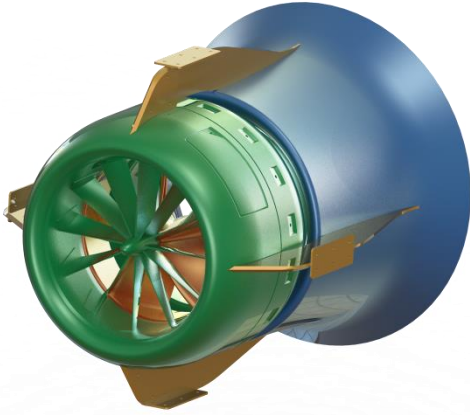


Product Development



e3k specialises in Engineering design, research and development which can be focused on your system or product to introduce it to the market, to innovate, to lower the operation and production costs, improve quality and reliability, and to enhance it with advanced technological features.

- Research, Development and Commercialisation of International Products – e3k Global
- Innovative New Product concepts and Intellectual Property development – e3k Think
- Complete Engineering prototype development from concept to in-service testing – includes e3k Medical

e3k's expert product development services are also complemented by strong experience in creative and advanced machine design including 3D modelling (Solidworks), thorough Engineering analysis including computer simulation of systems, comprehensive technical reviews for business planning, marketing and R&D finance, Finite Element Stress Analysis (FEA), Computational Fluid Dynamics (CFD), and Rapid Prototyping.

Examples of product development projects e3k have completed include:

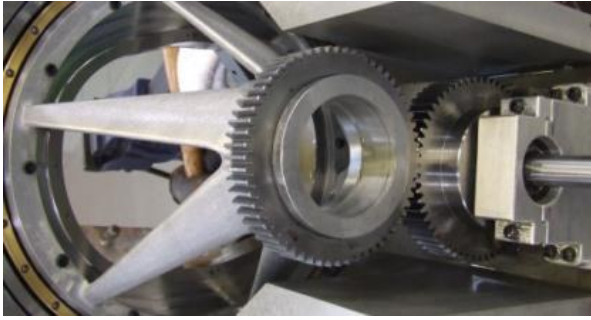
Agilitas Medical Device

e3k designed, prototyped and produced Agilitas, a world-first product, designed to overcome a debilitating Parkinson's disease symptom known as "freezing of gait" (FOG), which affects around 30,000 Australians and 10 million people globally. Freeze of gait causes the sufferer to "freeze" on the spot while trying to walk, followed by difficulty to continue walking. The small discreet Agilitas device uses complex algorithms to detect the onset of a freeze and projects a visual laser cue on the ground to help the patient resume walking.



FLAT® Self Levelling Table

FLAT® is a hydraulic stabilising mechanism that will allow any item with legs, skids or footings to be locked so the legs do not move and the item remains stable irrespective of the unevenness of the supporting surface. It encompasses an interconnected series of small, hydraulic actuators that can be attached or internally designed within a variety of structures to provide support on uneven surfaces. The FLAT table is the first and flagship product fitted with the FLAT® system. In 2010, Gilmore Engineers received a coveted Australian International "Design Award" from Good Design Australia, in the Business and Technology Category, for their contribution to the development of the stabilising mechanism. The product is now available for sale through outlets worldwide.



Novel Combustion Cycle Prototype

e3k undertook a complete research, design, commissioning and testing program of a novel two-stroke direct-injection engine. The engine utilised a non-sinusoidal piston motion profile along with modern pneumatically-assisted, direct-to-chamber injectors. The engine ran continuously, meeting expectations of the client.

Olympic Athlete Foot Force Sensor for Kayaks

e3k designed and developed Foot Pressure Pad Sensors for the Queensland Academy of Sport. They were later adopted by the Australian Institute of Sport. The sensors enabled sports scientists to measure the timing between the upper body paddle action and the subsequent application of leg force through each stroke. The devices were used by numerous Olympic medal winners.

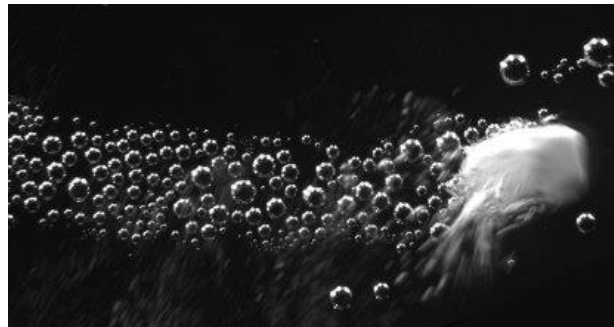


Clean Beers

e3k helped Queensland entrepreneurs Brett and Joanne Shellcot to develop a winning technology that solves 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 which can alter the taste and appearance of the beer. The product captures sediment during the fermenting stage of brewing. Once fermentation is complete the sediment can be removed without opening the bottle or losing pressure, thus leaving a perfectly clear beer. 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.

Medical Drug Delivery Device

e3k worked with Vapotronics Ltd to research and develop the concepts and technology behind a novel pulmonary drug delivery system. The project involved extensive brainstorming to identify the most viable and cost effective technology suitable for the task. Initial experimental research and development was also conducted together with the production of 3D printed prototypes.



Clever 'blower-vac'

e3k assisted Roy Gripske and Sons (RGS) to design the trademarked and commercially available Pelican Vac device that safely vacuums up bottles and cans. Typically debris picked up by blower vacs travels through an impeller, which is fine for lightweight waste such as leaves and chocolate wrappers but heavy robust waste items such as cans and glass bottles tend to severely damage the machine and produce hazardous projectiles. Engineers at e3k helped produce a prototype that allowed the heavy items to successfully bypass the impeller; via examination of airflow patterns, measurement of air velocity and suction pressure, and prototype design optimisation.

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