



*400 motorcycles, a record ski jump, 2 rides on roller coasters and a milking system for 1,700 cows to explain the use of brakes on the Austrian circuit.*

## **The Austrian GP according to Brembo**

### ***An in-depth look at the use of brakes by Formula 1 cars on the Spielberg Circuit***

The Spielberg Circuit will host the 9th race of the 2016 Formula 1 World Championship from 1 to 3 July.

Built where at one time the Österreichring was, the Red Bull Ring was redesigned by Hermann Tilke. Inaugurated in May 2011, the circuit began hosting Formula 1 again in 2014. This is a very hilly track as demonstrated by the 12 degree incline on the steepest section and the 65 metres of difference in altitude between the highest and lowest points on the circuit. It is also characterised by sharp curves with rather short stretches (4.318 km) between one braking section and another, offering very little space for cooling down the system ([link](#)).

According to Brembo technicians, who classified the 21 World Championship tracks on a scale of 1 to 10, the Spielberg Circuit is in the category of tracks that present mid-level difficulty for the brakes. The Austrian track earned a 7 on the difficulty index, which is identical to what the Baku City Circuit scored ([link](#)).

#### **Brake use during the GP**

On the 9 curves of the track (7 right-handed, 2 left-handed) there are 7 corresponding braking sections. The time spent braking by the single-seaters equipped with Brembo brakes is one of the lowest in the first half of the Championship: it totals only 17% of the overall duration of the race. On the contrary, the average deceleration is a good 4.4 g, making it the highest of the entire World Championship. The energy dissipated in braking by each car during the whole GP is 144 kWh, which is equivalent to the amount of energy consumed for milking about 1,700 cows. From the starting line to the chequered flag, each driver applies a total load of 67 tonnes on the pedal, which is the nearly the total weight of 400 KTM motorcycles.

#### **The most challenging stops**

Of the 7 braking sections on the Spielberg Circuit, Brembo technicians have classified 4 as hard on the brakes, 2 as presenting mid-level difficulty and 1 as light.

The most challenging is at the Remus curve (turn 2) because the drivers take the turn at 316 km/h and they have just 146 metres to slow down abruptly to 67 km/h, which surpasses that of the incredible record jump by Daiko Ito on the Bischofshofen ski jump. To do so, they apply a load of 146 kg on the brake pedal and undergo a deceleration of 5 g, which the more fortunate among us experience on the Rock'n'Roller Coaster at Disney Parks. Identical as far as deceleration but inferior in length (116 metres as opposed to 146) and time spent braking (1.27 seconds compared to 1.72 seconds), the first braking section on the track at the Castrol curve requires drivers to go from 313 to 113 km/h and apply a load of 154 kg on the brake pedal.

As if these weren't enough, the third curve on the circuit (Schlossgold) also entails significant deceleration: 4.9 g, with a 152 kg load on the brake pedal and a reduction in velocity of almost 220 km/h. Curve 8, named for Jochen Rindt, also presents a tough braking section, although it is limited to just 76 metres.

#### **Brembo Victories**

The single-seaters equipped with Brembo brakes have won 5 of the 22 Austrian GP races that they have competed in, comprising the last four: 2 on the previous track and 2 on the current circuit. Up to now, only Ferrari (3 victories) and Mercedes (2) have managed to assert themselves amongst the manufacturers that use Brembo brakes, while amongst active drivers, the only one to have ever won here is Nico Rosberg.