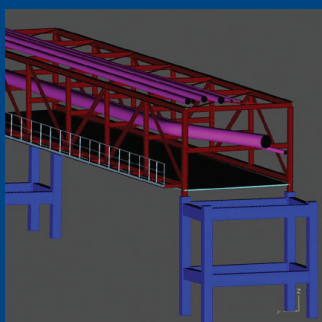
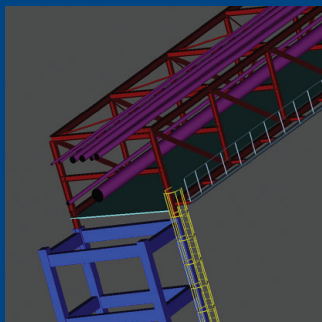


3D-laserscanning the Petrochemical Application



With the use of 3D-laserscanning a new technique is introduced by which large and complex objects can be measured in short time. The objects are scanned from different angles with a speed of 100-5000 points per second.

The wide range ($360^\circ \times 60^\circ$) and the accuracy (0,5-5mm) of the scanner allows the production of a complete and detailed image of the object.

The measuring is non-contact, hence one can set-up at a safe distance from the object. The range of the scanner is 2-150m.

Specifically developed for use in the petrochemical and pharmaceutical environment, 3D-laserscanners are the newest tool of safe and quick acquisition of large amounts of accurate geometrical data.



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Laserscanning facts

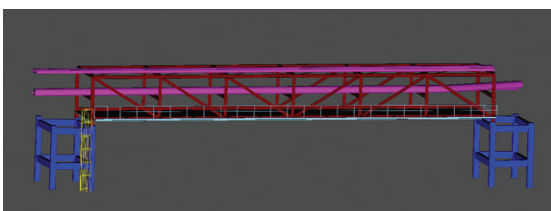
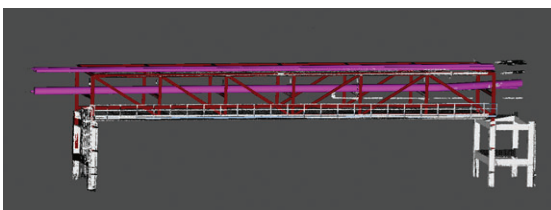
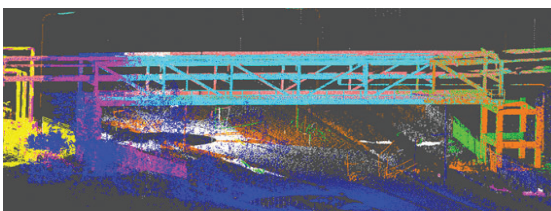
Reflections of a moving laserbeam that passes over objects are detected by the scanner at a speed of up to 5000 points per second. Angles and distances of each reflection are measured and recorded as XYZ-coordinates.

The panoramic field of view is a 360 degrees in azimuth and 60 degrees in elevation, while precisions range from 0.5-5mm over distances up to 150m, depending on the type of scanner. The measuring is non-contact.

Laserscanning can be used as a stand-alone method, but is also very well suited to be combined with other 3D-techniques as close range photogrammetry, aerial photogrammetry and total-stations.

The direct result is a dense three dimensional pointcloud representing everything that has been scanned by the laserbeam.

The pointcloud can be fully 3D-manipulated: rotation, shifts and scaling. True colour can be attached, which make the pointcloud truly a detailed instant-3D photograph.



The added value is that any measurements or analysis can be taken from the pointcloud, as if measuring the object itself but without leaving the office. Based on the pointcloud, that can be expressed in any chosen reference coordinate system, 3D CAD-models can be generated.

Laserscanning is especially suited for measuring large and complex objects which can not easily be reached or do not allow to be touched. When it is in the field of view of the laserscanner and within the range, any object will be measured.

Petrochemical value

Abovementioned objects are plentiful in the petrochemical environment, such as offshore platforms or plants.

Non-contact measuring by laserscanners provides a safe standoff way to update or even create the CAD-database of plants.

The generated geometrical CAD-elements can be imported and linked to any additional information or meta-information, e.g. in a PDMS or in a Plant Safety and Environment Management System such as Logos.

The digitised as-built situation can also provide the basis for cost-effective revamps of units or even the whole plant. Complex modifications can be digitally tried out first and evaluated by a virtual walk-through and 3D clash detection, thus saving costly time and material until it is right.

The speedy data acquisition, compared to similar amounts of data by conventional surveying, reduces down-time due to measuring to a minimum.