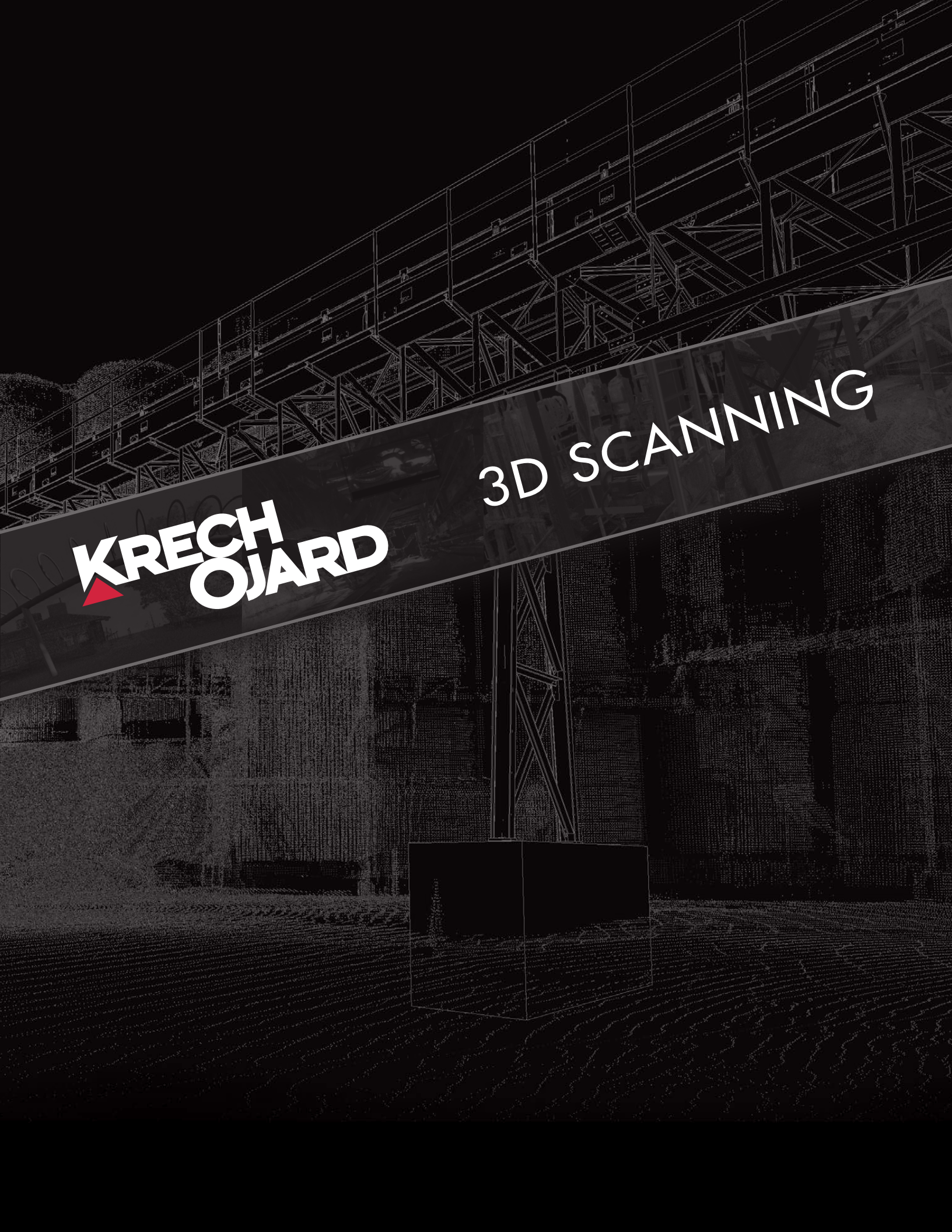

KRECH OJARD
3D SCANNING

3D SCANNING

Services provided include:

- 3D Scanning of Existing Structures & Equipment
- 3D Modeling for Current or Future Planning

What can be scanned?

- Any 3-Dimensional Space
- Industrial Facilities
- Transshipment and Marine Facilities
- Manufacturing Facilities
- Interiors/Exteriors
- Residential/Commercial Buildings
- Equipment
- Site Environments

3D SCANNING SERVICES FOR PUBLIC & PRIVATE CLIENTS

Krech Ojard performs 3D scanning services for a range of added values and on almost any structure or space. Once scanned, planning and design for a client's facility, building or plant becomes more accurate and more cost effective. Off-site engineers, project managers, and other professionals are able to reference up to date data and measurements.

This invaluable resource offers benefits that can include, but are not limited to, more accurate records of existing structures; time and cost savings during numerous stages of project design and development, and also in future phases; better visualization and communication between clients, stakeholders, designers, and construction; aid in determining crucial spatial tolerances and measurements for engineers in the office and at the ready when it is needed. New additions designed in 3D models can be placed within a digitally scanned facility long before construction phases allowing options and accurate decisions to be made at a cost effective stage in the process.

3D SCANNING SERVICES

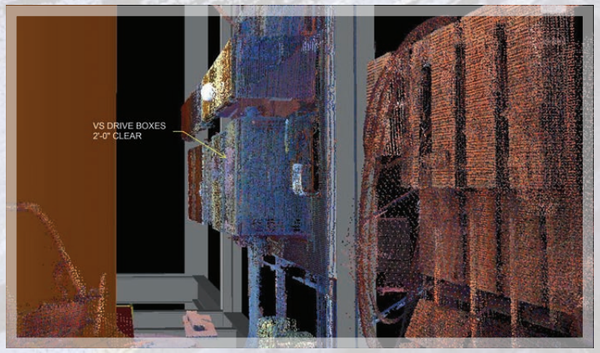
The large image on this page may look a little strange. It is the combination of a point cloud model from a 3D laser scan and new 3D design models representing the new structural and mechanical components to be installed at a facility. The point cloud model is the result of a three-dimensional laser scan, or 3D scan, which accurately detects the location of solid surfaces within the desired scan area. The size of scan areas can range from a few feet to more than one hundred feet in size. In addition, multiple scans or point clouds can be assembled into a single model which can cover an entire facility if necessary. We have completed scanning projects ranging from a small room to an entire plant for clients requiring a high level of accuracy to improve project results. The illustration shown here is comprised of millions of dots or points representing real structures within our client's facility, which is difficult to accurately portray with this type of document. When viewing the raw scan data using the design software, the number of data points shown can be adjusted to a substantially higher level of detail.

This technology presents Krech Ojard staff members with unprecedented opportunities to improve design accuracy through the ability to access virtually unlimited data concerning existing conditions at our client's facilities when compared to the normal workflow of design and verification at sites that are miles away from the location that the work is being performed. As one of our designers puts it "It's as if we scooped up the site and brought it back to the office to work on." Scanning activities can be performed in both indoor and outdoor environments and can allow for digital walkthroughs of facilities. Scans of above and below ground level are combined to offer unique visuals and locations of buried structures.

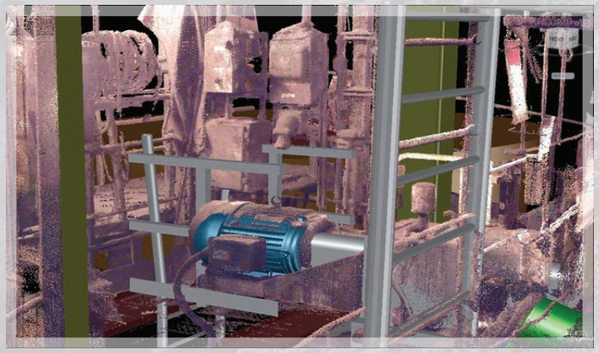
Laser scans result in a digital point cloud that is combined with panoramic imagery to create a real world digital 3D model. Each point in the model exists as a measured data point in the 3D digital space that can be incorporated into new designs that directly impact existing structures and components. Digital images are taken at the same time as the scan and are used to add color to the data points. When the detail level is increased to show a high concentration of data points, the point cloud resembles a photograph. Our staff is currently using the 3D digital design environment for a number of client applications; including fitting new structures and upgrades within current environments and facilities, verification of as-built and pre-construction conditions, and confirmation of dimensional accuracy for a variety of pre-constructed equipment and components. The use of the 3D scan data allows us to create designs at virtually any facility with the highest level of precision, which results in greatly reduced field verification time and field modifications during construction.

Geometric complications of unique environments make 3D scanning a dream solution for designers and engineers working to provide the best solutions for our client's specific needs at existing sites and facilities. The software used to view and manipulate...

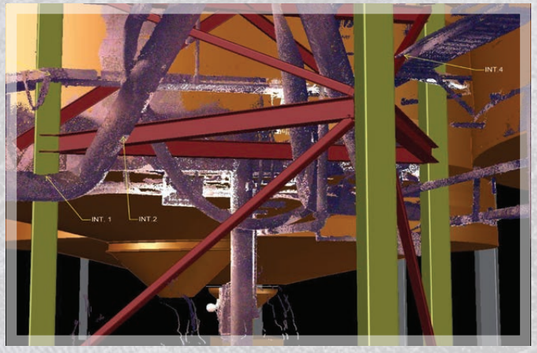
continue on next page



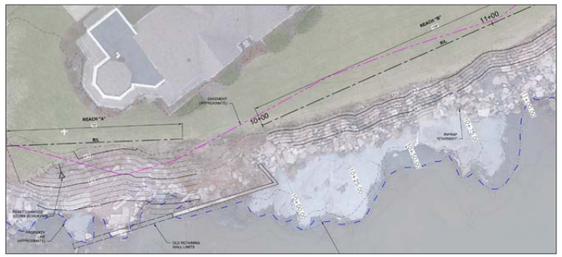
Scan of equipment and model together



Basic Scan of existing equipment - model designed in place.



Visualize interferences with existing structures.



continued from previous page

...the scan data also allows the consolidation of existing dimensional information into a digital file package that is compatible with the design software our professionals use every day. The use of digital models has also provided additional benefits by improving coordination between disciplines, especially in areas where traditional field measurements are difficult to make or are unreliable.

PROCESS, ACCURACY & EFFICIENCY

Three-dimensional scanning starts by performing a 360 degree scan of a location creating a point cloud of data along with panoramic imagery.

An individual or small team can scan facilities and sites with very little interruption to production or site staff.

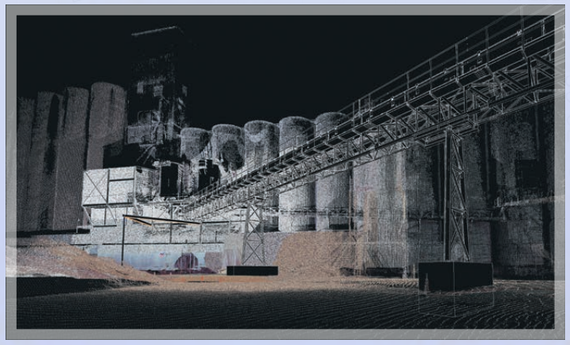
Scanning units are small camera and tripod setups and small physical markers are added around the site to assure calibration and location accuracy when merging multiple scans.

Aerial drones are also utilized and used to create 3D scans and take aerials. Drones are used with either photogrammetry or LIDAR technology and are able to produce point clouds and 3d surfaces which are utilized in both 2D and 3D design software.

At this stage, your facility or site's existing measurements are at the fingertips of engineers, designers and other disciplines.

Krech Ojard currently employs this technology and other tools to transform your facility or space into usable digital packages ready to interact with 3D design models for today and in future phases.

Contact us today for more information or examples of this service.



Scan of large industrial facilities with new models inserted.

Allows for 360° scanning for large equipment and surface area

Collects precise data points for a variety of environments

KRECH OJARD
krechojard.com