BLUEPRINT OF F1’S REVOLUTION
Cosworth reveals 2014 winning edge

PROTOTYPE POWER PLAY
Audi v Toyota for 24 hours

RETURN JOURNEY
Valve springs tech focus
Meeting of minds

Ian Bamsey discovers some intriguing race and road crossover technology at the annual Engine Expo in Stuttgart

Engine Expo is the annual automotive powertrain exhibition in Stuttgart, Germany, that provides a fascinating engineering showcase, in which are to be found new products and services relevant to race engine professionals. The road and racing crossover is becoming more significant by the year, thanks to the increasing use of alternative power solutions on the track, such as advanced fuels, hybrid systems and even all-electric racecars. At the same time, the wider automotive world is ploughing more and more resources into such technology.

Engine Expo 2013 revealed some intriguing new solutions.
AROUND THE EXPO

At the Fischer stand Claude Minder showed me a prototype of a water-cooled Formula E motor. At one stage this looked like becoming the propulsion unit for the spec car that will launch the new FIA-endorsed championship next year, but in the event the car supplier arrangement was changed from what was originally envisaged. Nevertheless, beyond 2014, Formula E becomes an open technology series so I may well have been looking at a future motor for the all-electric single-seater championship.

Minder told me that the concept was for one of these 22 kg, 18,000 rpm, synchronous reluctance motors to drive each wheel. “Our company is traditionally a manufacturer of spindles for machine tools, so our core competence is fast, high-performance rotation, including air bearings,” Minder explained. The Fischer FTM-120/18 has a peak output of 120 kW and a nominal output of 40 kW with respective torque figures of 80 Nm and 38 Nm. A total of 160 kW/215 bhp is in line with the anticipated power of Formula E cars.