



The French MotoGP according to Brembo

An in-depth look at the premier class' use of braking systems on the Le Mans circuit

From 6 to 8 May, the Bugatti Circuit (France) will host the 5th event in the 2016 MotoGP World Championship. Built in 1965 around the track used for the 24 Hours of Le Mans, this circuit held its first World Motorcycle Race in 1969. For years the location of the Championship alternated among the Bugatti, Paul Ricard and Nogaro tracks, but after improving safety conditions, Bugatti has continuously held the event since 2000.

The Bugatti circuit is 4.2 km long, boasts 14 curves (9 to the right and 5 to the left) and comprises a main straightaway that measures 674 metres.

Le Mans is a track that has a medium impact on the brakes. In spite of the fact that about 30% of the lap time is spent braking on this French circuit, the riders are able to effortlessly cool down the Brembo carbon brake discs thanks to the long straightaways.

To prevent the discs from cooling excessively, which could jeopardise the effectiveness of the brakes, larger diameter Brembo discs (340 mm) with a low band may be the most suitable solution for this track's specifications. Indeed, this solution could guarantee the proper functioning range in terms of operating temperature and braking torque.

According to Brembo technicians, the Bugatti Circuit falls into the category of tracks that have a medium impact on the brakes. On a scale of 1 to 5 it earned a 3 on the difficulty index, the same result that the tracks at Losail, Austin and Termas de Rio Hondo scored.

Brake use during the GP

The Bugatti Circuit doesn't let the bikes reach great maximum speeds (they peak at 316.6 km/h) because, with the exception of curves 1 (Dunlop turn) and 12, all of the other braking sections require the use of the brakes for at least 2 seconds. That means that the average deceleration for the GP is 1.15 g. Totalling all of the force applied to the brake lever during the entire GP (40 minutes), a rider reaches 1.2 tonnes, which is equivalent in weight to 7 1/2 motorcycles.

The most challenging stops

None of the 9 braking sections on the Bugatti Circuit are classified as highly challenging on the brakes, but 7 are of medium difficulty and 2 are less difficult. The most complex braking section is at curve 9 (Chemin aux Boeufs), precisely where Valentino Rossi overtook Marc Marquez last year and where there was contact between Marco Simoncelli and Dani Pedrosa in 2011. The riders come into the turn at 293 km/h, applying a load of 6.2 kg on the brake lever for 4 and a half seconds while braking for 245 metres.

Slightly less difficult, but still tough, is curve 8 (Garage Vert): the bikes go from 248 km/h to 81 km/h in 4.4 seconds.

Of the 2 least challenging curves, turn 12 requires braking in just 43 metres and 1.3 seconds with a load on the lever measuring 2.5 kg.

Brembo Victories

Brembo brakes have won the last 22 French GP races contended, including the 16 held uninterruptedly at the Bugatti Circuit. Spanish riders have won all of the last 4 races: leading the MotoGP category is Jorge Lorenzo with 4 wins, followed by Valentino Rossi with 3, but his most recent victory was in 2008.