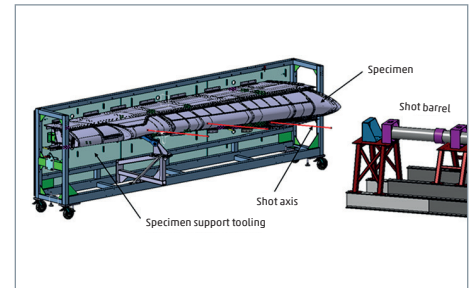
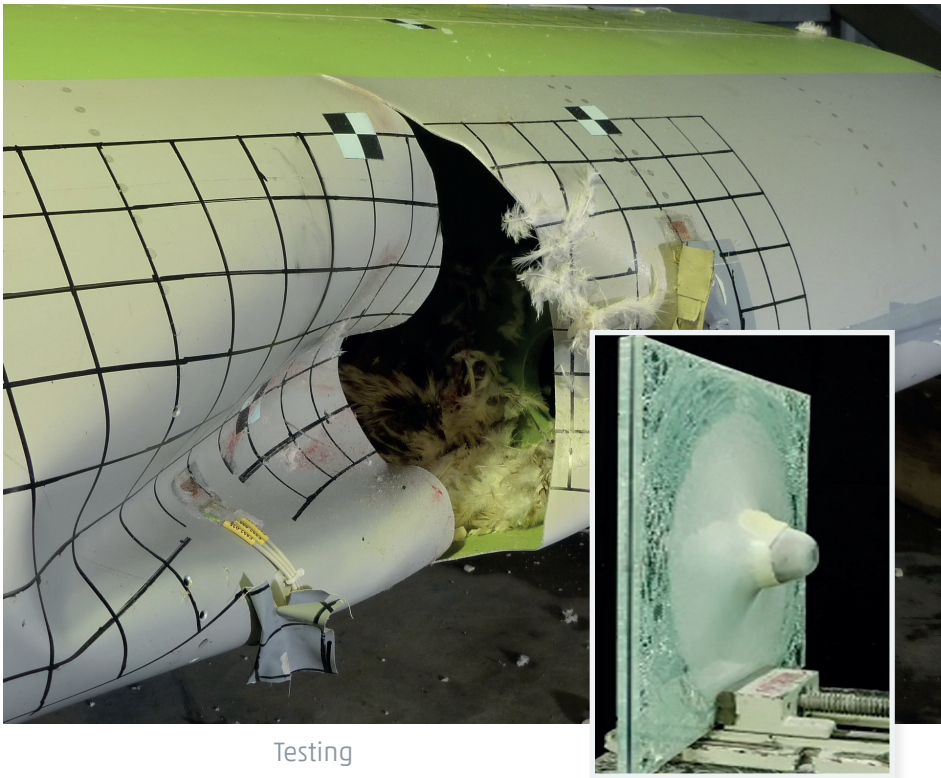
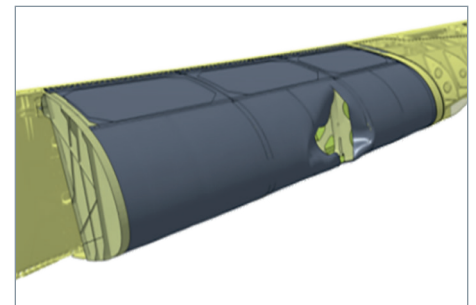


# Complete Structural Impacts Innovation

- Design, Material & Process capabilities supported by a world renowned R&T office
- High fidelity simulations
- Prototyping at industry standards
- Referenced laboratories specialized in various foreign objects and ballistic threats of high and low energy



Specimen and tool configuration  
3D design



High fidelity impact simulation

From initial development to certification, your impact resistance strategy and solution addressing various foreign object and ballistic impacts in an innovative way.



Prototype Machining and Assembly

## DIFFERENTIATORS

- **Solution Oriented:** We assume full responsibility to test on specs, on time & at pre-agreed price.
- **Customer Focused:** We work closely with our customers to understand their business and strategic goals in order to develop, in close partnership, the optimal engineering solution.
- **Reliable & Efficient:** Our team of experts in design, advanced simulation, structures vulnerability analyses, material and process, impact testing and prototyping offers services to develop and test your product in confidential and professional conditions.
- **Wide-scope expertise:** From the initial development up to the certification phases, we offer a broad range of services that can be combined into a unique & optimized solution in response to your daily challenges.

### SERVICE IDENTIFICATION

#### LOCATION

Gosselies – Brussels (Belgium)

#### OUR SERVICES

##### DESIGN:

- From scratch
- Design modifications
- 3D digital mockups

##### ADVANCED SIMULATIONS:

- Impact scenario prediction
- Sizing optimization
- Securing experimental tests

##### PROTOTYPING:

- Manufacturing and assembly of representative prototypes

##### EXPERIMENTAL TESTINGS INCLUDING:

- Bird strike, tire debris, hail stones, UIC and ballistic threats

### QUALIFICATIONS

New test setups developed in compliance with quality standards (EN9100, ISO 17025, ISO14001)

### STATE-OF-THE ART TOOLS & METHODS:

SKILLS	TOOLS		
<b>DESIGN</b>	<ul style="list-style-type: none"> <li>• CAD: CATIA V5 or V4</li> <li>• Internal PLM: VPM/Enovia , Team Center</li> <li>• Access to customers PLM System</li> </ul>		
<b>SIMULATIONS</b>	ABAQUS, SAMCEF, NASTRAN		
<b>TOOLING DESIGN</b>	CATIA V5 or equivalent		
<b>TESTING</b>	<table border="0"> <tr> <td> <b>Foreign objects:</b> <ul style="list-style-type: none"> <li>• Bird</li> <li>• Tire debris</li> <li>• Hail stones</li> <li>• Gravel</li> <li>• Steel ball (20 g, 0.25 kg)</li> <li>• UIC 651 (1 kg)</li> <li>• Pyramidal projectile (4 kg)</li> <li>• Other</li> </ul> </td> <td> <b>Ballistic threats:</b> <ul style="list-style-type: none"> <li>• .22 LR, 9 x 19 mm</li> <li>• .357 Mag.</li> <li>• .44 Rem. Mag.</li> <li>• 5.56 x 45 mm</li> <li>• 7.62 x 51 mm, 7.62 x 39 mm 12/70</li> <li>• «12.7 x 99 mm (.50)»</li> <li>• FSP: 5.56 mm, 7.62 mm, 12.7 mm (.50), 20 mm, Darts, 57 mm, 75 mm.</li> <li>• FSP 5,56 mm Triple Launcher</li> <li>• Other</li> </ul> </td> </tr> </table>	<b>Foreign objects:</b> <ul style="list-style-type: none"> <li>• Bird</li> <li>• Tire debris</li> <li>• Hail stones</li> <li>• Gravel</li> <li>• Steel ball (20 g, 0.25 kg)</li> <li>• UIC 651 (1 kg)</li> <li>• Pyramidal projectile (4 kg)</li> <li>• Other</li> </ul>	<b>Ballistic threats:</b> <ul style="list-style-type: none"> <li>• .22 LR, 9 x 19 mm</li> <li>• .357 Mag.</li> <li>• .44 Rem. Mag.</li> <li>• 5.56 x 45 mm</li> <li>• 7.62 x 51 mm, 7.62 x 39 mm 12/70</li> <li>• «12.7 x 99 mm (.50)»</li> <li>• FSP: 5.56 mm, 7.62 mm, 12.7 mm (.50), 20 mm, Darts, 57 mm, 75 mm.</li> <li>• FSP 5,56 mm Triple Launcher</li> <li>• Other</li> </ul>
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### GLOBAL FOOTPRINT

#### SONACA GROUP HEADQUARTERS

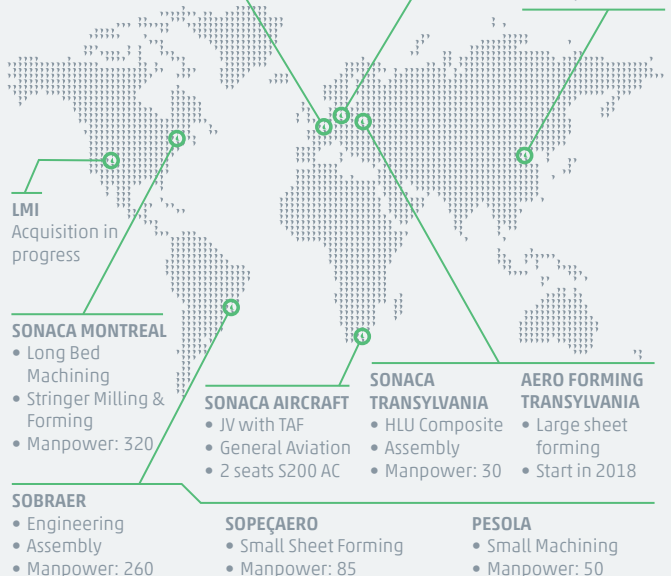
- Engineering - R&D Center
- Advanced Composite Process
- Additive Manufacturing (FMAS)
- Complex Assembly
- Manpower: 1650

#### SONACA SPACE GMBH

- Thermal Engineering & CFD
- Acquisition in 2016
- Manpower: 25

#### SINELSON

- Assembly
- Manpower: 40



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