



Technical Bulletin.

Discs - How low should you go?

It's fairly obvious when brake pads become too worn and thin to be safe – but what about brake discs? There seems to be some confusion in the trade, even at MOT and VOSA level, about when disc thickness is too low to be safe.

The correct minimum thickness for any brake disc is the one specified by the motor vehicle manufacturer. Any thinner, and the disc will no longer deliver the braking performance the manufacturer intended.

Hot and bothered

Disc thickness specification isn't arrived at by chance. It's the result of numerous calculations covering key criteria, principally heat dissipation, and caliper/pad retention. Clearly, the thicker the disc, the more material there is to dissipate heat. Once the disc is thinner than specified, it will fail to shed heat sufficiently under prolonged heavy braking or in a full-on emergency stop. The discs anneal, the pad material starts to break down and braking performance is seriously compromised.

Failure is a real risk

The problem with caliper/pad retention is that when the disc is too thin, the pistons in the caliper push out the pads further to make contact with the disc. If the pads are also thin, this can mean the caliper overextends; the pistons aren't properly supported and either apply pressure unevenly or won't retract. The result is brake drag or lock, which can generate enough heat to make the brake fluid evaporate, leading to total brake failure. Another possibility is that the piston no longer seals with the caliper, leading to loss of brake fluid and again, eventual brake failure (**worst case scenario**).

If the disc is very thin or the braking very aggressive, the friction ring can shear away from the hub, resulting in probable brake failure and loss of control.

Dangerous to drive

Driving a car with discs below the manufacturer's recommended thickness is unpleasant, as well as dangerous. It can cause vibration and shaking at the steering wheel, and disconcertingly long brake pedal travel. Brake fade occurs much more quickly and, as we've seen, the risk of complete loss of braking is considerably increased.

Don't take risks with discs

It only takes moments to measure and check disc thickness. Most discs will have the minimum thickness stamped on the hub or edge, or you can simply look it up on the Apec website:

www.apecbraking.co.uk

This shows you the vehicle manufacturer's recommended thickness (as supplied by Apec) and the safe minimum.

Discs are relatively inexpensive, so considering the possible consequences, the answer must always be: if in doubt, replace.