



170 race bikes, a field of tulips and Doohan's thumb master cylinder:
welcome to the Cathedral of Speed at Assen

The Dutch MotoGP according to Brembo

A close-up look at the use of braking systems in the premium class at the TT Circuit Assen

The TT Circuit Assen will host the 8th race of the 2016 MotoGP World Championship from 24 to 26 June. Inaugurated in 1925, this is the only track to have hosted a World Championship race every year. This year, for the first time, the race will be held on Sunday.

A fall on this track in 1992 almost cost the amputation of Mick Doohan's leg. To return to riding the powerful 500cc bikes of that time, the Australian made use of the thumb master cylinder designed specifically for him by the Brembo engineers.

The circuit is 4,542 metres long and has one of the shortest straightaways in the World Championship: just 487 metres. As a result, the maximum speed is relatively contained: in the last three years, the peak during a race came to 318 km/h, reached last year by Andrea Dovizioso.

The TT Circuit Assen requires steering precision with its 12 right-hand curves and six left-hand curves. These curves are very fast, leading to braking that is only slightly challenging, as demonstrated by the record lap average registered in 2015 by Valentino Rossi at 176.5 km/h. Only 1 km/h less than the analogous figure for Mugello. Indeed, the speedy trip sections enable the braking systems to cool down nicely and guarantee excellent operating temperatures.

According to Brembo technicians, the TT Circuit Assen falls into the category of tracks that is less challenging on the brakes. On a scale of 1 to 5, it earned a 2 on the difficulty index, surpassing only the 1 obtained by Phillip Island. Assen was classified similarly for the World Superbike, which took place at this track on 18 and 19 April.

Brake use during the GP

Whilst considered a spectacular and technical track, the TT Circuit Assen does not solicit significant stress on the brakes: contrary to the 7 circuits raced so far this year, there isn't even one braking section that surpasses 240 metres. Regardless, the 10 braking sections lead to an overall time spent braking of about 13 minutes during the entire race, which is identical to that of Barcelona, as is the average deceleration of 1.14 g. Summing up all of the force applied by a rider on the brake lever throughout the GP (about 40 minutes), the figure is more than 11.5 tonnes, which is equivalent to the weight of 170 race bikes.

The most challenging stops

Of the 10 braking sections on the TT Circuit Assen, none are considered very difficult on the brakes. However, six are rated medium and the remaining four are light.

The descending right-hand braking section at the Haarbocht curve (turn 1) is the one that requires the most effort from the riders and the braking systems. The bikes arrive going 286 km/h and the riders brake for 4.5 seconds while travelling 240 metres, which is the same length as a field of 2,400 tulips. The load on the brake lever is 6.8 kg whilst the pressure is 11.8 bar and the curve is taken at 107 km/h. The braking section at curve 14 also surpasses 200 metres in length (209 to be precise): the riders go from 281 km/h to 176 km/h.

Of the medium difficulty curves, the one taken at the fastest speed is the right-hand curve at Ruskenhoek (turn 6): the bikes come in at 318 km/h and down-shift to 235 km/h in 1.8 seconds while travelling 142 metres.

Brembo Victories

Of the 43 editions of the Dutch GP in which they participated, the bikes with Brembo braking systems won 26, and of these, they won the last 22 consecutive races. Valentino Rossi was victorious in a good seven 500-MotoGP races, as well as in one 125 and one 250, all of them with Brembo brakes. Honda dominated amongst the Manufacturers with 14 wins, leading Yamaha (10), Ducati and Suzuki each won once.