

Bowers technology drives energy savings at top race engine development facility



Racing engines - including F1 hybrid power units - could be powering the kettles, cookers and hairdryers of Milton Keynes after the owners of a high-tech tuning facility turned to Bowers Electricals to drive their energy efficiency up a gear.

Bowers – one of UK’s biggest and best known manufacturers of distribution transformers – was brought in by motorsport experts Mugen Euro to project manage and supply the equipment for a new power supply when it relocated its research and development centre at the end of 2013.

Now, thanks to Bowers’ technology, the Honda specialists are using energy created by the racing engines on test to not only reduce their electricity bills but to help power homes and businesses in the surrounding area. In due course, this will include the new-technology F1 hybrid power units using the dynamometers that Mugen Euro is preparing for Honda’s partnership with McLaren in 2015’s Grand Prix season.

As Bowers’ managing director, Michael Bowers, explained: “We’ve managed a number of large scale projects at wind and solar farms where huge quantities of power are being fed into the grid. At the Mugen Euro site the main job was connecting them to an electricity supply but there is also an element of energy regeneration going on - and the source of it is really quite unique.

“When an F1 engine is being tested on the team’s dyno at maximum power, it is creating a huge amount of energy which would normally be wasted. However, we supplied the technology and the equipment to feed this energy back into the network – cutting overall

of power being generated depends on how hard they’re testing the engine - if data logging says that the driver is not keeping the throttle flat to the boards through a particular corner of a race circuit, that equates to a few less cups of tea for Mugen Euro’s neighbours.”

Hiro Toyoda, Mugen Euro’s vice president, said expansion of the business had led to the need for a significantly larger, better-equipped facility - and that Bowers Electricals had proved the perfect partner.

“Moving to the new premises was a huge industrial challenge for us but it has also been an opportunity to take advantage of the latest available technologies by installing the most up-to-date dynamometers and control equipment, as well as markedly improving the facilities for our staff and visitors,” he said.

“Our engine test facilities are very high specification and, as we are at the cutting edge of the most demanding and technologically advanced sport in the world, quality is our number one priority. There are several suppliers of transformers in the UK but we wanted a company that offered three things – quality, reliability and, of course, customer service. Bowers supplied high quality equipment on time and with professional installation as well as customer service.”

As part of the six-figure project, Bowers’ in-house engineers designed and manufactured two bespoke 1500kVA Bowers BEST range

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Vice President
- Mugen Euro

electricity costs for Mugen and reducing their carbon footprint at the same time.

“When a 750hp engine is going at full chat, the power being returned to the grid is around 560kWh which, in simple terms, is enough to boil around 300 kettles. Of course the amount



LEFT: Mugen's bespoke LV switchboard

BELOW: One of the 1500kVA BEST transformers installed at the new engine-testing facility



(cont. from over) transformers for Mugen Euro, as well as overhauling the company's current 1600kVA unit and building and installing three LV distribution boards and new HV switchgear for the whole site.

Together, the state-of-the-art equipment steps the site's 11,000v supply down to 690v and 415v, powering Mugen's engine testing machinery to more than 15,000RPM capability. From there, G59 synchronising technology allows the energy created by the engines to be fed back into the supply. The eight week project saw the Bowers team take care of every element, from connecting the local electricity provider to the site boundary, to digging trenches and carrying out all civil engineering works.

"Our experienced engineers provide a full turnkey offering and in this case provided Mugen Euro with manufacturing, overhauling, refurbishment, installation, testing and commissioning services," added Michael. "Having all of these elements managed by one team meant that Mr Toyoda and his colleagues could concentrate on their fascinating projects with the confidence that their new site was being professionally managed."

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DATE OF INSTALL:

January 2014

EQUIPMENT INSTALLED:

- Refurbished 1600kva transformer 11/433
- 2 x 1500kVA 11kv/690v transformer
- New ring main unit
- 2500amp distribution switchboard with G59
- 2 x 1600A 4-pole LV feeder pillars
- 32000A 690v 3ph LV distribution switchboard

Michael Bowers - Bowers Electricals

