HandySCAN AEROPACK

3D SCANNING SOLUTION SUITE FOR THE AEROSPACE INDUSTRY
Stakeholders in the aerospace industry are facing increasing pressure to ensure public safety and aircraft compliance as well as prevent costly fleet groundings.

Creaform’s HandySCAN AEROPACK™ is the most versatile 3D scanning solution on the market for aircraft inspections, reverse engineering, maintenance and repair operations.

It features the metrology-grade HandySCAN 3D™ scanner as well as complete software suite to efficiently inspect and characterize defects on a variety of aircraft components, materials and finishes—and in all types of work environments. The solution allows for highly accurate scans of small- to large-size parts to generate CAD models, enabling manufacturers to quickly produce spare parts.

Providing unmatched speed, ease of use, reliability and repeatability, HandySCAN AEROPACK makes inspection and reverse engineering workflows highly efficient, significantly reduces operators’ impact on measurement results, and shortens the time to generate final reports or CAD designs. It saves the aerospace industry time and money—all without compromising diagnosis results and safety.

**HandySCAN AEROPACK**

**COMPLETELY INTEGRATED. UNMATCHED VERSATILITY.**

**DISCOVER AN END-TO-END SOLUTION SUITE FOR ALL YOUR APPLICATIONS**

**HAILSTORMS**

When an aircraft hits a hailstorm, MRO teams need to rely on a solution like HandySCAN AEROPACK that enables them to quickly and accurately measure the impact to speed up repairs—and mitigate the negative ripple effects on future sales. Thanks to its remarkable versatility, operators can use the solution in any conditions, whether inside or outside, without sacrificing accuracy and reliability.

**FLAP AND SPOILER**

HandySCAN AEROPACK is the ideal solution for flap and spoiler inspections due to its ultra-fast measurements, contrary to traditional manual methods. It’s actually 80 times faster than time-consuming pit gauge techniques. In fact, operators won’t waste time searching the deepest points per dent; with the 3D scanner, they can seamlessly scan a part’s entire geometry.

**AIRCRAFT INCIDENTS**

When an aircraft experiences hard landings or other damaging incidents, MRO teams must use a solution that can help them analyze any type of damage on any type of surface or texture. HandySCAN AEROPACK gives teams the thorough analyses required to inspect any component shape, size or surface finish with confidence.

**QUALITY CONTROL**

Anyone working in aerospace requires a robust solution to perform a wide range of quality control inspections on free-form and complex shapes—either in-line during the assembly process or out in the field. HandySCAN AEROPACK delivers the level of performance and comprehensive measuring points to conduct in-depth, three-dimensional verifications.

**REVERSE ENGINEERING**

Oftentimes, aerospace manufacturers and MRO technicians struggle finding replacement parts or even the CAD files of their aircraft components. Count on the HandySCAN AEROPACK to generate as-built 3D CAD models from existing physical components.

**REGULARLY SCHEDULED MAINTENANCE**

Operators who are responsible to put the aircraft back into service need a tool to validate if a component is within acceptance criteria after rework is completed. Oftentimes, MRO teams don’t have access to the CAD models of aircraft components, which means reverse engineering components becomes key.

**SmartDENT3D™**

SmartDENT 3D™ is Creaform’s aircraft surface inspection software developed specifically for critical aerospace applications, such as inspecting aircraft flaps and spoilers, fastenings, etc.

**VXinspect™**

VXinspect™ is an intuitive dimensional inspection software module for robotic aircraft component and feature inspection; it’s the perfect solution for producing fast and accurate part from 3D scans to computer-aided design.

**VXmodel™**

VXmodel™ is a post-treatment software that enables finishing 3D scans data that is any CAD solution, providing the fastest and accurate path from 3D scans to computer-aided design.
TECHNICAL SPECIFICATIONS

Innovating technology that provides TRUaccuracy™, TRUsimplicity™, TRUportability™ as well as real speed to your metrology-grade applications.

<table>
<thead>
<tr>
<th>Product</th>
<th>HandySCAN BLACK™</th>
<th>HandySCAN BLACK™Elite</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCURACY (1)</td>
<td>0.035 mm (0.0014 in)</td>
<td>0.025 mm (0.0009 in)</td>
</tr>
<tr>
<td>VOLUMETRIC ACCURACY (2)</td>
<td>0.020 mm + 0.060 mm/m</td>
<td>0.020 mm + 0.040 mm/m</td>
</tr>
<tr>
<td>(based on part size)</td>
<td>(0.0008 in + 0.0007 in/ft)</td>
<td>(0.0008 in + 0.0005 in/ft)</td>
</tr>
<tr>
<td>VOLUMETRIC ACCURACY</td>
<td>0.020 mm + 0.015 mm/m</td>
<td>0.020 mm + 0.040 mm/m</td>
</tr>
<tr>
<td>WITH MaxSHOT Next™Elite (3)</td>
<td>(0.0008 in + 0.00018 in/ft)</td>
<td>(0.0008 in + 0.0005 in/ft)</td>
</tr>
<tr>
<td>MEASUREMENT RESOLUTION</td>
<td>0.025 mm (0.0009 in)</td>
<td>0.100 mm (0.0039 in)</td>
</tr>
<tr>
<td>MESH RESOLUTION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEASUREMENT RATE</td>
<td>800,000 measurements/s</td>
<td>1,300,000 measurements/s</td>
</tr>
<tr>
<td>LIGHT SOURCE</td>
<td>7 blue laser crosses</td>
<td>11 blue laser crosses (+1 extra line)</td>
</tr>
<tr>
<td>LASER CLASS</td>
<td>2M (eye safe)</td>
<td></td>
</tr>
<tr>
<td>SCANNING AREA</td>
<td>310 x 350 mm (12.2 x 13.8 in)</td>
<td></td>
</tr>
<tr>
<td>STAND-OFF DISTANCE</td>
<td>300 mm (11.8 in)</td>
<td></td>
</tr>
<tr>
<td>DEPTH OF FIELD</td>
<td>250 mm (9.8 in)</td>
<td></td>
</tr>
<tr>
<td>PART SIZE RANGE (recommended)</td>
<td>0.05 - 4 m (0.15 - 13 ft)</td>
<td></td>
</tr>
<tr>
<td>SOFTWARE</td>
<td>SmartDENT 3D, VXelements (VXinspect, VXmodel)</td>
<td></td>
</tr>
<tr>
<td>OUTPUT FORMATS</td>
<td>.dae, .fbx, .ma, .obj, .ply, .stl, .txt, .wrl, .x3d, .x3dz, .zpr, .3mf</td>
<td></td>
</tr>
<tr>
<td>COMPATIBLE SOFTWARE (4)</td>
<td>3D Systems (Geomagic® Solutions), InnovMetric Software (PolyWorks), Metrologic Group (Metrolog X4), New River Kinematics (Spatial Analyzer), Verisurf, Dassault Systemes (CATIA V5, SOLIDWORKS), PTC (Creo), Siemens (NX, Solid Edge), Autodesk (Inventor, PowerINSPECT)</td>
<td></td>
</tr>
<tr>
<td>WEIGHT</td>
<td>0.94 kg (2.1 lb)</td>
<td></td>
</tr>
<tr>
<td>DIMENSIONS (LxWxH)</td>
<td>79 x 142 x 288 mm (3.1 x 5.6 x 11.3 in)</td>
<td></td>
</tr>
<tr>
<td>CONNECTION STANDARD</td>
<td>1 X USB 3.0</td>
<td></td>
</tr>
<tr>
<td>OPERATING TEMPERATURE RANGE</td>
<td>5 - 40°C (41 - 104°F)</td>
<td></td>
</tr>
<tr>
<td>OPERATING HUMIDITY RANGE</td>
<td>10 - 90%</td>
<td></td>
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<tr>
<td>CERTIFICATIONS</td>
<td>EC Compliance (Electromagnetic Compatibility Directive, Low Voltage Directive), compatible with rechargeable batteries (when applicable), IP50, WEEE</td>
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</tr>
</tbody>
</table>

(1) HandySCAN BLACK and HandySCAN BLACK Elite (ISO 17025 accredited): Based on VDI/VDE 2634 part 3 standard. Probing error performance is assessed with diameter measurements on traceable sphere artefacts.
(2) HandySCAN BLACK and HandySCAN BLACK Elite (ISO 17025 accredited): Based on VDI/VDE 2634 part 3 standard. Sphere-spacing error is assessed with traceable length artefacts by measuring these at different locations and orientations within the working volume.
(3) The volumetric accuracy of the system when using a MaxSHOT 3D cannot be superior to the default accuracy for a given model.
(4) Also compatible with all major metrology, CAD, and computer graphic software through mesh and point cloud import.