

The big lid

ROOFS The world's largest geodesic tank roof has been completed and installed at the Chevron-Texaco refinery in Pembroke

Econosto Ltd has overseen the installation of an 81.3-metre diameter (270 feet) geodesic dome roof on tank 9 of Chevron-Texaco's Pembroke refinery in Wales. The tank, the company's largest crude oil storage tank in the UK, had been out of commission and the oil company needed to find a way to upgrade the roofing and sealing system. Econosto's solution was to replace and upgrade the floating roof and top it off with a fixed aluminium geodesic dome roof. Not only was this process much quicker than rebuilding a solid roof, saving around six months, but it also cut vapour emissions by a factor of 20.

The entire structure was manufactured in the US by Temcor and shipped over to Wales where local company Jordan Engineering assembled the roof and installed it under Econosto's supervision. Econosto's clear-span design can be applied to constructions up to 275 metres in diameter and its use on storage tanks provides numerous advantages. According to the company, the risk of fire from lightning strikes is virtually eliminated, product losses through vapour emissions are substantially reduced, and maintenance and drainage requirements are easier to handle.

The roof was built inside the tank, its form being maintained by a system of cables. Once completed, the roof was lifted by three hydraulic cranes in a very careful operation - there being only 30 cm clearance between the roof edge and the tank walls. Once in position, the cables were removed and, when rested on the slippers welded to the tank walls, the roof settled under its own weight to expand and cover the tank completely. Following installation the engineers moved on to the process of installing the floating roof and sealing system.

According to Econosto, the design is technically simple and the individual components can be passed through a 60-cm manhole, allowing roofs to be built within a tank. Alternatively, the roof can be assembled outside the tank and lifted onto the walls while the tank is still in service.

Group results Econosto Ltd is a UK division of the Royal Econosto Group, headquartered in Rotterdam. The group reported a net profit of €8.6m for 2001, compared to just €0.5m for 2000. However, the 2001 results were influenced by a number of disposals undertaken during the year. Hofland Deltaflex, the gasket manufacturer in Rotterdam, was closed and most of its operations transferred to another subsidiary, Temac, in the Czech Republic. Further disposals are planned for this year.

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Domes help restrict emissions