



CRP Motorsport Case study

Ilmor and CRP a unique partnership

"If size did matter, the dinosaurs would still be alive"

As the Chairman and Chief Executive of Porsche, Mr Wendelin Wiedeking, personal motto greatly explains, this is the era of small and managerially agile companies, that make successful exclusive products, sure-fire way to big-profits.

This is particularly true for motor sport world, where flexibility, quality, reliability and extremely quick feedback and deliveries are the key-words: Ilmor and CRP comply all of them!

CRP and Ilmor know each other since some years, being **both protagonists in F1 world**, as hi-tech partners and suppliers.

The Ilmor company was founded by Mario Illien, Paul Morgan and Roger Penske in 1984. It quickly became successful in Indy racing and progressed to competing in Formula One in the early nineties, winning the world championship with McLaren in '98 and '99. After great successes in many diverse racing series, in late 2002, Mercedes-Benz elected to begin a phased buyout of Ilmor. This began to stifle opportunities for Special Projects and so by the end of June 2005 a new Ilmor was born and now possesses its own independent facilities employing 60 staff in total. The main business is the development and production of racing engines, from conception through to trackside.

CRP Technology, motorsport teams' active partner since more than 30 years, has four major separate departments, for one single goal (support a partner alongside the entire project and the manufacturing process): R&D, rapid prototyping, CNC machining, engineering and design. A unique interface for racing teams and constructors.

CRP's R&D Department has also developed WINDFORM® materials for Laser Sintering technology: WINDFORM® XT, carbon fibre filled, allows the creation of high-end functional prototypes and production parts.

While CRP is focused on Motorsport and Automotive, WINDFORM® suits several different sectors, from Design to Electronics, from Consumer products to Lighting systems, besides wind tunnel or racing cars aerodynamics and non-structural parts.

After some cooperation in F1, **CRP has been chosen by Ilmor for some key parts of the last MotoGP project**, that will bring two Ilmor-powered bikes in 800cc class in 2007 World Championship season. A wildcard entry into the last two events of 2006, Estoril (15th Oct) and Valencia (29th Oct) has been obtained too.

"Ilmor has designed in fact a brand new high revving engine to suit the new engine capacity rules for 2007. The 800cc V4 with air valve springs is designed to be lightweight, powerful and most importantly, driveable. They are making good progress with development, and in addition to extensive dyno testing the engine has had a shakedown test at Silverstone, and undergone further testing at various circuits throughout Europe, ridden by Garry McCoy. It is fitted to a brand new chassis, designed by Eskil Suter, and the rider feedback has been extremely encouraging so far." (Ilmor press release)

The engines are four-valve, twin-cam designs with gear-driven camshafts, and the valves are pneumatically operated. The new Ilmor V4 will have reduced dimensions in order to allow a good frame, easy to be driven.

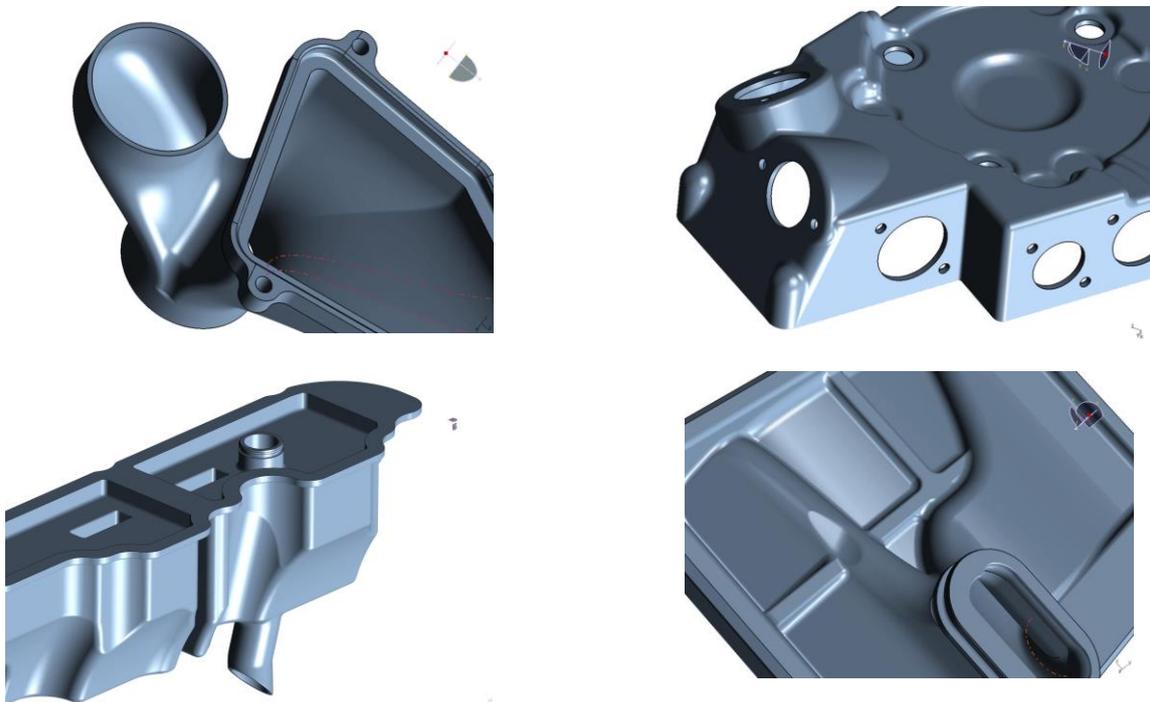


The pneumatic valves allow easy and quick set up and reduces dangerous vibrations that new 800 cc engines have, due to the very high rotational speed they have to reach. Being a 75 deg engine a balancing counter-shaft is needed and therefore a more efficient radiator: the engine is quite close to the 210 HP at 18.000 rpm power target. This is a limit that they decided to fix: "We will not make the same mistake as Cosworth did with Aprilia," Ilmor boss Mario Illien told to a UK magazine "We know what it takes to build a motorcycle engine and it is all about power delivery and bottom end power."

"We will react faster and make decisions faster," he said too, and this is the reason why a partner as CRP is required: **companies working in F1 have something different in their DNA.** They understand immediately what the team needs, making it faster and better. **Every hi-tech company can make a good job, but few can make a great job, with perfect reliability, perfect quality and quickly!** The racing teams don't have to be worried of late or of quality, they just have to receive a perfect part, assemble it on the racing car or bike and run.

Confidentiality doesn't allow many details on what was developed, but just to give a rough guide and few examples, scavenge pump housing in aluminium alloy was made with an incredible strict tolerance range, fully inspected, and the delivery time was 1 week, and this is hi-tech production and not Rapid Prototyping!

Then some "hybrid" parts made by **Rapid Prototyping in WINDFORM® XT** and **then CNC machined** for racing engine and also customized for dyno tests: sump baffles, sump scrapers, dyno air inlets and manifolds and cylinder head brackets.



Tim Roberts (Ilmor Engineering Ltd) explained: "What Ilmor did appreciated is a unique partnership made by quality, service and hi-tech solutions: WINDFORM® XT and precision CNC machining on aerospace special alloys within ridiculously short time!"