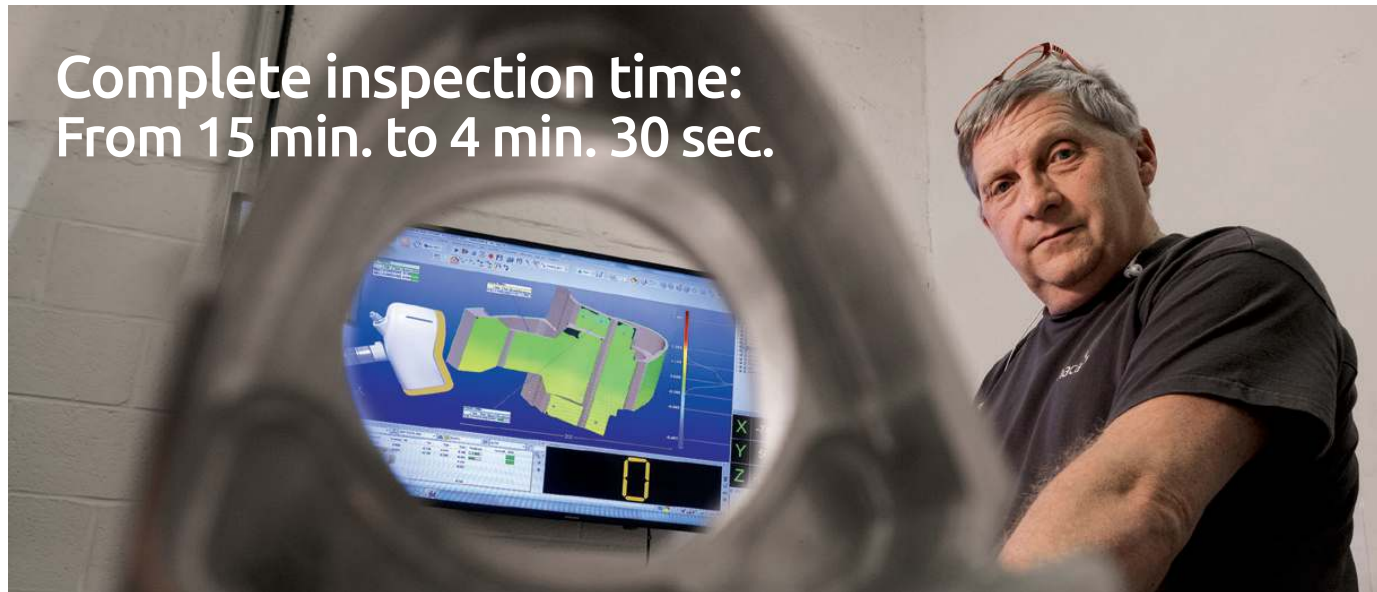**metrologic** group®

Inspection cycle times improved by 300% on Fully automated 3D Inspection CMM station powered by **MetrologX⁴** & **SilmaX⁴** Software

Complete inspection time:
From 15 min. to 4 min. 30 sec.

sonaca

Sonaca Group is a world leader first-tier subcontractor manufacturing sophisticated mechanical aero-structure parts, like wing skins and moveable. The company is a key worldwide supplier in the space, military and engineering industries.
Over 3,500 employees work for Sonaca Group in 6 countries: United States, Canada, Belgium, Brazil, Romania and China.
The 3D inspection service measures complex machined parts. About 10 technicians and metrology engineers work in the service.

Sonaca Group's metrology service used to operate selective measurements with a conventional coordinate measuring machine (CMM) and contact sensors, on over 62,000 parts a year and nearly 1,000 references. Time inspection was about 15 minutes a piece for a partial evaluation with a productivity of about 260 parts a day.

In 2017, Sonaca started working on a new project: production of machined wing parts for international manufacturers like Airbus, Bombardier and Embraer. They needed to measure new parts, in order to adapt and qualify the new production line, as well as parts from the continuing production. To do so, they needed to drastically decrease their measurement cycle time and achieve 100% part measurement.

To gain in throughput inspection time, Sonaca opted for a batch system, able to measure a load of 8 different parts set up on 2 quick-mounting pallets pre-installed on the measuring machine. To automate the process, the system needed to recognize parts bar codes and automatically load corresponding pre-designed part programs.

The 3D measurement challenges:
• Make the complete geometrical and free form measurement of a part in a 5 min. cycle;
• Evaluate features under a 15 microns tolerance;
• Organize an easy set-up and quick trigger process that any production operator could run;
• Connect the measuring device to Sonaca's SAP system and automatically load the parts' references and according measuring programs;
• Prepare inspection programs upfront to free CMM time for inspection.

Metrologic assisted Sonaca in selecting the most appropriate and efficient measuring equipment and software, and presented a complete on-site demonstrator to validate the measuring process and the solution's overall efficiency.

OFFLINE PROGRAMMING FOR ONLINE EFFICIENCY

Sonaca wanted a measuring unit running safely 24/7. The Group selected Silma X4 to simulate and optimize measurement paths, thus freeing machine time. The software delivers secured part programs ready for execution with 3D online inspection software, Metrolog X4. The CMM is linked with the SAP system. "Operators only have to scan the parts barcodes, load and automatically run ready-to-use inspection programs," says Amaury Dupont, 3D inspection programmer.

BETTER AND FASTER MEASURING RESULTS

Thanks to its automated measurement cell, Sonaca managed to adopt serial 3D measurement. At the same time, the very simple, user-friendly interface allows for any kind of operator to run the machine. Yet, "we improved precision tenfold, it is an impressive result," says Nicolas Simon, Quality Manager CDC Machining at Sonaca. "In terms of quality and reliability, we are much more efficient than before".

TAKING THE SMART FACTORY TURN

Sonaca Group's solution makes it possible for the production teams to carry out the quality checks themselves, thus introducing quality directly into the production line. "For us, responsiveness was a key point," says Nicolas Simon. "With this new equipment, we set up an automated anomaly detection and alarm system. We can swiftly correct deviations without losing time analizing reports. Our control and correction circuit is drastically shortened and global quality has improved".
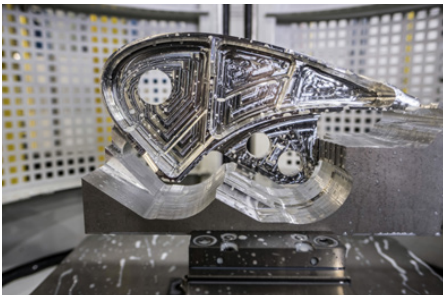
Challenge
• To reduce drastically the inspection time;
• To introduce optical scanning measurements;
• To evaluate part thickness;
• To set up an automated measuring unit that a technician can easily run.

Metrologic Group's recommendations
• Silma X4 virtual 3D inspection simulation and programming;
• Metrolog X4 online 3D inspection software: point cloud analysis, advanced GD&T, and MTI automation module;
• ME 5011 DCC Controller ready for multiple sensors.

Benefits
• Part inspection time divided by 3, precision improved by 10;
• Complete integration of inspection programs and analysis results in the production process, the factory data flow and the SAP system;
• Production process qualified and ready for ramp up to 24/7 operation.

Sonaca Group's solution
• Software: Metrolog X4 and Silma X4;
• Hardware: Nikon high accuracy Altera equipped with LC60DX Nikon optical scanner and SP25 Renishaw continuous scanning probe;
• CMM controller Metrologic ME 5011 DCC Controller;
• Trainings: CMM and sensors; point cloud analysis; simulation and execution software programs;
• Metrologic Services: CMM maintenance and calibration services.

advanced **3D** measurement software & solutions

metrologic group