

# Cheers, for clean green beers



*Beer brewing breakthrough.*

**R**esearch and development specialist e3k can raise its glass in triumph over recent successes in beer brewing technology.

This time, they have helped Queensland entrepreneurs Brett and Joanne Shellcot to develop a winning technology that will solve a problem familiar to brewers and drinkers of home-brewed products.

In bottle-brewed beers, the yeast used to ferment the sugars eventually dies and forms a cloudy suspension or dense sediment in the bottle. Mr Shellcot's problem was to find a way of removing the sediment without also depressurising the beer.

His simple but powerful idea was to use a cap that allowed the sediment to be captured and removed after the brewing process has completed.

In 2006, Mr Shellcot approached e3k with his concept, seeking help with designing it for production. Ray Hope, vice-president e3k Global, said one of the challenges for e3k was to develop a high quality sealing system that would be reliable, durable, simple to use and economical to produce on a large scale.

A core insight was that using a clever custom-designed sealing component, instead of conventional methods, would eliminate a complex feature on another component, leading to a lower overall product cost.

Duncan Gilmore, president of e3k, said engineers at e3k took up the challenge and started working closely with Mr Shellcot to develop the prod-

uct's performance requirements and progressively reduce the per unit production costs.

E3k's engineers performed detailed design of the product using 3D computer modelling tools. In a short time, prototype parts were able to be high speed CNC machined from production materials and assembled straight from e3k's digital files, ensuring that the physical parts were built precisely as designed.

## PROTOTYPE EFFECTIVE

According to e3k R&D engineer Steve McCallion, one advantage of this was that the performance of the prototype in testing could be taken as a very good prediction of the mass-produced version's performance.

Mr Hope said one potential problem with functional testing was that the custom designed seal could not be directly machined from production materials, and rapid prototype materials proved too weak. E3k's solution was to design a very low cost and easily machined polycarbonate tool which would enable a suitable material to be injected with a syringe. This enabled numerous prototype seals to be successfully manufactured at a very low cost for functional testing.

The final outcome of this product development process was a proven design for a novel, reusable bottle cap, optimised to ensure long-term reliability and economical high-volume production.

The potential elimination of tons of metal bottle cap waste is an attractive feature in an increasingly resource-conscious market. The initial target market for the product is Australian home brewers, but Mr Shellcot has also received favourable indications from global markets.

E3k's engineers have a 30 year history of enhancing the value of intellectual property (IP) by creatively applying their understanding of engineering principles. In this case, their insightful approach to a cloudy problem has helped realise Mr Shellcot's dream of a clean, green home brewed beer.

[www.e3k.com](http://www.e3k.com) ■

## IN BRIEF >>>

### DODGSON ACCLAIMED FOR BUSINESS INNOVATION

UQ Business School's Mark Dodgson has been awarded the prestigious *ATSE Clunies Ross Eureka Prize for Leadership in Business Innovation*. The Eureka Prizes were established in 1990 by the Australian Museum to reward excellence in research, innovation, science leadership and science journalism and communication. Professor Dodgson said he was thrilled to be one of the few non-scientists to win a Eureka Prize.

"Innovation is about taking the great science the Eureka Prize celebrates and turning it into products and processes that will make Australia competitive in the global economy," he said. "But we



*Prof. Mark Dodgson.*

need to understand that innovation is not just something that is important for people in white coats in laboratories and a few manufacturing firms. It is important for every person, every firm, and every public sector organisation.

"It will take leadership in innovation across the board if we are to solve the pressing problems of the day in energy, health and the environment." Prof. Dodgson said he was convinced Australia could be an innovation leader if innovation was placed firmly at the forefront of the national social and political consciousness.

UQ vice-chancellor, John Hay said, "The award of this prestigious national prize shows how the internationally-accredited UQ Business School is deeply engaged with leaders in business and government in shaping the future of Australian industry." [www.business.uq.edu](http://www.business.uq.edu) ■