



The Italian MotoGP according to Brembo

An in-depth look at the premium class' use of brakes on the Mugello circuit

The Mugello Circuit (in the province of Florence) will host the 6th race of the 2016 MotoGP World Championship season, from 20 to 22 May. The circuit was inaugurated on 23 June 1974 under a downpour of rain, then it began to host the GP World Championship in 1976, but it didn't become a permanent site of the Italian GP until 1994.

The track is 5,245 metres long, and comprises 9 right-hand curves and 6 left-hand curves. The main straightaway measures 1,141 metres, which is half a kilometre more compared to the longest straightaway on the Bugatti circuit, site of the French GP. This allows the faster bikes to exceed 350 km/h, which makes the braking section immediately after especially hard on the Brembo braking systems used for all of the MotoGP races. The other turns are positioned uniformly along the track and consequently, the remaining braking sections are not particularly challenging, which allows the braking systems to cool down.

According to Brembo technicians, the Mugello Circuit falls into the category of medium difficulty for the brakes. On a scale of 1 to 5, it earned a 3 on the difficulty index, the same score received by the tracks at Losail, Austin, Termas de Rio Hondo and Le Mans. In this first stage of the season, only the Jerez circuit got a higher score.

Brake use during the GP

Compared to other tracks, the Mugello circuit is characterised by the presence of a single braking section taken at a speed registering over 270 km/h and only one other at 230 km/h. The 10 braking sections lead to the riders spending about 11 minutes total in braking during the entire race. The average deceleration for the GP is equivalent to 1.06g with peaks falling in the two directions: braking sections with 1.4-1.5g and others with 0.5-0.7g. Summing up all of the force applied by a rider on the brake lever throughout the GP (about 40 minutes), the figure exceeds a tonne: the weight of 5 middleweight naked street bikes.

The most challenging stops

The San Donato braking section (curve 1) is considered very hard on the Brembo MotoGP brakes, while 5 others are of medium difficulty and 4 only slightly challenging. The braking section after the arrival (turn 1) is complex because it is preceded by a small climb and because the riders arrive all-out in sixth gear: from 351 km/h they go down to 91 km/h in 5.6 seconds, applying a load of 7 kg on the brake lever and about 12 bar of stress on the braking system.

One of the medium difficulty curves that stands out is the Materassi (curve 4) despite a braking space of 146 metres, because the load on the lever measures 5.9 kg and the stress on the braking system is 10.2 bar. Scarperia (curve 10), Correntaio (12) and Bucine (15) are on the same difficulty level, but the downhill Casanova-Savelli S-curve (turns 6-7), which is often the stage for overtaking manoeuvres, is one step lower because the speed is reduced only from 217 to 131 km/h.

Brembo Victories

Brembo brakes have won all of the last 23 editions of the Italian GP races contested, including that of 1993 held at the Misano Adriatico circuit. With 9 wins each, the frontrunners are Mick Doohan (all in 500) and Valentino Rossi (one in 125 and one in 250), but, Jorge Lorenzo has won all 4 of the last 5 editions.