



# Pharmaceutical pressure vessels

## Measuring pitting the safe and fast way

In the pharmaceutical industry everything revolves around safety and compliance. A global pharmaceutical company with over 60 pressure vessels of varying sizes on their Asian manufacturing site was looking for an asset inspection solution that would minimise downtime, without compromising on safety or compliance. With vessels requiring rotating inspections every week the potential gains are significant.

### What they wanted

Recognising the time and cost benefits that come with not having to install scaffolding for vessel inspection, this pharmaceutical company asked Invert Robotics to integrate an NDT tool onto our robotic platform. The NDT tool needed to be able to accurately localise any pitting within their vessels, as well as measure the depth of the pitting found.

### What we did

Our research team found 2D laser line scanner technology to be the best NDT solution to measure the client's pitting, while also delivering on speed and accuracy.

2D laser line scanners are high-resolution, high-speed and highly accurate non-contact measuring sensors. The scanner can detect, measure and evaluate profiles on a wide variety of surfaces using non-destructive technology.

The compact size of the scanner makes it particularly well suited to be carried by a simple payload adaptor. Capable of resolving a line linearity in the z-axis of up to 4um, 2D laser line scanners are available in numerous scan widths and resolutions.

An additional benefit of this NDT technology is that the ethernet-connected devices integrate seamlessly with our robot payload interface. This allows our inspectors to run third party analysis software live on location and provide immediate feedback to the client.

### On time for in time and safe inspections

With timeframes fast approaching for the client to their shutdown, our development team worked incredibly hard to deliver a highest quality cost-effective, integrated crawler. With no need for entry into confined spaces entry and no need for scaffolding, our robotic technology has boosted this pharmaceutical company's employee safety and minimised asset downtime. All this, while conducting fully compliant inspections.



## Technical Information

Assets inspected:	Pressure vessels used in pharmaceutical production process
Platform used:	V-1800
Tools used:	2D laser line scanner
Services:	Pinpointing and measurement of pitting using NDT technology Immediate feedback to client using third-party analysis software