New Civil Engineer

THE GALLERY | 'World's largest' fibre reinforced polymer lock gates installed

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Structures claimed to be the world's largest fibre reinforced polymer (FRP) lock gates have been installed in the new Number III lock on the Wilhelminakanaal in Tilburg, the Netherlands.

The 6.2m by 12.9m gates were manufactured using InfraCore Inside technology, and could withstand a height difference in water levels of 7.9m.

The gates have been installed as part of a project to widen the Wilhelminakanaal, which is being implemented by the Rijkswaterstaat, the Netherlands' ministry of infrastructure and the environment.

Fibercore, the Dutch manufacturers behind the gates, said that InfraCore Inside created a safe and strong construction material which weighed much less than traditional materials, making the gates sustainable and easy to install.

The FRP is made from glass fibres which reinforce the structure and are built in a sandwich construction where the upper and lower shells are inextricably linked. This is claimed to make the gates capable of bearing very heavy loads.

The gates have a yellow protective coating and will require minimal maintenance.

Because the FRP does not decay, the lock gates have a predicted life two or three times that of conventional wooden or steel gates. The gates also have roughly the same specific gravity as water, so there will also be much less wear and tear on the pivoting points.

Widening the Wilhelminakanaal

The Wilhelminakanaal has been both widened and made deeper near Tilburg. In addition, the existing locks II and III have been replaced by a single new lock, and new sheet piling installed together with the laying out of more environmentally friendly banks. There will also be a swinging basin where vessels can turn.

To improve the navigability of the waterway, Rijkswaterstaat has worked in collaboration with the municipality of Tilburg, the province of Noord-Brabant and Combinatie Heijmans/Boskalis.

A wider and deeper canal will make Brabant more sustainable and improve its accessibility by water. Once the project has been completed, large ships (class IV vessels) will be able to sail this section of Wilhelminakanaal in Tilburg more quickly. This will mean a decrease in heavy traffic on the roads, less congestion and reduced emissions of CO_2 and particulates.