

Super Finishing Of Racing Motorcycle Engine and Gear Wear Parts Increases Performance and Reliability

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Sangha Race and Restoration, an experienced racing motorcycle rebuild company, turned to superfinishing at Fintek (<http://www.fintek.co.uk>) in the search for more engine performance – the ultimate goal of every race team and rider. Owner of the company, Kieran Sangha, set himself the challenge while rebuilding the engine of one of his own race bikes.

“Simply refurbishing and renewing parts rarely give big performance gains,” explained Kieran who, when not transforming machines for racing customers, enjoys the thrill of competition himself. “Friction between components is an engine and gear killer. The heat caused by the contact surfaces under constant stress from powering through the gears, while maintaining maximum revs, really dulls performance, maybe leading to component failure and not finishing the race – or worse, injury due to a mechanical fault.”

Kieran previously tried to mitigate these problems by vibratory finishing gear, shafts and engine parts. The process did improve surface finish of the components to a degree, but they still had a roughness that was noticeably uneven across the surface. Also, chemicals used with the media in the vibratory machines could weaken the metal and hardened surfaces. Disappointingly, component life-span and bike performance remained unchanged.

There had to be a better way and Kieran found it when he turned to extreme performance finishing specialist Fintek, a company that has been surface superfinishing parts for aerospace component manufacturers and top motor sport teams for over 30 years. Developments in this surface finishing technology means it is increasingly affordable to smaller teams and race engineers. Fintek’s newest extreme performance finishing techniques are capable of achieving surface smoothness values to Ra 0.01µm in a fraction of the time of traditional methods and with assured repeatable quality. The process also has the added benefit that it can eliminate stress fracturing risks.

To meet Kieran’s performance target, Fintek used an OTEC stream finishing system and created a unique process for his parts. Using a carefully balanced media size, angle of emersion in the media and cycle time, a surface smoothness of Ra 0.02µm was achieved quickly. The stream finishing system does not use a corrosive rust inhibiting solution and therefore the risk of weakening the hardened metal surfaces is totally eliminated. An added bonus was the parts emerged with a highly attractive polished mirror-like appearance. To the touch, there was an extreme smoothness extending evenly across all surfaces – especially at the root of the gears where other processes often fail to reach.

What did this mean for performance? Kieran explained, “Motorcycle racing is all about feel – an engine, gearbox and suspension might all work well – but you can instinctively tell there is a difference with extreme super finished components. In testing there was a considerable five percent performance increase. However, it is not just horsepower gains, it is how quickly the engine makes power and how it feels when it is under load revving freely. Notably, it runs cooler too. As a rider, confidence is critical – you can push it that little bit harder knowing the components and engine are reliable, something overlooked by many of my customers,”

Fintek's process also helped to increase the life span of the components. Less friction means reduced wear and less expensive maintenance and servicing. "I will definitely be taking more parts to Fintek for the extreme performance finishing process. Sangha Race and Restoration has many clients racing competitively and I am sure they will want the same performance improvements," Kieran concluded.

More Information

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<http://www.ainsmag.co.uk/client-news/fintek/super-finishing-for-racer-and-engineer-gives-five-percent-performance-boost-less>