Magnet anchors CONQUER MOERDIJK

The annual scaffolding costs can rise considerably for a site like Moerdijk. Innovative techniques in the world of scaffolding cannot only significantly reduce costs, they also contribute to the improvement of personal safety.

TEXT LINDA ANDRIK **IMAGE** ERNST BODE

Activation of anchor points to deliver permanent magnetism

Apart from traditional scaffoldings, for tank maintenance Moerdijk recently started using a new kind of scaffolding technique: the magnet anchor scaffold. This technique involves magnet anchor points that attach to a steel tank wall and are activated with a special switch to provide permanent magnetism. Erwin Janssens, Maintenance Team Lead Tanks: "The application of magnet anchors is a good solution when, for example, it is not possible to build a traditional pyramid scaffold. We can easily switch off the magnets and remove the scaffold at the end of the works. Every maintenance job asks for a balance between safety, quality, capability and price. At the moment, the magnet anchor technique is mainly inspection related and highly applicable for small repair works within a relatively short time period."

Best option

To the question why this is such a cost efficient and safe way of scaffolding, Janssens says: "Because it's a reduction of maintenance costs and working hours with regard to a traditional pyramid scaffold. For the latter you would need a lot more material. A magnet anchor scaffold is built straight up, is slim, and stable. As you will use a lot less material, you also have to handle and hoist less. This makes it safer. Compared to a traditional scaffold, cost reductions can increase from 20 up to even 80 percent in material costs, 20 to 30 percent in working hours, and savings in total project lead time! There are two tipping points: height and duration. At a scaffolding height of less than 14 or 15 meters and with a longer lead time regarding rent, the traditional scaffold wins over the magnet anchor scaffold. For each case we look at what the best option would be."

Together

Before you select to apply a magnet anchor construction, some issues have to be addressed. This is all done in detailed consultation with Jan Arts and Quido Vos at Bilfinger and the department of Civil Engineering from Marcel Kuipers. “Bilfinger presented this magnet anchor technique to us about one and a half years ago asking if this could be something for us. Yes, it would. The company office of Bilfinger first makes example calculations to provide a good comparison of the options. If, according to the calculations, the magnet anchor scaffold looks more interesting than the pyramid scaffold, we recalculate all of it and make a counter calculation. We also calculate the thickness of the wall, the allowed magnet forces and check the thickness of the coating on the tank. If the top ring of the tank is too thin, you cannot place any anchors there. Calculations will in that case demonstrate that we should deploy more anchors.”

Smooth surface

On a number of tanks at MLO (Moerdijk Lower Olefins/red) the magnet anchor scaffolds are already applied. Erwin: “The wind girders, the horizontal angle steel that provides additional strength, showed corrosion spots. Thanks to the magnet anchor scaffold, we were able to investigate this deeply and weld these spots more; we added a coating. This did not even take a week. This technique is widely applicable, although magnets do ask to be attached to a smooth surface. Of course, they do not work on corrugated sheets. Magnet anchors still have to prove themselves, but I expect that we are going to use this technique more often at Moerdijk. Pernis already does that and also within Shell worldwide the application is promoted. Reduced costs, more cash and, not in the least, improved safety. In my opinion magnet anchors are stayers.” ■

Erwin Janssens (l) and Quido Vos are standing in front of the magnet anchor scaffold on tank 903; on the left the traditional pyramid scaffold.