

PORTABLE 3D MEASUREMENT SOLUTIONS

CREAFORM

POWER GENERATION

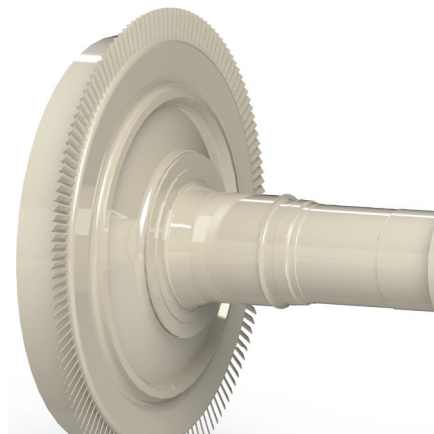
Creaform provides operators, manufacturers and third parties with access to 3D metrology services for complex assemblies and large-scope projects. Deadlines for these types of power generation projects are always really tight... And this is why the Creaform Metrology Services team offers its 3D data acquisition services everywhere in the world, whether for refurbishing production equipment, analyzing component wear, or for any other customized application.

TURBINE RETROFIT AND ALIGNMENT

In order to optimize production efficiency, turbine manufacturers use alignment techniques on still parts before assembling the turbine shaft. The Creaform 3D measurement technologies make it possible to quickly and accurately measure the position of diaphragms, and align them in real time. These technologies can also obtain the geometry of the same diaphragms, in order to retrofit them. Also, scanning the turbine shaft and its different vane phases validate the final assembly, thus shortening both the production lead and shutdown time, and saving time and money.

- Results repeatability
- Light and compact set-up; no piano wire installation creating congestion on turbine floor
- No need to calculate the compensation
- Virtual assembly of rotor-stator before on-site installation

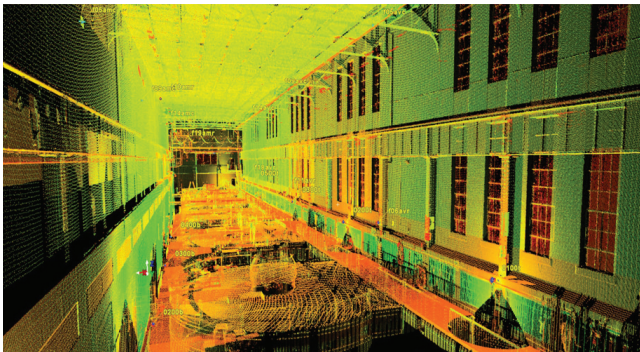
- Bore alignment Inspection
- Tops-off inspection
- Low pressure, high pressure, and intermediary pressure turbine inspection
- Geometric dimensioning and tolerancing (GD&T) of bearings
- Blade rings/diaphragm wear inspection



LARGE-SCOPE 3D SCANNING

As time goes by, some civil structures experience significant wear, and need to be inspected in order to quantify their expected performance and ensure that their integrity is still sound. Maintenance operators need to know of any structural movement so to take corrective measures. Long-range scanners can acquire a large volume of data in a very short time, and enable several teams to simultaneously use this data for different maintenance and intervention.

- Quicker and accurate dimensioning ($\pm 1\text{mm}$)
- Can be anchored on geodetic coordinates
- Congestion visualization for future interventions
- Layouts and BIM modelization
- Deformation follow-up
- Kinematic analysis in a complex virtual environment
- Color rendering, made possible through picture taking
- Very quick acquisition speed, which limits the on-site intervention
- Customizable, modifiable reports
- Universal data that can be used by different software



METROLOGY CONTROL ON MECHANICAL PARTS

When power generation mechanical parts are manufactured, the final geometry is extremely important. The production efficiency tested in labs must indeed be maintained, since even a 1% loss in efficiency could cause important monetary losses in a production setting. Creaform 3D scanners are used to compensate for assembly quality issues, to qualify parts or mechanically welded assemblies, or to make corrections before delivery.

- High accuracy (50 microns)
- Diagnosis (assembly, machining, thermal constraints, etc.)
- Creating automated inspection programs
- Possible to scan small or large parts (with photogrammetry)
- Manufacturing follow-up
- Monitoring corrosion and deterioration levels
- Deviation reports and exporting customizable measurement reports

