



Sigma Performance Slipper Clutches

Intended so everyone from road riders, track day enthusiasts to dedicated racers can enjoy their benefits, slipper clutches are designed to allow the rear tire and rear suspension to remain unaffected by the forces caused by engine braking. This allows the rear tire to maintain grip by preventing the rear wheel locking on downshifting and give the rider more confidence entering both high and slow speed corners.

Slipper clutches automatically disengage the engine when required if the throttle is shut at high RPM. As the bike enters a corner this reduces the effect of engine braking, removing the need for the rear tire to split its grip between turning over a high compression engine and maintaining side grip in the corner. With the rear tire's grip being used purely for cornering there is a greater feeling of stability and confidence. They are especially beneficial when rapidly slowing on track for a low speed corner at the end of a high-speed straight, or on the road when needing to slow quickly if an unexpectedly tight bend appears in the road.

For many years slipper clutches were thought to be needed just on big twins like Ducatis, but the MotoGP and BSB race series have shown how useful they are on multi-cylinder four strokes and the FIM and BSB sanctioned their use on Supersport bikes from 2004 on.

Manufactured from high-quality hard anodized aluminum, Sigma Slipper Clutches supplied by Spears Racing:

- Feature a six-ramp automatic ball bearing lift mechanism
- Have plug 'n' play installation - no subsequent adjustment is required
- Designed to use standard clutch plate packs and springs
- Some protection against excessive over revving if the rider accidentally changes down too many gears going into a corner

NOTE: Installing on a 1st generation SV650 (99-02) requires the use of 2nd generation SV650 clutch springs. Make sure to add a set of the clutch springs to your order if you have a 99-02 SV650.

Sigma Performance Slipper Clutches - Race Setup

All clutches in the Sigma Performance Competition Slipper Clutch range are delivered with settings that, with a fresh set of clutch plates, will give a reliable and efficient slipper clutch action. That doesn't mean you shouldn't try something a little different though. Slipper clutches work by the back torque from the rear wheel forcing the center of the clutch to rise up its ramps; this in turn pushes the pressure plate off the top of the pack. The more violent the back torque (for very violent think three full racing downshifts and no clutch) the further the centre rises. Once the clutch pack has broken (i.e. the plates are not clamped hard together any more and the clutch is slipping, the centre stops rising, indeed it starts to fall, as it falls the clutch re-engages, as soon as it does it is driven back up the ramps, starting the cycle again. An equilibrium point is quickly reached.



So let's consider the situation – all our clutches are designed to have a 1-1.5mm center to pressure plate clearance with a fresh clutch pack. What happens if we reduce that distance? Well the clutch works earlier, that's what. When we set the clearance at 1.5mm, there will be a few occasions where a small amount of back torque isn't enough to allow the clutch center to travel right up its stroke. If we reduce the thickness of the pack, which brings the pressure plate closer to the centre, then the clutch will work when previously there was not enough back torque to make it work. Where it was always going to work anyway, now it will work earlier, which translates into further into the corner and with less engine braking.

It is possible to run the clearance right down at 0.6mm, but bear in mind heat build-up will change some clearances, and because the clutch is working more it might wear the plates more so the tighter the clearance the more regular checking needs to be done. It goes without saying that if you have your clutch set at 0.6mm and heat closes the gap by 0.4mm mid-race, then wear of just 0.2mm will result in clutch slip. Race over.

So at 0.6mm, the clutch will work pretty much as soon as you shut the throttle and whenever you shut the throttle. At 1.0mm, it will work slightly less often and will not work for small amounts of engine braking. All of these clearances change as the friction plates wear, and they can only be adjusted by different pack thicknesses. With Suzuki and Honda clutches we can move things by 0.3mm jumps; on the less subtle twins we can only move them by 0.5mm jumps, and that's close enough. A rider will feel the difference between 1.5mm and 0.6mm but the difference between 0.8mm and 0.6mm is going to be as miniscule as the measurement. Remember we don't want a clutch that feels different too easily or normal wear will cause problems. In most cases the best friction plates are the standard ones, as they appear to take the additional loads placed on them by a slipper clutch in their stride.

You can take a look at the latest info we have on the various clutches we sell. Remember, they are all designed to function just fine with a new original clutch pack, if you insist on experimentation these numbers are intended to provide a little guidance.

Before you start playing too much, remember that we believe the standard numbers; a 1-1.5mm clearance will do just fine for most riders in most situations.

Thank you for looking,

Spears Racing