the 39 Great Britain GP editions in which they have participated. The most victorious team is Ferrari with 8 wins, but only 2 in the last 10 years: Michael Schumacher brought home 3 wins and Alain Prost and Mark Webber brought home 2 each.