



3D reality capture for piping design:
New opportunities, enhanced
understanding

Recent developments in 3D reality capture offer many benefits to piping designers, enabling full visibility and accurate measurement through the creation of interactive 3D environments. For those working on intricate piping projects in industries such as oil & gas, refineries, chemical, onshore/offshore and power generation, 3D reality capture helps you gain a better understanding of structure and environment, while also allowing you to plan and design for additions and maintenance, safely and accurately.

Fast laser scanning boosts productivity, improves accuracy and speeds up the entire project.

Deliver finished designs faster

3D reality capture is the latest technology to empower users to document and capture their environments in 3D, improving efficiency and productivity in the field and in the office. Using ultra-accurate laser scanning and High-Dynamic Range (HDR) imagery, the technology creates a digital 3D environment that can be explored, measured and annotated.

3D reality capture helps to reduce the number of site visits and time spent collecting data through faster laser scanning that provides more accurate measurement, documentation and understanding of the environment. Through greater accuracy, on-site adaption of construction, time in inhospitable environments and difficult to access, such as plant, is reduced.



3D reality capture enables you to:

Design with confidence, using highly accurate, detailed and actionable 3D models of the site, systems, piping and terrain

- Increasing safety by reducing the number of site visits required to inhospitable plant environments,
- Map safe areas and provide contractors with clear routes through hazardous plant with digital planning and visualisation
- Improve site and office collaboration by sharing highly accurate project data and 3D representations
- Scan difficult to reach areas with more portable, light and fast capture devices
- Reduce plant downtime through faster and more efficient working methods
- View hidden infrastructure and systems in the future if the site is scanned as-built

From site to office

Scanned data can be shared with surveyors, project managers and designers back at the office, giving them full visibility of plant structure without having to attend on-site. Teams are then able to work together quickly and more productively using 3D reality capture rather than inaccurate 2D drawings. From initial design to quality assurance, systems review to future maintenance, projects can be scanned, viewed and documented at every stage.

For example, when adding to existing piping systems as part of a maintenance project, accurate 3D data of as-built conditions enables the team to easily identify potentially hazardous areas and work around site restrictions. This improves safety, reduces plant downtime and minimises risk of errors.

Reduce on-site adjustments by ensuring off-site pipe-system fabrication is accurate and exact.



New capabilities, new opportunities

As well as the technical benefits and enhanced productivity for projects and the teams involved, 3D reality capture brings a host of new capabilities to your business, from enhanced, detailed surveying to improved workflows and project management.

Accurately capture
complex, hard-to-
measure detail

Access detailed
as-built data

Improve safety
with better
site visibility

Reduce project
duration and
workflow cycle time

Minimise human
errors with pinpoint
scan accuracy

Increase profits,
reduce costs and
offer new services



To learn more about 3D reality capture solutions and the opportunities they offer for piping design, contact Leica Geosystems at leica-geosystems.com