

Art and science combine to create an eye-catching sculpture in Sydney's Central Park

25th September 2012, Isle of Wight, UK - Gurit, a leading provider of advanced composite materials and engineering solutions, has been heavily involved in the realisation of a wind-activated kinetic sculpture which was designed by two of Australia's pre-eminent public artists, Jennifer Turpin and Michaelie Crawford.

'Halo' is a giant glistening tapered yellow ring, measuring 12m in diameter, attached to a 6m long silver arm, which is atop a 13m tall silver pole. Activated by the power of the wind, the ring tilts and turns in response to the ever-changing speed, direction and gusts. The weight of the ring and arm balances on a tiny ceramic bearing, the size of a small glass marble.

Gurit's structural engineering team were called upon to help turn this unique design into a tangible piece of public art for Sydney's Central Park. With unusual requirements and tight tolerances to ensure the end effect was as the artists envisaged, it made for an interesting and challenging project, bringing together experts in many fields.

Halo has an eccentric balance point so that it appears to float in mid-air and provides an interesting movement relative to the pole. The artists' design called for thin tapering sections, which needed to be as light as possible to maximise movement in the wind. The geometry of the halo (it tapers dramatically from the root to the far side), as well as the requirement for it to appear to sit flat at rest, resulted in very tight deflection criteria. After the initial structural design concept had been developed, Gurit engineers utilised advanced finite element analysis to run a series of design optimisations, which investigated optimum laminate placement to achieve the desired results.

The composite ring was made by Innovation Composites using Gurit double bias carbon with E-glass cloth and carbon tapes, hand laminated with Ampreg 22 epoxy resin. The plug and mould for the part was made by Mouldcam using Gurit T-Paste 70-2.

The supporting arm for the Halo is shaped like a crescent in the cross-section to help provide a directional driving force when the wind blows. Once again, the dimensions of the section were to be kept to a minimum, the weight had to be low, and there were very tight tolerances where the part interfaced with the metal end brackets. Through their analysis, the structural engineers determined that carbon prepreg was the only feasible material. The arm was manufactured by Innovation Composites using Gurit SE 84 LV prepreg.

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This exciting project, which brought together many experts under the project management of Partridge Event Engineering, will be open to the public from December this year.

Ends

About Gurit

The companies of Gurit Holding AG, Wattwil/Switzerland, (SIX Swiss Exchange: GUR) are specialised in the development, manufacture and supply of composite materials featuring bespoke physical and chemical characteristics. The comprehensive product range comprises glass and carbon fibre fabrics, prepregs, core materials, gel coats, adhesives, resins and consumables as well as certain finished parts, composite process equipment and tooling. Gurit supplies growth markets in Wind Energy, Tooling, Transportation, Marine and Engineered Structures. The international Group has production sites and offices in Switzerland, Germany, the UK, Canada, Spain, Australia, New Zealand, the USA, India, China and Ecuador.

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