



On a scale of 1 to 10, the level of difficulty on the brakes is 6. Here's why

The Spanish GP according to Brembo ***An in-depth look at Formula 1 brake use on the Barcelona circuit***

The Circuit de Barcelona-Catalunya will host the 5th race of the 2016 Formula 1 World Championship season from 13 to 15 May.

The track, located about twenty kilometres outside of Barcelona, hosted its first Formula 1 GP on 29 September 1991. At just 4,655 km-long, this is the shortest track in the season's initial phase, but it boasts an impressive number of curves (9 right-handed, 7 left-handed).

The teams and drivers are very familiar with this circuit since it was used for 8 days of testing prior to the beginning of this year's championship. The track's grip level remains high, however the 1,047-metre long main straightaway and other smaller straightaways allow for an effective thermal exchange between one braking section and the next.

According to Brembo technicians, who classified the 21 World Championship tracks on a scale of 1 to 10, the Circuit de Barcelona-Catalunya is in the category of tracks that present mid-level difficulty for the brakes. The Barcelona track earned a 6 on the difficulty index, which is equivalent to what the Shanghai and Mexico City circuits earned.

Brake use during the GP

Even with an average lap speed at below 200 km/h, the time spent braking totals 18% of the overall duration of the race, according to the Brembo technicians, which is due to the presence of several fast curves that require only a limited use of the brakes. The average deceleration is 3.8 g, the same figure registered at Interlagos. The energy dissipated in braking by each car for the entire GP is 115 kWh, which is 15% lower than that of Sochi. This average of 115 kWh for each single-seater is equivalent to the weekly electricity consumption of a Denmark resident. Brembo technicians estimate that each driver brakes approximately 530 times, applying a total load of 62 tonnes on the brake pedal, which is equivalent to the combined weight of 62 fully loaded Fiat 500 cars.

The most challenging stops

Of the eight braking sections on the Circuit de Barcelona-Catalunya, 3 are classified as hard on the brakes, 2 are of medium difficulty and 3 are light.

With a deceleration of 5.6 g at the Elf curve (turn 1), this braking section is the circuit's most difficult and one of the 6 most challenging curves in the World Championship: the drivers apply a force of 168 kg on the brake pedal to go from 335 km/h to 122 km/h on a descent that lasts 1.11 seconds and is only 103 metres long. Another noteworthy curve is La Caixa (turn 10): 153 metres of braking with a deceleration of 5 g to reduce the speed from 313 km/h to 68 km/h, a difference of nearly 250 km/h.

All of the easier braking sections are found towards the end of the track and one of these, turn 11, requires the brakes to be used for just 0.83 seconds.

Brembo Victories

In the 36 contested editions of the Spanish GP, single-seaters equipped with Brembo brakes were victorious at precisely half of them. Ten of these were won by Ferrari, of which 5 with Michael Schumacher. Of all the currently active drivers, 7 have won here at least once.