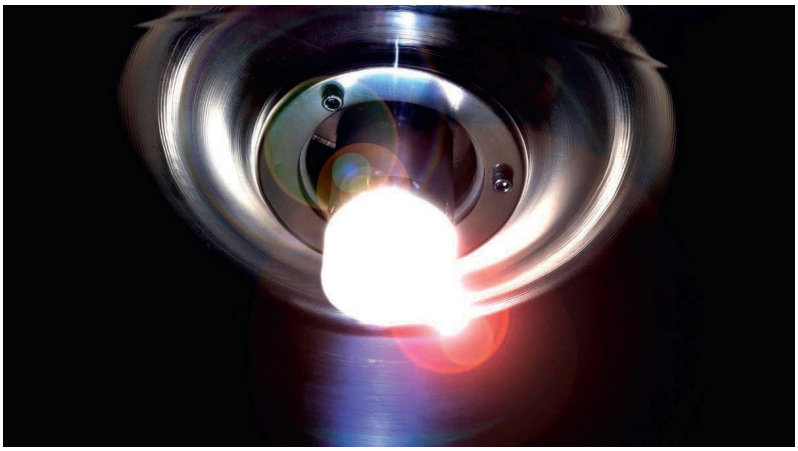
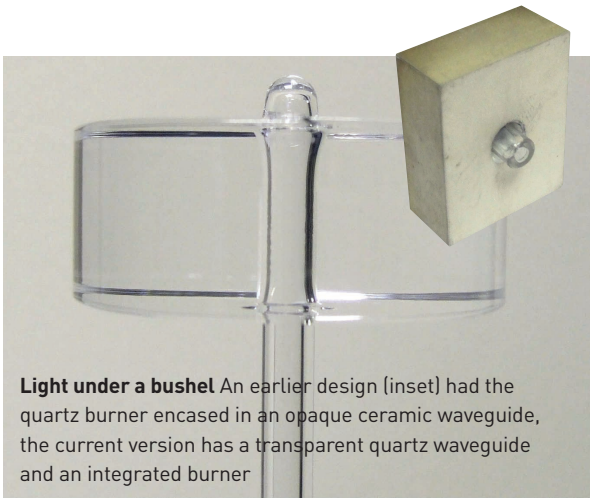
No electrodes, no problem

UK company Ceravision is certain it can bring electrode-less lamps successfully to market with the launch of the first product to incorporate its High Efficiency Plasma technology. **Richard Simmonds** reports



Right-sized The light source measures 5mm in diameter and 21mm high, the entire quartz puck is 48mm in diameter



Light under a bushel An earlier design (inset) had the quartz burner encased in an opaque ceramic waveguide, the current version has a transparent quartz waveguide and an integrated burner

The best part of 15 years ago, a group of engineers was beavering away on the power supply for a revolutionary new lamp technology. They were working for Fusion Lighting and were part of the design team for the sulphur lamp, an electrode-less lamp energised by radio frequency (RF) energy. It made quite a splash at the time – but it failed.

There were many reasons: magnetrons of the time had short lives, and the bulb had to rotate rapidly to prevent the sulphur inside from burning through.

Fast forward to today, and some of the same engineers are celebrating the imminent launch of a product that incorporates, you guessed it, a revolutionary new lamp technology – and they designed the power supply.

ALVARA IN A NUTSHELL

Alvara is a range of devices that will use Ceravision's High Efficiency Plasma technology – an electrode-less, RF-driven light source capable of producing at least 90 lumens per system watt. The key to achieving this is the transparent waveguide and integrated burner, but there are advances in electronics too.

"The components are the same as those in any other electrode-less lamp technology," says Andy Neate, "a radio frequency source, in our case a magnetron; a radio frequency transition that couples the energy from the magnetron antenna to the antenna of the lamp; and the lamp."

Ceravision also took the step of rethinking what a light fitting should contain, and built in intelligent controls. "Each lamp has a microprocessor and an address and it has a wireless transceiver," says Neate. As a result, users can switch, dim and monitor the performance of their lamps from a computer.

But this time, the portents are better.

"We've overcome all of the issues that Fusion had," says Tim Reynolds, chief executive officer of Ceravision. And he should know. After the sulphur lamp debacle, Reynold's company and its partners chose to generate light using a quartz capsule embedded in a ceramic dielectric waveguide.

But that intermediate technology would never have worked for general lighting. As Ceravision's chief technology officer Andy Neate explains: "You had a small quartz capsule embedded in a ceramic waveguide. The only light that was transmitted was from the bit that stuck out of the end." Since 2007, Ceravision has been working on a resonating device of transparent quartz. "Now we can harvest all the light."

The first product to incorporate the patented technology is a 400W high-bay fitting, the front runner in what has been christened the Alvara range. It will be followed by a number of 250W systems, and by street lighting fittings.

"We've been doing trial installations for the past four or five months, they've gone really well," says Reynolds. The company has also won its first contract in the US.

Manufacturing is ramping up at Ceravision's Bletchley Park headquarters near Milton Keynes. "Our objective is to manufacture internally for the first six to nine months, and then we'll switch to sub-contract manufacturing in the third quarter this year," says Reynolds. The company is considering manufacturing sites throughout Europe.

The enthusiasm of the Ceravision team is palpable. As Andy Neate says: "We've locked ourselves away until the technology is right, and I'm pleased that we're on the verge of releasing this." ■