

# Swiss rolling

The cost of developing engines – with their emissions strictures – can be ruinous.

Having a wide portfolio is the way to do it.

Ian Norwell reports from FPT's HQ in Arbon

It's a sleepy Swiss town on the shores of Lake Constance, but it is home to FPT (Fiat Power Train Industrial) and the somewhat unlikely setting for the development of some leading-edge technologies for, among others, Iveco's engine requirements.

On a clear day, Dr Dirk Bergmann, general manager of the FPT research and development site in Arbon, can see across the lake to Friedrichshafen, where ZF and MTU are based. The shores are a hub for a clutch of world-class engineering companies whose antecedents were often aeronautical firms (Zeppelin for one) that pragmatically regarded the lake as a safe place for test pilots to ditch.

Bergmann, 45, has been at the helm of FPT since only last November – but 13 years at the giant marine engine maker MTU are credentials enough. Compared to many other engine development centres, his has a compact feel and much of the centre was the Saurer R&D facility, acquired in 1982.

With six R&D centres worldwide, and 10 manufacturing plants spanning three continents, FPT's range of engines, transmissions and axles is more than enough to feed its needs in transport, off-road, marine and power generation. For its Iveco, Case New Holland (CNH) and related brands, these generated 476,000 engines (from 2.2 litres to 20 litres) in 2012, with 67% going to on-road users.

The list of alliances, strategic co-operation agreements and customers includes big-hitters from Daimler to Fuso, SAIC, CAT, Hyundai, Komatsu, Ford and Tata. This multiplies FPT's already powerful economies of scale and spreads the risk.

As far as Iveco is concerned, FPT supplies the engines for products ranging from the Daily van to the Stralis truck Cursor series. For Euro 6, Iveco continues to plough a lone industry furrow, sticking instead with a high efficiency version of SCR (selective catalytic reduction) technology throughout.

Although Iveco may be steering clear of EGR's (exhaust gas recirculation) operating temperatures and the impact they may or may not have on engine longevity, it is paying a penalty in AdBlue usage. But



Bergmann is happy with that. "Our philosophy with Hi-eSCR is to keep it simple and we are certain that recirculating exhaust gases through an engine, encouraging an acidic environment, will shorten its service life," he insists.

## Cost of ownership

Bergmann's colleague from Turin, Federico Giovanetti, who looks after Iveco heavy trucks (Stralis and Trakker), says that Hi-eSCR is just the beginning of a raft of developments aimed at cutting cost of ownership. He agrees it's a costly game, but explains: "The C16 [15.9 litre Cursor] engine, due next year, would not be justified for on-road application alone. However, CNH is the natural habitat for it and this corporate strength allows us to offer on-road customers more choice."

Back on technology, and FPT is looking closely at waste heat recovery and brake energy regeneration, but the debate is what to convert it to – and how best to store it. "Our agri customers are looking at driving implements with electricity, but, for on-road operation, battery weight is a problem," comments Bergmann. Taking the burden of driving peripherals away from the engine, though, is also being vigorously pursued. With battery efficiency an upwardly-mobile target, and in-cab electrical drains on the increase, the pair just might get married.

Meanwhile, FPT is also working on micro-fine coating technology, aimed at reducing friction losses on a wide range of engine and transmission components. It's impressive stuff. And it's worth noting that electronic engineers here have almost as big a voice as their mechanical counterparts. **TE**



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