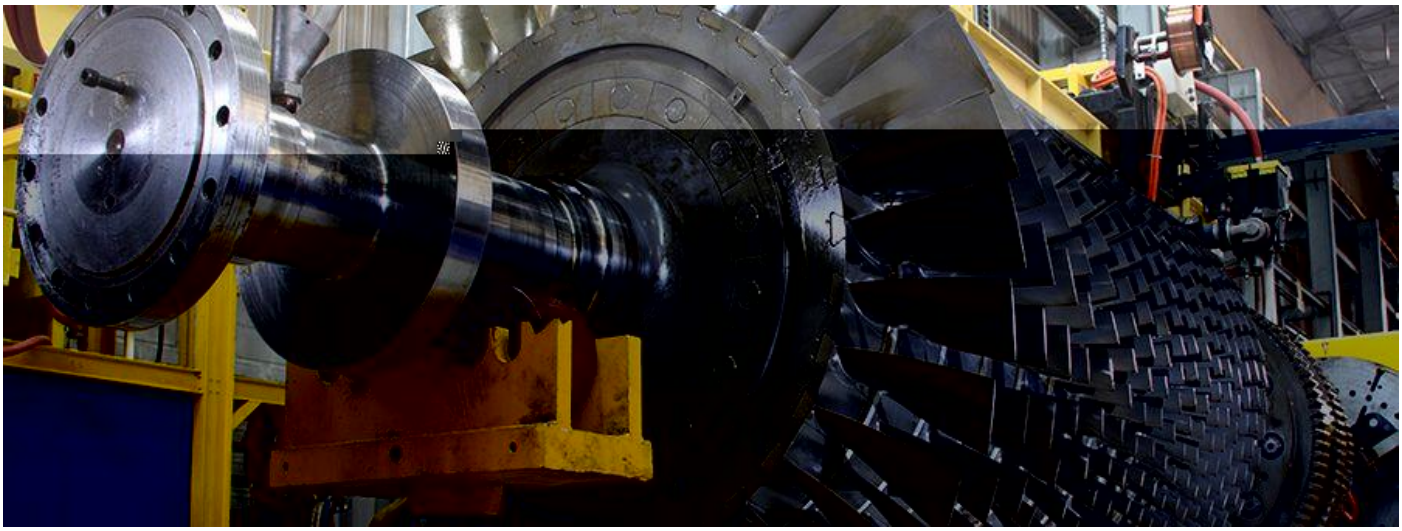
Maintaining Uptime in Turbine Inspections Using the IPLEX NX Videoscope

In the power generation, oil gas, and chemical industries, reducing the downtime of rotating machinery such as turbines is a key factor for plant efficiency and profitability. The use of the latest videoscopes with a wide field of view, expanded measurement capabilities, and easy-to-use software enables inspectors to obtain detailed images and measurements quickly and make their inspections more efficient for maximized uptime.

Plant inspection is a crucial yet challenging environment due to the wide range of equipment. Rotating machinery such as turbines, pumps, generators, compressors, and gearboxes experience constant stresses and strains, and require regular inspection to prevent failures or to maintain high fuel efficiency. Regular checks help to detect, identify, and quantify different types of defects and damage (Figure 1).



Speed Up Inspection

The output—and therefore the profitability—of rotating equipment is often directly related to its uptime. Since rotating equipment needs to be switched off (and sometimes cooled down) for inspection, technologies that speed up this process quickly generate a high return on investment.

Remote visual inspection (RVI) is a commonly used method to view hard-to-reach areas of rotating machinery. The latest generation of remote visual inspection equipment, such as Olympus' IPLEX NX® videoscope (Figure 2), are well suited for this type of inspection, due to their bright illumination, intuitive maneuverability, and easy-to-use software.

Wide Field of View

Designed to speed up imaging and measurements of large components, such as turbine blades, the IPLEX NX videoscope a has viewing area four times larger when compared to conventional videoscopes (Figure 4). The larger area means that it is easier to get a suitable overview of a large component without needing to stitch multiple images together. This makes the RVI workflow easier and faster.

The improved viewing area also means that measurements become more straightforward. When finding a defect, inspectors often need to quantify it as well. This can mean, for example, that inspectors must measure the distance between the defect and the root of a blade or determine the dimension of a crack. With a large viewing angle, measurements do not need to be based on two separate images, enabling both speed and precision.