Why choosing 3D Laser Scanning?

The demand for ever larger glass melting plants and the reuse of existing structures and infrastructures make the handling of so-called Brown Field projects increasingly complex. The integration of new stages, entrances, plant components, etc. into the existing systems requires a higher degree of coordination and communication effort with the client and the technical departments than was necessary just a few years ago. This makes a detailed visualization of the existing plant complex crucial.

For the planning and integration of the new or to be modified plant parts or infrastructures, you need to rely on existing documentations. If these are still present, they are in paper format due to the age of buildings, etc. and might include deviations in dimension or insufficient angularity. This makes the data transfer to the new plans difficult or impossible.

Very often, additions and adjustments have been made over the years so that the existing documents are no longer up to date. In these cases, it was and is common for the planning company to be on site for a longer period of time and to record the situation with conventional means, paper drawing, folding rule and laser measuring devices. Practice shows that these inventories contain inaccuracies and can also be incomplete.

With all these new challenges and problems, common measurement methods increasingly reach their limits. With its big range vision, reliability and high accuracy, 3D laser scanning is a more than reasonable alternative to the classical inventory and documentation, which has already proven itself in many industrial sectors – not least in the glass industry.
3D Laser Scanning

The Scanning Process

With FARO, SORG is using a class 1 laser device, which does not create hazard for people.

When scanning, the laser beam penetrates every small gap, so the scan area is often bigger than expected. Several hundred scan positions across all floors are used to capture all objects completely. In the end, the complete plant situation is captured in short time.

The entire system can be aligned in 3-dimensional space. Thus, not only distances but also the location and orientation of objects can be seen.

For processing, we use the program FARO Scene. For viewing, measuring and editing scans, we use Scene LT.

After some processes in the scan software, the single scans will be sorted and positioned to each other to show a realistic, true to scale depiction of the scanned object (point cloud). This highly detailed point cloud documents the current state.

The overlay of the recorded point cloud with existing 3D CAD models shows interference contours and deviations between reality and planning state.

Point clouds and orthophotos can be uploaded into CAD in original scale. Thus, existing 3D models and 2D views can be compared directly with the real objects.

Besides traditional production layouts, visualization has virtually no limits. Different concepts can be easily illustrated and evaluated.
3D Laser Scanning

Latest Technology With Many Advantages

**Cost-saving and efficient**

- Saving costs due to high planning reliability
- Improved efficiency and reduced installation effort
- Evaluation processes in office make expensive and time-consuming re-measurement on site unnecessary

**Fast, safe and detailed**

- Data acquisition without interrupting running operation
- Shortest measurement times on site without compromise
- Largely independent of actual lighting conditions
- Contactless, accurate and highly detailed measurement → even hard-to-reach areas can be detected without entering the hazardous area
- Problematic areas can be detected and solved in the planning stage, collisions can be avoided during construction time

**Easy, multi-variant and useful**

- Scans can be useful in the calculation phase, serve for documentation, support discussions with the panoramic views and give a feel for the situation on site
- Variety of evaluation methods, specially tailored to the customer’s requirements
- Scan and CAD data can be put together quickly and uncomplicated in almost all formats in Navisworks
- 3D Laser Scanning can be used for the measurement of batch houses and also in many other industrial sectors
3D Laser Scanning

SORG Range of Services

- Provision of scan results shortly after measurement
- 2D layout comparison to identify deviations and make changes
- Export of sectional and project views
- Variance analysis
- Scene 2Go Web Share: free scan view, access to 3D documentation as well as analysis and exchange of project data

For further information on SORG 3D Laser Scanning, please visit our website: www.sorg.de