



DEFENSE INDUSTRY

INNOVATIONS, PROJECTS & PLAYERS
IN WALLONIA

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Dear Readers,

We are delighted to invite you to check out this brochure from the two Walloon Competitiveness Clusters MecaTech & Skywin, which present the defense sector that they oversee.

Wallonia's defense sector was born of the historical activities linked to the metalworking and mechanical engineering expertise acquired in the 20th century. This booming sector is very important economically, as you will see in the paragraph presenting its statistics in Wallonia.



The sector is composed of several large corporations, both Belgian and international, and an extremely dynamic network of SMEs that is constantly developing new skills. It is backed up by a network of high-powered research facilities.

The two competitiveness clusters MecaTech and Skywin have organized and worked together, in close conjunction with the Walloon government administration and National Contact Point for Wallonia, for the past three years to achieve the following goals:

- **Join forces to strengthen the defense industry in Wallonia.**
- **Hone a certain number of priority topics for Walloon actors to work on.**

CROSS VIEWS

- **Promote some common projects that will structure the ecosystem.**
- **Boost the presence of Walloon players in R&I projects, especially those funded by the European Union.**
- **Increase the Walloon defense sector's visibility and international recognition.**

The aim of this brochure is to meet this last objective, that of raising the profiles of Wallonia's various businesses, industrial plants, research centers, etc., and call attention to their expertise and the collaborative innovation projects in which they are involved under Skywin and MecaTech calls for tenders.

Have a great read!

Etienne Pourbaix

Skywin General Manager

Anthony Van Putte

Pôle MecaTech General Manager

THE DEFENSE SECTOR

IN WALLONIA

3 500+

DIRECT JOBS

3 000+

INDIRECT JOBS

6

1.1 BILLION €

TURNOVER



7

MAJOR INDUSTRIAL
PLAYERS IN THE WORLD



Wallonie

67%

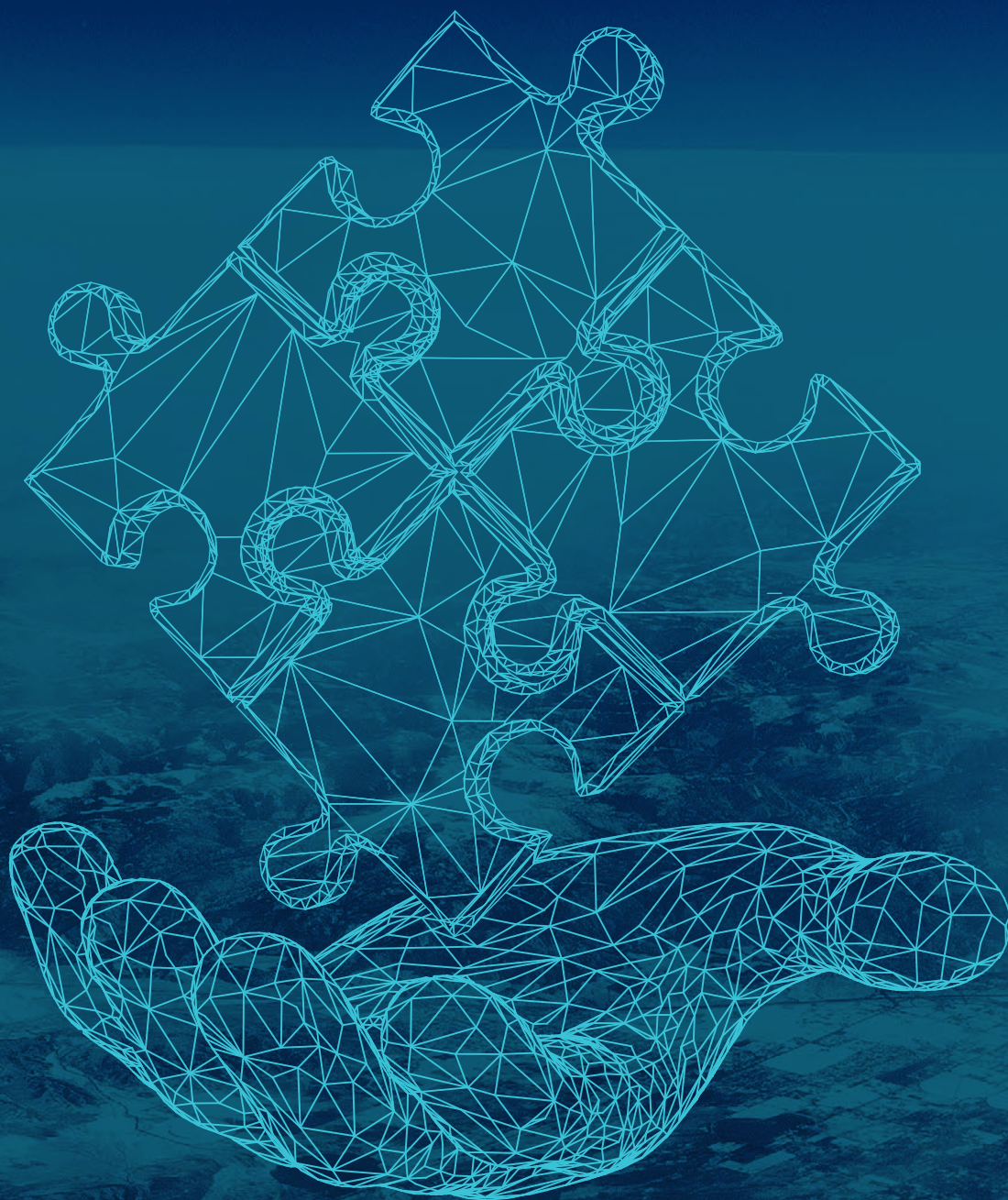
**OF EMPLOYMENT
OF THE DEFENSE SECTOR
IS GENERATED
IN WALLONIA**

DEFENSE INDUSTRY

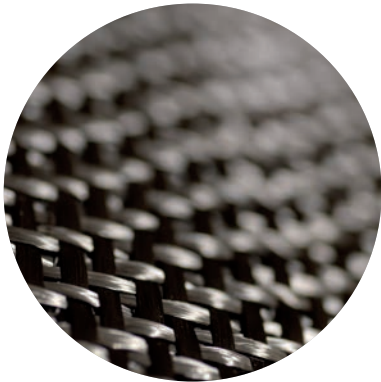
INNOVATION, PROJECTS & PLAYERS IN WALLONIA



COLLABORATIVE PROJECTS



COLLABORATIVE PROJECTS



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COMPOMAG

PÔLE MECATECH

COMPOMAG is a project to develop magnesium-carbon composite injected parts.

The avenues of research will enable the partners to implement new production methods so that industrial concerns will be able to renew and broaden their product ranges and associated markets.

Another aim of this project is to gather the industrial firms and research units with a potential for innovation around a promising idea that will produce a breakthrough innovation if the project succeeds.

At the end of the project, the partners in the research will together proceed with the products' industrialization and production. The project should generate benefits for all the partners and make it possible to maintain and create jobs.

CONSORTIUM

MECAR, SIRRIS, SERVIPLAST OUTILLAGE, CENTEXBEL, ULIÈGE, DRADIN.



D-DAMS

PÔLE SKYWIN

Digital Armament Management System.

An industrial consortium has been put in place in Wallonia in order to develop a new competence: develop smart electronic devices that can meet the DO178 (software) and DO254 (hardware) standards.

Those standards give the strong robustness and safety level guarantees that are expected in aeronautics. As a consequence, taking them into account from the development phase is a must when one wants to certify products.

The competence of each partner will increase progressively, up to full mastery of those standards. The projects also targets a practical case: an armament management system used for helicopters and light combat aircraft.

CONSORTIUM

FN HERSTAL, GILLAM, HIPPEROS, ULIÈGE, UNAMUR.



ELECTROHOB

PÔLE MECATECH

The objective of the ElectroHOB project is to develop a new electronic rocket concept for illuminating mortar-type ammunition.

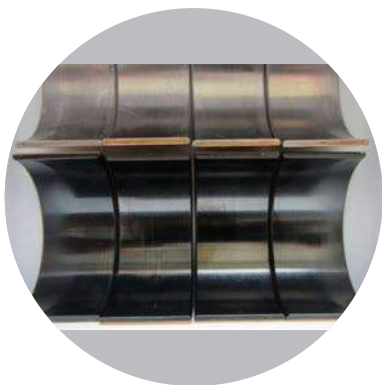
In the descending phase, the rocket must make precise measurements of distance to the ground in order to be able to trigger the operation of an illuminating pot at a defined height.

To allow perfect, rigorous integration in a reduced volume and to submit to extreme constraints, the research focuses on innovative concepts in microelectronics, micromechanics, turbomachines, and dynamic simulation.

The industrialization and production of the products by the partners is planned at the end of the project.

CONSORTIUM

BRITTE MUSTAD, VKI, MECAR, MICROMEGA DYNAMICS, ULIÈGE (CSL), OPEN ENGINEERING.



HAVCOAT

PÔLE MECATECH

The aims of the HAVCOAT project are to optimize powerful yet ecological amorphous hydrogenated carbon (a-C:H) surface coatings and to develop tools for producing, characterizing, and validating these surface treatments.

Namur University (UNamur) has developed an a-C:H surface coating specially designed for engine bearings; it reduces wear and the friction coefficients of these parts but can nevertheless undergo a shaping phase.

The aim of this project is to optimize both the plasma process and the coating's performance for use in high-added-value sectors. The automotive industry (racing) has already shown interest in it based on a preliminary assessment of the coating's properties. BTD and DSI are now tasked with developing novel test benches for and means of validating the coated bearings, such as radio-tracing techniques for real-time monitoring of wear. That will be done in partnership with ULg, which will mark the surfaces subject to wear.

The company JTEKT TORSEN Europe is taking part in the project with a view to adapting the coating to parts in TORSEN differentials so as to enhance current performance levels and reduce operating noise. Finally, the company FN Herstal has shown interest in developing a version of the coating that will improve the mechanical output of the moving parts of firearms.

CONSORTIUM

DSI, BTD BREUER, FN HERSTAL, JTEKT TORSEN, UNAMUR, ULIÈGE.



IRIS

PÔLE MECATECH

Today, surveillance, be it in a military or civilian context, is one of the essential elements guaranteeing the security and safety of individual property, equipment, and people.

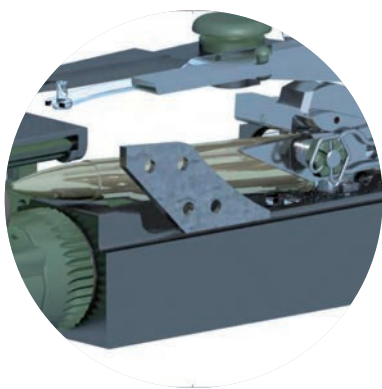
. In the interest of improving surveillance capacity, the IRIS (Intelligent Recognition Information System) project brings together the scientific and technological expertise of CMI Defense, ACIC, the Multitel research center, Liège University, and Belgium's Royal Military School to develop intelligent modules to help detect, recognize, and analyze behaviors and threats.

The innovative concept of decision-making assistance that IRIS proposes will enable surveillance operators to take up the right information at the right time to take the best decision in dealing with a given situation. Soldiers' and civilian lives, the security of sensitive sites (nuclear power plants, Seveso sites, etc.), and the safety of equipment and facilities depend on such decisions.

That is why IRIS will be grounded in the latest innovations, especially in artificial intelligence (computer vision, machine learning, game theory, and so on) to provide the best responses for such current issues.

CONSORTIUM

JOHN COCKERILL, ACIC, ERM, MULTITEL, ULIÈGE.



M4

PÔLE MECATECH

FN Herstal is coordinating an industrial research project called “M4 Multigauge Mechatronic Machine Gun.”

This research project is innovative and unique due to the combination of technologies and disciplines considered in the type of application. A number of deliverables are expected, to wit:

- a new weapons development methodology that includes new technologies;
- new modeling and multiphysics simulation tools;
- the exploration and validation of new concepts; and
- scale models for experimental validation of all the concepts that are covered.

The products that are developed from this project's outcomes will increase FN Herstal's global market share and employment in Wallonia.

CONSORTIUM

FN HERSTAL, MICROMEGA DYNAMICS, V2I, OPEN ENGINEERING, SIRRI, ULIÈGE, ULB, ERM.



MRIPF

PÔLE MECATECH

The objective of the MRIPF project is to better understand and control the phenomenon of rupture or fragmentation resulting from cracking.

This phenomenon is interesting for scientists, since it must either be excluded from certain applications or be controlled in order to orient the fragments (for example ammunition) in a certain direction (problem of collateral damage).

MRIPF aims to:

- understand the physics of the phenomenon,
- develop a database of numerical models for propagation analysis of these cracks in order to determine their behavior in industrial situations, and
- design innovative products on this basis.

A plus for the armaments market and all industrial applications related to the phenomenon of fracture!

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CONSORTIUM

**MECAR, CARAT DUCHATELET, FORGES DE ZEEBRUGHES,
GD TECH, ULIÈGE, UCL.**



NANOAPPLI

PÔLE MECATECH

The MT_NanoAppli project consists in optimizing the production capacities of nanopowders developed in Nano-Tech and releasing industrial applications.

The use of nanopowders in Belgian defense products should lead to innovative explosive and propulsion characteristics. These nanopowders will be used in existing production processes.

In order to ensure the consistency of their characteristics – and thus their lifetimes – a special coating will be developed.

The applications of this project can be extended to other sectors, such as space propulsion, safety (airbag), medicine, and so on.

CONSORTIUM

MECAR, CORI COATINGS, LEVASSEUR NEWCO, VKI, ULIÈGE, UNAMUR, FN HERSTAL, NANOPÔLE, MATERIA NOVA.



NEXT GENERATION POWDER

PÔLE MECATECH

The aim of the NextGeneration Powder project is to bring together various partners – the companies MECAR and PB Clermont and the research laboratories of ULg and Belgium's Royal Military School – in order to conduct **research that will culminate in the development of a new spherical propellant powder with enhanced particle size and energy content characteristics through a new manufacturing procedure that will open the door to the medium-caliber and mortar ammunition markets while maintaining the specific features and advantages of spherical powders** (flowability, loading density, etc.).

The principle will rely on incorporating a HE energy base and environmentally-friendly additives for better control of combustion than with the usual propellants.

That will enable the powder to generate more pressure and thus additional thrust for ammunition when it is fired.

CONSORTIUM

MECAR, PB CLERMONT, ERM, ULIÈGE.



OPTIMIS

PÔLE MECATECH

The human-machine interface is currently an important point in all pilot systems, be they military or civilian, in which human beings remain key elements of the control loop.

In searching to add a new dimension to land-based weapon control systems through a multimodal approach, among other things, the OPTIMIS (Optimised Personal Turret Interface based on a Multimodal Interaction System) project brings together the scientific and technological expertise of John Cockerill Defense, Nexvision, Acapela, Multitel, Namur University, and Belgium's Royal Military School to develop a human-machine interface that the operator can carry.

The aim is to control John Cockerill Defense's weapons systems in a totally innovative and effective way, and above all one that is intuitive for the operator. OPTIMIS relies mainly on a device a helmet that includes an intelligent multimodal engine to manage the weapons system information and types of interaction, i.e., visual, auditory, and vocal. It will do all that whilst ensuring measured monitoring of the operator's cognitive load in the course of his/her mission.

The interface will be more than a passive device; it will become an intelligent, immersive interface that uses the codes of human beings' natural interactions.

CONSORTIUM

JOHN COCKERILL DEFENSE, NEX VISION SAS, ACAPELA GROUP, MULTITEL, UNAMUR, ERM.



PEA

PÔLE MECATECH

While defense generally keeps a low profile in the Walloon Region, it is no less one of the region's major sectors and boasts a number of Walloon flagship industries, led by the project's industrial partners PB Clermont and FN Herstal.

The PEA project is being conducted in partnership with Belgium's Royal Military School and Liège University in a tight economic context characterized in particular by the price war caused by the massive unloading of U.S. products at low prices on the European market. The aim of the project is to develop a powder for small-caliber firearms to reduce barrel erosion when they are fired.

This already innovative project on the world stage is a breakthrough innovation in the small arms ammunition market. The major technological advances to which this development will give rise will enable both PB Clermont and FN Herstal to release innovative products on the market, products that will create true differentiation likely to lead to significant economic growth and the maintenance of, even growth in industrial jobs in the Walloon Region for years to come.

CONSORTIUM

PB CLERMONT, FN HERSTAL, ERM, ULIÈGE.



S-POD

PÔLE SKYWIN

Smart-Pod System.

The objective of the project is to combine various Walloon partners' competences to conduct research for the development of a Smart-Pod System, i.e., an embedded container for aircraft, carrying a machine gun and 12.7mm guided rocket tubes.

The Smart-Pod System will be developed in parallel with the viewfinder Hudi, launched by FN Herstal, and its functional connection.

Regarding Smart-Pod, the lines of research are:

- optimized aerodynamics, aero-thermal and acoustical design of the composite cell,
- digitization of the control electronics,
- embedded software,
- a new amortized cradle,
- a new cartridge box,
- the necessary interfaces for installation and shooting of guided rockets,
- the integration of all these different components,
- and validation tests for aviation standards.

The objective of this project is also to bring together SMEs with innovation potential around the FN Herstal Group, enabling them to grow and gain experience in the aviation industry.

CONSORTIUM

FN HERSTAL, ETIENNE BONNE FORTUNE, SOBELCOMP, OPEN ENGINEERING, NUMFLO, ERM, ULIÈGE.



SWS

PÔLE MECATECH

The aim of the SWS project is to integrate a totally electronic explosive train into a weapon. This integration requires study of the following technological blocks:

Secure communication: Today, in the era of the Internet of Things, it is important to be able to communicate with weapons as transparently as possible.

Electronic activation: The ammunition can be detonated either electromechanically (electronically controlled striking pin with traditional ammunition, for example) or electrically (in which case an electrical signal activates the primer cap).

Electrical priming: If the heart of the weapon becomes totally electronic, the ammunition must be changed along the same lines to ensure its maximal integration in this development. We are thus working on developing new primer cap compositions and structures.

Energy recovery: A weapon necessarily releases a huge amount of energy. However, it is not easy to have the right energy at the right time (before the first shot), nor is it easy to convert the energy effectively, given that the energy is released in pulses. Both of these aspects are studied in this project.

A new optimized weapon architecture will thus be developed on the basis of these different technological blocks.

CONSORTIUM

FN HERSTAL, NSILITION, ULB, ULIÈGE.



SIGURD

PÔLE SKYWIN

Smart Integrated Guided Rocket Development.

The aim of the Smart Integrated Guided Rocket Development (SIGURD) project is to bring together FN Herstal (FNH), Thales Belgium (TBE), GDTech, JD'C Innovation and Sobelcomp, as well as the Sirris and CRM Research Centers to conduct research that will develop and integrate the Thales laser-guided rocket fire capability into FNH's aero-digital product range.

This project will focus on the integration of a rocket launcher module with the S-Pod range, mechanical and digital interfaces, a lens protection solution for the seeker device and the integration of the "Lock-On Before Launch" capability of the Thales guided rocket in FNH's DAMS.

At the end of the project, the developments will be industrialized by the partners before they proceed to series production. The marketing will be done by the FNH and TBE through their respective commercial networks. The project will have shared benefits for partners and help maintain and create jobs.

CONSORTIUM

FN HERSTAL, THALES BELGIUM, GD TECH, JD'C INNOVATION, SOBELCOMP, SIRRIS, CRM.



VIRGA

PÔLE MECATECH

Today's and tomorrow's theaters of military action are and will be increasingly uncertain (little control over the environment, great geographical diversity), with means of detection and threats (ammunition, etc.) that are constantly rising.

There is thus a desire to put the human being, i.e., human safety, at the heart of military concerns. To do that, the VIRGA project is aimed at protecting troops and users upstream from today's cumbersome solutions for preventing threats perforating the system.

The aim of VIRGA is to develop a comprehensive solution that meets the requirements of the stealth frequency spectrum in a mission scenario:

- Not detectable/visible at long range (12-22 km)
- Not recognizable at medium range (4-12 km)
- Not identifiable at the short range of engagement (<4 km)

VIRGA will thus include passive solutions (IR/Radar) to reduce the armored vehicle's signature, but also active solutions making it possible to change the vehicle's signature (thermal signals) and mislead the adversary at close distances (radar).

These active solutions will be driven dynamically and intelligently through an AI-based analysis-and-detection system.

CONSORTIUM

JOHN COCKERILL, FEDERAL COATINGS, DECUBE GROUP, OPEN ENGINEERING, CRM, ERM, HELMO-GRIG.



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Since 2003, ACIC develops innovative VCA solutions and AI technologies based on its own neural networks for automated and intelligent video surveillance.

From security to datamining, ACIC provides tailor-made solutions. They can be used with any IP cameras or on the Edge with compatible models. In the security sector, we have field proven solutions deployed all over the world for intrusion detection over sensitive areas and perimeters such as refineries, military sites, airports, border surveillance, coastal surveillance and many other sensitive perimeter protection (media, nuclear plants, pharmaceuticals...).

These state-of-the-art products are the result of intensive continuous internal and collaborative R&D projects. As an example, the current co-funded IRIS project (www.polemecatech.be/fr/projets/iris/) is dedicated to the detection of threats in the wild (military scenarios) and will enhance our portfolio for surveillance through innovative products.

SPECIFIC COMPETENCE

Image and video processing combining signal processing and AI technologies. Intégration on several platforms, with many SDKs and hardwares (Linux and Windows).



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ADDIPARTS is a service company specialized in high-end industrial applications of Additive Manufacturing.

ADDIPARTS designs and prints varieties of complex parts, per unit or in small batches, using high performance industrial thermoplastic materials such as Antero (PEKK) and ULTEM™ 9085 (PEI), used in Aerospace, Defense, Transportation applications.

New service offers CALFDM, a FEA methodology allowing stress and strain prediction within FDM built parts when structurally loaded providing engineers insight into the behavior of ULTEM™ 9085 printed parts in highly stressed applications, opening door to part optimization and certification.

The resulting functional prototypes, parts, tools, and jigs offer unequalled mechanical, thermal and chemical performances, matching industrial requirements and constraints, allowing their use in actual conditions. Several AM technologies and materials are available, allowing for specific solutions and materials that match customers needs and requirements.

SPECIFIC COMPETENCE

Additive manufacturing.

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Aerospacelab develops its own small satellite subsystems and platforms in-house.

Established near Brussels, Aerospace Lab aims at tackling some of the most challenging problems with a completely different paradigm.

Satellite-based intelligence has traditionally been used for defense and security purposes. Conventional workflows rely on human analysts to make sense of satellite imagery and draw conclusions which is time-consuming, and against the responsiveness required for most security operations.

Aerospace Lab's satellite intelligence enables defense stakeholders to access evidence-based information. Artificial intelligence and machine learning combined with traditional process allows decision-making process improvement, time saving and analysts to focus on the relevant tasks.

Aerospace Lab's 3-level dashboard allows analysts to adapt the desired detail level to each situation:

1. Detection on a situation map
2. Recognition on a functional map
3. Identification on a material map.

ALKAR TECHNOLOGY



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We are a small company specialized in High Performance Composite Materials.

We can take over projects at different stages : engineering, structural calculation, composite laminate analysis, finite element analysis of both laminates and structure, design, toolings, prototyping, validation testing (materials and elements), production.

We always put the emphasis on processes that will produce high quality parts with the best performances (optimised fiber volume ratio and low porosity) : autoclaved prepregs, Resin transfer Moulding and vacuum infusion using Airbus' patented double bag process. We also produce composite references for Non-Destructive Testing, namely references for delamination, foreign objects, ply waviness, dry spots and porosity using our proprietary method.

All NDT references are produced using any material / process. We currently produce these reference for the whole aviation sector in Belgium and some clients abroad.

ANY-SHAPE



www.any-shape.com



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ANY-SHAPE is a leading additive manufacturing and engineering services company based in Liege, Belgium.

Our capabilities are broad ranging with additive technologies geared towards offering an end-to-end solution from design concept through to serial production in both plastics and metals. With a knowledgeable and experienced inhouse engineering team, ANY-SHAPE are able to analyse and consult on the best technologies and materials available to suit the engineering challenge. This includes design analysis, design optimisation, generative design and finite element analysis and load simulation. Additionally, design and manufacturability constraints are taken in to account at an early stage to mitigate any risk of component complications further down the line.

Since conception, ANY-SHAPE has placed focus on its research and development activities, breaking new ground in the areas of advanced additive manufacturing processes, including material composition, custom AM processing parameter settings and post finishing treatments and coatings. Additionally, ANY-SHAPE has invested in both metrology and metallurgy laboratories to offer customers a complete in-house and secure service ANY-SHAPE holds the following quality accreditations: ISO 9001, EN 9100 and ISO 13485.

SPECIFIC COMPETENCE

Additively manufactured parts.

Airbus qualified on high performance aluminium alloy parts (Scalmalloy).

SME

BALTEAU NDT



www.balteau-ndt.com



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BALTEAU NDT S.A. is leading manufacturer of X-Ray generators and Systems with a large presence worldwide.

With its range of high power or light weight portable X-Ray generators, BALTEAU NDT S.A. became a specialist in manual and automatic systems for radiography and radioscopy (DR). Since 1936, many different industrial inspection systems have been installed and are now used in a variety of fields: automotive, shipyards, aeronautic, defense, foundries, gas bottles manufacturer, pipes manufacturer, Research centers, Museums...

SPECIFIC COMPETENCE

NDT equipments for MRO, EOD and Quality Control.

DEFENSE INDUSTRY

INNOVATION, PROJECTS & PLAYERS IN WALLONIA

SME

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The Base de Baronville has all the necessary authorizations to store explosives, weapons, ammunition or other military equipment.

To this purpose, we operate a 155-h site, located halfway between Brussels and Luxembourg.

Our 25,000 m² of storage are equipped with state-of-the-art security and surveillance equipment and are under the permanent vigilance of approved guards.

Our qualified staff and handling equipment allow us to carry out the unloading and shipping of your goods; whether in trucks or sea containers. The Base de Baronville can also accommodate your convoys in transit inside its secure enclosure or house your valuable goods such as metals, alloys, vehicles, tools, spare parts, etc.

SPECIFIC COMPETENCE

Logistics.

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SME

BREUER TECHNICAL DEVELOPMENT (BTD)



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BTD is an ISO-certified service provider and reliable IC engine development partner for more than 20 years.

We develop efficient solutions for high demands for well known companies in the automotive sector and for the industry for other drive trains.

Our main activity is in the field of design, production and testing of prototypes. After several national research projects, we are currently involved in an EC-project, named C2FUEL (testing of DME e-fuel).

We are looking for new partners in the sector for small and medium sized drive systems (vehicles, utility and transport as off road vehicles) also in the maritime sector.

With our technical infrastructure and test capacity, we can assist with :

- Initial design-development
- Development processes
- Mechanical construction
- Production of prototype parts, sub-assemblies and complete engines
- Tests & measurements of IC engines and non IC drive trains
- Certification processes

SPECIFIC COMPETENCE

Design development & Test capacity.

DEFENSE INDUSTRY

INNOVATION, PROJECTS & PLAYERS IN WALLONIA

GE

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Carat Duchatelet is internationally recognized as the world leader in manufacturing specialty vehicles in the automotive industry, mainly for Head of State security vehicles but also for design and small series production of Defense products in Land System sector such as APC's, up-armor kit, etc.

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SME

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2 Belgian precision casting foundries and 1 machine shop :

- 1 Steel & stainless steel investment casting, air melted for aviation & defense - Seneffe (BE)
- 1 Titanium, Zirconium & Palladium alloys investment & sand casting, centrifugally and vacuum poured for aviation & defense - Charleroi (BE)
- 1 machine shop in Orléans (FR)

CITIUS ENGINEERING



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Citius Engineering is specialized in design, manufacturing and installation of turnkey industrial equipment : test benches, means of production and mechatronic machines.

It has a large design office which enables it to take charge of all design aspects in the following areas : electricity, electronics, mechanics, energies and fluids, automation, robotization and industrial vision.

Citius also has its own assembly workshops and provides overall management of the projects it supports. It is active in different sectors : defense & security, aeronautics & space, manufacturing industry, automobile & transport, energy, food industry, pharmaceuticals and biotechnologies.

Over time, Citius has acquired a great experience in various specific automated « applications » such as tests & measurements (online QC, electrical tests, ...), handling, processing and assembly.

SPECIFIC COMPETENCE

Test bench, test cell & measurement.

DECUBE GROUP



www.decube.be



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Decube Group is specialized in technical and industrial activities such as engineering, montage, industrial coating and composite materials. Some of its subsidiary companies are active in the defense sector.

Among them, Monnaie SA (Hainaut, Belgium) and Belgium Coatings (Liège, Belgium) are companies specialized in surface treatment and coating application. A part of the 20000 m² workshop has been transformed in a «high finition» workshop meeting the standards required by the defense sector.

Moreover, Plasturgie Lazzerini (Hainaut, Belgium), specialized in the manufacturing of custom-made parts in fiberglass-reinforced polyester as well as low pressure polyurethane injection, is already active in the automobile and transport fields.

SME

DINEC ASSEMBLY BY HTS



www.dinec-assembly.com



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Dynali Helicopter Company is a manufacturer of ultralight helicopters and related aerial solutions. The company has taken the market leadership of ultralight helicopters (ULH). Its current best-seller is the two-seater H3 Sport (MTOW 530 kg) known for its excellent flying capabilities and low operating costs.

Dynali designs, manufactures and assembles helicopters and UAVs for private users, flight schools and industrial companies.

The Helicopter Division is focused on leisure helicopters. With specialists in machining, welding, painting, engine preparation and avionics, Dynali controls the whole production process which ensures high quality and short lead times.

Within the Aerial Solutions Division, Dynali provides utility helicopters and UAV platforms. The high-payload platforms are dedicated to various applications such as territory surveillance, maritime search & rescue, agriculture and logistics. The engineering team develops solutions based on client requirements and manages systems integration.

Dynali is already collaborating with major international partners who are flying fully autonomous UAVs. It is the only company to provide platforms with a maximum payload of 230 kg, an autonomy of 8-10 hours and flying up to 10,000 feet.

www.eliosys.eu**HEAD OFFICE**

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CONTACT PERSON

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CEO

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Military standards are among the highest standards in the world.

Thanks to its state-of-the-art equipment, especially his climatic and solar simulators, ELIOSYS can help you in carrying out environmental tests specific to the sector on both electronic and mechanical equipment.

The main tests are:

- Solar and actinic test
- Hot and cold cycling test (natural, storage or transit)
- Thermal or UV aging test
- Hail test
- Photovoltaics, thermal or hybrid converter testing
- Salt spray test

The main standards of testing are MIL-STD-810 and the AECTP.

ELIOSYS also provides you with an engineering service highly specialized in environmental constraints to help you in the development of your equipment but also in the event of troubleshooting.

www.euromultitel.be**HEAD OFFICE**

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In 2014, Euro-Multitel SA was created to develop export activities of Innovation Center Multitel. Today Euro-Multitel participates to several research projects with PME and large companies.

Euro-Multitel's activities are dedicated to engineering sciences and reinforce Multitel's activities with a global vision to improve the efficiency of innovation processes. Euro-Multitel focuses on the last steps of the process to support and accelerate the introduction of research results into the market.

Thanks to the development of these activities, Multitel and Euro-Multitel SA are able to jointly offer companies all the technical expertise and access to state-of-the-art equipment necessary for all stages of the development of innovative products and services, from the feasibility study phase to pre-industrialisation.

SPECIFIC COMPETENCE

AI.

SME

EUROPEAN METROLOGY SYSTEMS (EMS)



www.ems-benelux.com



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Leader in Metrology.

The combination of our many years of experience and our know-how mean that for each of your applications we are able to offer you a tailor-made solution.

Alongside this wide range of measurement solutions, our range of services completes our offer and allows us to offer you a global solution. Indeed, our services can support you throughout the life of your investment.

It is through these services and our approach focused on your needs that we want to make a difference!

SPECIFIC COMPETENCE

Metrology.



GE

FN HERSTAL



www.fnherstal.com



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Under the brands FN Herstal, Browning and Winchester Firearms, the Herstal Group designs, manufactures, distributes and integrates a full range of firearms and associated systems for defense, law enforcement, hunting, and shooting.

SME

FREE FIELD TECHNOLOGIES



HEXAGON



www.fft.be



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Over the past years, Free Field Technologies (FFT) has enjoyed a close collaboration with many leading aerospace companies and provided dedicated solutions matching this industry's very specific needs.

The Actran software suite for acoustic simulation enables aerospace manufacturers to design and optimise products with powerful acoustic, vibro-acoustic and aero-acoustic modelling software and solutions. Both its general-purpose simulation features and its unique capabilities make it the industry standard solution to address the specific needs of the aerospace industry.

FFT also provides related services: acoustic CAE consultancy (on-site or off-site), training, specific developments, contract research and provides a range of services in the field of acoustic design. Free Field Technologies is also involved in multiple research programs in acoustics, aero-acoustics, vibro-acoustics, high-performance computing etc.

SPECIFIC COMPETENCE

Noise and acoustics.

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GDTech is an engineering office of ~200 employees skilled in the following fields:

- Design & Drawing (Catia, Pro-Engineer, SolidWorks, Inventor, AutoCAD, Electrical, ...).
- Structural Calculation (Mechanic, Vehicle, Defense, Construction, ...).
- Fluid Calculation (Valves, Heat Transfer, Aerodynamics, Filters, ...).
- Acoustic Calculation (Noise propagation &/or attenuation, ...).
- Optical Calculation.
- 3D-scan, photogrammetry (factories, lands, products) & 3D-print (plastic & metal).
- Consultancy for experimental tests or measurements (static & dynamic including fatigue, crash, ...).
- Tailored made solutions (LED lighting solutions, ...).

In the field of defense, GDTech specialized in material characterisation (steel, composites, ...) for being able to perform different kind of simulation such as mechanisms into weapons, blast (also under water), bullet or fragment impacts, ... GDTech is also active in CFD, offering calculation solutions for designing new silencers, new fins shape, ...

GDTech can also offer support when customers are willing to develop digital twins.

SME

GENITEK ENGINEERING



www.genitek.be



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Genitek Engineering is a high-end engineering company based in Belgium with expertise on mecatronic, low-level software, FPGA, certification, and testing, obsolescence management, among others.

We are specialised in the development of embedded electronic systems in the defense and aeronautical sectors.

We help our clients find optimum solutions, from product specification to testing, certification and production.

GROUPEMECA (VANHULEN)



www.groupemeca.com



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GROUPEMECA is active in the civil and military aerospace, electro-technical equipment, nuclear, defense, office automation, automotive, electro domestics, medical and construction technology industries.

GROUPEMECA's production fleet counts + 300 machines, with unrivalled performance and outstanding reliability. The raw materials processed are carbon steel, stainless steel, non-ferrous metals and special alloys.

GROUPEMECA carries out required surface- and finishing treatments, including heat treatment in pulsed air furnaces or under controlled atmosphere (vacuum) and penetrant inspection.

Major Products / Services:

Compression, extension, torsion, double torsion springs. Bended wire. Induction coils. Leaf springs and stamped parts. Fragmentation body for grenade, mortar and rockets. Assembly of metal parts and plastic parts. Welding TIG-MIG-Laser. Surface treatments.

HEXCEL COMPOSITES



www.hexcel.com



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Hexcel's plant was established in Welkenraedt in 1967.

Welkenraedt is Hexcel's European center of excellence for Engineered Core, the name we give to our processed honeycomb parts that are machined and finished in a number of ways and then supplied as ready to fit «drop-in» parts to customers.

Key applications for products made at Hexcel's Welkenraedt plant are aerospace structures - for civil and defense aircraft, helicopters and aero-engines.

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ID2Move is a center of excellence on unmanned autonomous systems & drones (ground -UGV-, air -UAV-, water -UMV-) with the most equipped and diversified indoor/outdoor test zones in Europe. We are based in Nivelles, Belgium.

In our restricted zone (EBR 67) you can fly over agricultural and industrial areas, speedways, railway tracks, forest and quarries. And soon around windturbine.

An outdoor racing track is available for autonomous land vehicles. The indoor test zone measures 670m² and is 8m high fully equipped with motion capture cameras and removable floor. An indoor pool and a former stone quarry (50m deep) are available for aquatic drone.

We also offer working spaces (offices, coworking, meeting rooms), technical and business coaching, prototyping lab, university support, networking events, certification, homologation, clearance, and international network.

INNOVATICE COATING SOLUTIONS (ICS)



www.incosol4u.com



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CEO / CTO

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ICS is Specialized in the deposition of Thin Films by Physical Vapor Deposition (PVD), and film Characterization.

ICS business is organized around 3 pillars:

Job Coater: parts are coated with one of ICS's recipes, based on the customers' needs.

R&D Consulting in Coating: ICS develops tailor-made coatings to answer the customers' requests.

Licensing: ICS sells licence processes in customers' machines or installs and integrates a dedicated machine in the customers' production facility.

ICS has developed solutions to coat powder: we improve the efficiency of nano-thermite propellants. Gunshots velocity measurements show an improvement by 50% of projectile velocity, and improvement of reproducibility.

www.isomatex.com**HEAD OFFICE**

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ISOMATEX manufactures mineral fibre reinforcement for high performance applications: the production of FILAVA™ is unique thanks to a genuine and innovative treatment of the raw material, volcanic rock, which is enriched with various mineral additives to increase and guarantee its original mechanical, thermal and chemical properties.

The properties of our fibre are perfectly stabilised thanks to our mineralogical bath: the mechanical performances of woven fabrics made of FILAVA™ offer an extremely high energy absorption for ballistic applications, in the range of Kevlar or S2-glass, price being much lower.

Beside it, the mineralogy of the FILAVA™ drastically increases the security of people: high thermal protection, life-time duration (no problem with UV, humidity, salt water, chemical component...), electrical isolation....

IT-OPTICS



www.it-optics.com



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IT-OPTICS s.a. is an IT services company, one of whose key focus areas is free software. Based in Mons, IT-OPTICS offers the experience and skills of its engineers, specialised in multiple domains such as the next, Windows, networks and databases to help its customers.

ITO aims to bring the IT infrastructure to its maximum operational level using the power of Free Software and GNU/Linux, without ignoring commercial and proprietary software. The company ITOPTICS is made up of around 10 engineers and has today become one of the key players in the Belgian OpenSource market. Over the past three years, the company has invested in working out dedicated solutions in the world of logistics. As well as the concept of IT services.

IT-OPTICS is the partner of choice in implementing EPC IS solutions, the exchange and sharing of information on a supply chain's logistics flows. The company relies on solid partnerships, embodied within the group by its major shareholder CEDREBEL, both in terms of R&D and its historic closeness to the Multitel research centre. Its skills are well fitted to the different tasks of development allowing to be compliant with GSI standards.

SME

JDC INNOVATION



www.jdcinnovation.com



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Our company, certified EN 9100, whose main mission is to offer sustainable and quality jobs to as many disabled workers as possible, specializes in high performance composite materials, mechatronics and connectics.

We offer our defense, aeronautics and space customers a «one stop shop» service based on our various business expertise and ranging from co-design to delivery of certified products or systems.

GE

JOHN COCKERILL



www.johncockerill.com



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Member of the bicentennial John Cockerill Group, John Cockerill Defense is the technological leader in multifunctional, high-effect turrets in the 25-120mm range for light and medium weight armored vehicles.

John Cockerill Defense develops and integrates complete and innovative solutions: design, production, integration and upgrade of weapons systems, operational and tactical training, Agueris® simulation systems (virtual immersive, mobile, embedded and inter-connectable), through-life support and innovative functionalities.

Marketed under the Cockerill® brand, John Cockerill Defense weapons systems combine superior firepower and light-weight for high-mobility armored vehicles, guaranteeing performance and protection.

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Lambda-X offers engineering and manufacturing services in the field of vision & metrology optical systems working in severe environments.

The provided support can be Concept & Design, Prototype Development, Qualification according to MIL-STD Standards or Serial Production.

Lambda-X is certified ISO9001 and EN9100 by "BUREAU VERITAS". In addition to several references from Belgian Defense Industry, Lambda-X benefits from an important heritage in Space Technologies, coming from the delivery of more than 30 optical systems for various Space applications (Science Payloads, Earth Observation, Space Situational Awareness).

SPECIFIC COMPETENCE

Imaging technologies.

SME

LGM BELGIUM



www.lgm.fr



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LGM Belgium SPRL, based in Charleroi and Liège, is the Belgian subsidiary of the LGM Group.

The company's main activities are directed towards ILS (Integrated Logistics Support), technical documentation, documentation management and configuration management especially dedicated for Railways, Aerospace, Aeronautical and defense sector.

The objective of the «ILS» department is to provide support for key accounts in Space, aeronautical and defense industries in Integrated Logistic Support, ranging from the design phase of a system to its implementation. Its main activities are linked to supporting clients while implementing a modular documentation environment, setting up the ILS processes, performing Reliability, Availability, Maintainability and Safety (RAMS) studies and providing support in documentation and configuration management. LGM Belgium SPRL provides unique expertise in the field of civilian and military aeronautics or space fields.

The strength of this division lies in the ability to offer dual industrial and operational skills to the major aerospace or aeronautical contractors. Currently, we support our clients in the different stages of their projects to design complex systems.



www.mebf.be

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MEBF is active in the industrial subcontracting sector in precision mechanics, the MEBF company, located in Herstal, mainly serves Belgium and Europe.

Based on a mechanical experience of nearly a century, with a dynamic team of about thirty professionals and diversified production means (machining, sheet metal, press, welding, assembly, punching and laser cutting), our company will offer you guarantees satisfaction through the control of the quality of our products and our production processes in small and medium series.

We specialize in the design, study and production of precision mechanical components and equipment. Our processes are ISO 9001-2015 certified and we also have ISO 3834-2005 welding (Aluminum) certification.

www.mecar.be



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MECAR SA is a defense company based in Belgium specialized in the development and the production of weapon systems and a comprehensive range of medium and large caliber ammunition.

MECAR SA has been based in Belgium since 1938 and has built a world-wide reputation. MECAR SA is a wholly owned subsidiary of NEXTER SYSTEMS which is based in Versailles, FR.

MECAR SA supplies large and medium caliber ammunition to defense establishments (including NATO) throughout the world.



www.mecasoft.be



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From prototyping to series metal precision machining using electroerosion and other high precision techniques, with specific knowledge on micromechanics machining, performing precision operations in metals up to 1µm of tolerance and roughness of 0.03 Ra for drilling, cutting and 3D control.

Certified EN/AS 9100 Aerospace and Defense since 15 years and therefore supply major manufacturers as well as tier-1 or tier-2 players. Programs for A400M, F16, FN, CMI John Cockerill, New La Chaussée, EHP, Von Karman, for classic programs (from 1 to 500mm) as well as micro developments to gain weight and miniaturize components (heat pipes, micro tubes for sensors and captors). Other segments of interests are the precision industry - automotive, instruments - as well as medical and pharmaceuticals.

Important R&D activities with academic research programs in applied or fundamental fields: machining of silicon carbide, composites, ceramics, completing weaknesses of metal additive manufacturing (ruggedness and precision), ...

SME

MOCKEL



www.mockel-precision.be



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MOCKEL is active in the field of high precision mechanics meeting the complex needs of 1st tier suppliers in the defense, aeronautics and space industries. Our clients are based in Belgium, Germany, Holland, Luxembourg, France and the United States.

All of our employees are specialists in the manufacture of high precision mechanical parts. The company has the state of the art machinery, the technical know-how and the necessary experience and project management skills to handle all aspects of production from start to finish.

Be it large or small parts, simple or sophisticated components, series of 5 or 10,000 parts, we translate the ideas of our customers into technical excellence. All our parts are turned and milled with high precision on state-of-the-art digital controlled machines.



www.mpp.be



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MPP is the preferred NDT solution for aerospace & industrial companies.

MPP is equipped with the latest NDT technologies in digital radiography & CT scan (320 KV generator, flat panel 50 to 200 μm) and on customer sites (150 KV mobile generator), magnetic inspection, Eddy current, Fluorescent Penetrant inspection, ultrasonic inspection (phase array), thermography and shearography.

MPP is structured with efficient and flexible level 2 and 3 inspectors. MPP operates also on customer site in order to provide temporary support or perform expertise on large or critical parts. MPP is awarded numerous certifications such as ISO9001 and EN9001. MPP is certified by SAFRAN for digital RX, FPI & MPI, SABCA for shearography which demonstrate MPP dedication and quality of work. MPP is also active in precision deburring and polishing.

MPP continue its R&D strategy within major Belgium aerospace & industrial projects.

www.nsilitation.com**HEAD OFFICE**

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nSilitation is a leading analog and mixed-signal semiconductor full custom Integrated Circuits (IC) design house. nSilitation provides:

- Full custom ICs and ASICs
- Turnkey IC production solutions
- Radiation tolerant ICs

The design team of nSilitation has many years of hands-on, industrial level design experience with various analog and mixed-signal IC or SoC devices and electronic systems, as well as their characterization and qualification for production. nSilitation supports customers through the whole integration and product validation phase.

With reference designs available for high-speed I/Os cells, A/D and D/A converters up to 16b, advanced clock generators and PLLs, SerDes, PFM and PWM high efficiency DC/DC integrated converters and high precision bandgap references, nSilitation enables the high value analog and mixed-signal IC or SoC at low risk. nSilitation has also silicon proven experience in the design of radiation tolerant ICs. Mainly for space applications.

nSilitation designs ASICs for defense applications involving wireless stealth mode communication and security protections.

SPECIFIC COMPETENCE

Electronics and radiation tolerant electronics.

www.numflo.eu

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NUMFLO is a leading engineering company, that offers advanced consulting services and research and innovation projects in the field of computational fluid dynamics (CFD), from fluid flow and fluid/solid multi-physics analysis to design and optimization projects.

NUMFLO provide high-quality solutions, targeted to specific projects and needs.

Our expert team of PhD and Master level engineers has successfully partnered with the most demanding of both large, global OEMs and small niche businesses, across a variety of industries (aeronautics, space and defense, automotive, marine industry, wind engineering, environment, process industry, etc.)

SME

OPEN ENGINEERING



www.open-engineering.com



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The Open Engineering company is a Belgian high-tech SME active in the Computer-Aided Engineering (CAE) market.

We design, develop, and sell the OOFELIE::Multiphysics software. OOFELIE::Multiphysics is used to conceptualize, design, analyse, and optimize various types of systems before starting time-consuming and costly build-and-test cycles. OOFELIE::Multiphysics's features are focused on three major domains where they are used to predict the behaviour of:

- Sensors and actuators, including MEMS (Micro-Electro-Mechanical Systems).
- Optomechanical systems including MOEMS (Micro-Opto-Electro-Mechanical Systems).
- Multidisciplinary systems where interaction exists between a fluid medium and a structure (F.S.I. - Fluid-Structure Interaction).

These activities encompass a broad range of products in the aeronautics, space, defense, automotive, shipbuilding, and consumer electronics markets.

SPECIFIC COMPETENCE

Simulation.

PATRIA BELGIUM ENGINE CENTER

Patria

www.patriagroup.com

SERVICES > ENGINE LIFE CYCLE SUPPORT > PRATT & WHITNEY F100 ENGINES



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Through its unit in Belgium, Patria has a long history of working with Pratt & Whitney F100 engines used in F-16 and F-15 fighters, starting with the first delivery of F100 engine manufactured in Belgium in 1978 and reaching capability for full depot MRO in 1980.

Having supported many Air Forces worldwide with F100-PW engine MRO over decades, Patria today offers a complete F100 engine MRO solution through a wide range of in-house capabilities including overhaul, cleaning, non-destructive testing (NDT), repair, systematic O-I-D-level forecasting, trading and engineering.

Patria also provides related export compliance support and supply chain services, by other spare parts provisioning, supporting in smart use of serviceable assets and Material Management Programs.

Patria's F100-PW spare parts provisioning and trading enables shorter lead times and off-the-shelf readiness, while in-house engineering and logistics services are targeted to reduce overall cost. This allows Patria to provide a complete solution, resulting in competitive turnaround times and pricing.

SPECIFIC COMPETENCE

Spare parts provisioning and trading.

SME

PB CLERMONT EURENCO



www.eurenco.com



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Expert in Propellant Powder

PB Clermont (Eurenco) is a leading supplier of propellant powders to the small and medium caliber ammunition industry.

PB Clermont's Spherical Powders are used in many countries in numerous applications, mainly for European Defense.

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PIRON PRECISION COATINGS



www.piron.be



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PIRON Precision Coatings is a treatment surface and paint applicator specialized in complex coatings. We specialized mainly in Space, Defense and aeronautics industries.

We work on every substrate, from steel to aluminium, passing by copper, lead, titanium or even composite materials. We are able to fit your specifications as well as accompanying you to specify your needs.

We can work on prototypes as well as mid to great series (from 1 single part to thousands of parts). We can realise every control you desire and produce controls lists and certificate of conformance.

We are qualified by most of the belgian defense producers and are able to develop a qualification program if needed.

We can also finish surfaces with surfacers on composites prior to paint, this particular capability allows us to repair defectuous parts as well.

SME

Q-SQUARE AEROSPACE



www.qsquare.aero



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Frederic Wilquem
Founder & Associate Director

Bring expertise in risk assessment methodologies (RAMS) and integrated logistic support (ILS) considerations in the design, manufacturing and maintenance of defense products.

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RHEA SYSTEM



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RHEA System S.A. is a privately-owned professional engineering and solutions company, providing tailored engineering solutions, system development and security services for space, military, government and other critical infrastructure organisations.

Since its creation in 1992, RHEA has built a reputation as a trusted partner, developing tailored solutions that help drive organisational and cultural initiatives, leading to sustainable added value for its customers.

Headquartered in Belgium for its European operations, RHEA System S.A. has offices in Belgium, Luxembourg, Czech Republic, Italy, France, Germany, Spain, The Netherlands and works at clients' premises throughout Europe.

RHEA is ISO 9001 and ISO 27001 certified. Our key Clients are the European Union Space Programme Agency (EUSPA), the European Commission, the European Union Agency for Cybersecurity (ENISA), the European Space Agency (ESA), EUROCONTROL and NATO.

SPECIFIC COMPETENCE

System engineering methods and tools (concurrent design).



www.sabca.be



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The SABCA Group conducts operations from the three Belgian regions (Brussels Capital Region, Charleroi in Wallonia, and Lummen in Flanders), as well as from Casablanca, Morocco.

Today, SABCA benefits from a large palette of expertise, built over its 100 years of experience in designing, manufacturing, maintaining, and upgrading large and complex elements for aircraft and space launchers.

Its customers and partners belong to the elite of the aerospace industry. SABCA offers a full range of services to the civil, space and military aviation markets and recently expanded into the commercial Unmanned Autonomous Systems market as an integrator of aerospace-grade solutions for the industry.

SABCA is a part of Blueberry, a unique industrial ecosystem in the Belgian aerospace industry, active in the design, development and manufacture of aviation and aerospace equipment. Blueberry offers maintenance services for aircraft and brings solutions to drive the sustainable development of the industry as a whole.

SME

SABENA ENGINEERING SA

sabena
aerospace



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SABENA AEROSPACE is an independent Belgian MRO provider operating at international level and offering maintenance and operational solutions for both civil and military aircraft.

The activities of Sabena Aerospace are structured in 4 Business Units: Engineering & Training, Operational Support, Components and Defense.

Sabena Aerospace employs over 400 people and develops its activities from its historic headquarters at Brussels Airport, thanks to its facilities in 9 countries in Europe, the Middle East and Africa (Belgium, Luxembourg, Germany, Italy, Tanzania, Congo RDC, Congo Brazzaville, Zimbabwe & Mauritania).

Its international commercial motto perfectly summarizes the company's strategy: "Keep Flying, We Take Care".

SAFRAN AERO-BOOSTERS



www.safran-aero-boosters.com



HEAD OFFICE

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Head of Institutional Relations

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Safran Aero Boosters designs, develops and manufactures Low Pressure Compressors, Oil Equipment and Engine Test Benches (military and civil market).

The company equips most of the in-service civil aircraft as well as the European Ariane launchers.

Our strengths for Defense market : 70 Years experience in military engines, 50 Years of support to Air Forces Worldwide, 600 F100 engines manufactured (Including test and check-out), 4 Operating Test Cells in Belgium, 60 years of expertise in the field of test cell engineering.

Our military references : 8 Major military programs F100-P&W, F110-GE, TP400-EPI, Tyne-RR, Derwent-RR, Avon-RR, J79-GE, ATAR 9C-SAE / Final Assembly & Check Out (FACO) legacy.

SPECIFIC COMPETENCE

Jet engine test benches.

www.sagita.be

**HEAD OFFICE**

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Drones: We develop the S75 drone: a 75 kg MTOM VTOL UAV.

The S75 prototype presently undergoes test and demo flights. The 15 kW engine and 25 l fuel tank provide autonomy for 6 hours. Payload 20 kg.

Intended use: surveillance of extended areas, naval or terrestrial.

Engineering: Aerodynamic and structural design of centrifugal compressors and of contrarotating radial turbines. Design of coaxial helicopter rotors and control system.

SME

SCouP



www.scoup.eu



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SCouP designs, manufactures and sells Shape Memory Alloy couplings for pipes, as an alternative to welding and other technologies.

These components can be stored at ambient temperature and used in first mount as well as for (emergency) repair situations, on hydraulic and other types of pipes.

The technology was initially designed for space applications.

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SPECIFIC COMPETENCE

Piping.

SME

SENSY SA



www.sensy.com



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Established in 1985, **SENSY LOAD CELLS** is a Belgian manufacturer of both standard and custommade load cells, load pins, force and torque transducers which are exported in more than 80 countries.

These sensors are intended for systems with load limitation, effort, force, torque and level measurement, and for all industrial sectors, including the most demanding ones, such as the Oil & Gas, defense, and aerospace.

SHUR-LOK INTERNATIONAL



www.pccairframe.com



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Shur-Lok is a world leader in the design and manufacture of critical performance Fasteners which have become industry standards for Aerospace civil and military applications.

Shur-lok has been a pioneer in Aerospace Specialty Fasteners for 50 years with also a strong expertise in producing hard metal machined parts for Aircraft engine & airframe, Helicopter or Satellite components. Shur-Lok is EN9100 & NADCAP certified and processes all aerospace materials.

SL Fasteners are used in high vibration and load transfer applications to provide superior alignment, resistance to wear and movement, as well as ease of assembly. Key product lines include bearing locknuts, barrel nuts, expandable diameter fasteners, studs and inserts, lockwrench fittings, and honeycomb sandwich panel inserts.

Shur-Lok serves worldwide customers from two design and manufacturing centers: 75,000 sq. ft. facility in California and 48,000 sq. ft. facility in Belgium.

SPECIFIC COMPETENCE

Specialty fasteners & high precision machined parts.

SIEMENS (SAMTECH)

SIEMENS

www.siemens.com/plm



HEAD OFFICE

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Siemens (Samtech sa) is a team of about 80 engineers and PhD's that is part of Siemens Digital Industries Software.

It is based in the Liège Science Park in Angleur (Belgium), where it was founded in 1986 from the Aerospace Laboratory of University of Liège for the commercialization of the general purpose Finite Element Analysis software Samcef.

Inside Siemens organization, Samtech is expanding its FEA software developments to Nastran.

The main products developed in Liège are Simcenter™ Samcef® and Simcenter™ Nastran and the corresponding pre- and postprocessor Simcenter™ 3D, in particular for Non-Linear Structure FE analysis, Rotor Dynamics, Aerostructures Sizing, Topology Optimisation and Additive Manufacturing process simulation.

SPECIFIC COMPETENCE

Computer aided engineering software
for structures analysis with finite element method.

www.skyangels.eu**HEAD OFFICE**

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Founder

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SkyAngels is a Belgian Young Innovative Company, whose mission is the Specification, the Design and the Certification (Safety/CyberSecurity) of 'Intelligent' Agents embedded in Manned and Unmanned Aircrafts.

SkyAngels R&D relies upon its founder researches led in the scope of a PhD thesis in Computer Science, in progress at the University of Namur in co-operation with the Belgian Royal Military Academy, the Ecole de l'Air of the French Air Force and the Université Libre de Bruxelles. Current research focus on 'George', an Aviation dedicated Cognitive Architecture allowing to build Certifiable Adaptive Learning Avionics Agents (ALAA) for UAVs Attitude Control and UAV Mission Control.

The 2 first Use Cases for 'George' are a 'UAV Catcher UAV' that smoothly captures an outlaw UAV in the vicinity of a civilian airport and an 'Aggressor UAV' that allows to test Counter-UAVs infrastructures and is aimed at defeating their UAV detection and neutralisation capabilities.

SPECIFIC COMPETENCE

- Artificial Intelligence (Cognitive Architectures, Reinforcement Learning...).
- CyberSecurity.
- Avionic Software Certification (DO-178C, DO-326, DO-356...).


www.sobelcomp.be
**HEAD OFFICE**

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Sobelcomp provides integrated composite solutions to our customers' issues to meet their needs in terms of supplying parts in composite materials.

Solution oriented, we provide answers to several issues with:

- Weight reduction
- Function integration
- Environmental resistance
- Functional design

As a company active in the aerospace, defense and automotive sectors, it is committed to a strong quality approach and has had its quality management system certified according to the AS / EN / JISQ 9100 and ISO 9001. Also convinced that innovation is the driving force of its activity, Sobelcomp has invested for many years in the development of its design office.

The services we offer through our design office are:

- Study and design of parts, molds and production tools
- Finite element calculation
- Qualification of processes and materials

Thanks to our workshop and our trained operators, the parts are:

- Manufactured using different processes like RTM, RTM Light, Infusion, Pre preg
- Assembled by gluing, riveting, etc.
- Painted in our paint booth
- Controlled and measured

www.sonaca.com
**HEAD OFFICE**

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SONACA is tier one in the aerostructure and space market for 40+ years. With 4500 employees spread on 21 plants around the world, we serve a very widespread portfolio of commercial and defense aviation and space customers.

Our major skills are around the development (design, optimization, structural analysis, industrialization, certification, qualification, testing) and serial production (incl. supply chain, quality,...) of aircraft, satellites and space launchers structural components and systems.

We were and are involved in major defense programs such as F-16 rear fuselage, F-35 empennage, A400M Fixed Leading edge and associated structures, as well as Landing Gear Doors, and B-Hunter UAV's assembly.

SONACA also has MRO skills and capacities. Finally, SONACA develops and produces in series general aviation aircraft, which are mainly dedicated to pilot training, through its SONACA Aircraft Subsidiary.

SPECIFIC COMPETENCE

Pilot training aircrafts.

TECHNICAL AIRBORNE COMPONENTS



www.tecairco.be



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TAC designs, develops and manufactures rods, connected mechanical parts and components for aeronautical applications.

TAC had been a major supplier to the aerospace industry for the last 41 years.

TAC has an extended experience of the rod design and manufacturing. We can address a wide range of application like wing and flight control, structure, doors, hold open rods or special application in various materials as aluminium, CRESS, titanium, Inconel or composites. We are a dependable supplier and can testify of proven records with major air framers and sub-tiers.

TAC produces Standard rods, adjustable rods, hold open rods (telescopic or foldable), critical monobloc rods, various rod ends : clevis, ball bearings, with bushes Air framers : Airbus A320, A330, A350, A380, ATR 42/72, Leonardo helicopters, Airbus Helicopters, Bombardier, Dassault, Pilatus, Embraer. Sub-Tiers : Latécoère, Daher, PFW, Stelia, GKN, Fokker, Lisi, etc.

TELESPAZIO BELGIUM



www.vitrocisetbelgium.com



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Telespazio Belgium has almost 40 years of experience of provision of turnkey services on space telecommunications assets.

In the last 15 years TPZB has acquired an important role in the development and operations of European satellite navigation systems, EGNOS and Galileo, offering high value-added deployment and Integrated Logistic Support (ILS) services.

In parallel TPZB has developed an offer of engineering services in space, exercised at client's premises in several domains, and is nowadays one the biggest prime contractor for the provision of engineering support to the European Space Agency.

Recently TPZB has gained a significant experience in software development in the areas of ILS tools and real time software for mission control systems. Finally, TPZB is being involved in a set of innovative projects implementing security concepts in space and developing downstream applications and services based on the integration of multiple space technologies for the transport market.

SPECIFIC COMPETENCE

System integration, engineering services, system operations support.

THALES BELGIUM



www.thalesgroup.com



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Thales has developed close ties with Belgian industry over many years and has worked hand in hand with universities and research institutes to develop innovative products for its partners and customers.

As a long-standing partner of the Belgian armed forces, Thales is supplying the MoD tactical communication systems and a variety of onboard sensors for armored vehicles, ships, helicopters and UAVs.

- Long-standing provider of C4I solutions to the Belgian and Luxembourg armed forces.
- Program partner on NATO's AWACS aircraft upgrade program for more than 20 years.
- 70 mm/2.75»» rocket system in service with more than 30 countries and on 300 platforms.

Thales maintains a permanent presence in Brussels to serve European institutions and NATO. The group is taking part in a number of major European programs, including EGNOS, Galileo, Copernicus, Clean Sky, SE-SAR and Shift2rail, contributing to European research through the Framework Program and European Defense Agency projects.

SPECIFIC COMPETENCE

Cyber Security sovereign encryption.

SME

V2i



www.v2i.be



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Business Development

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V2i is a high-tech and R&D-oriented SME whose mission is to improve mechanical safety and reliability.

The company offers a full range of services in the field of vibration engineering and develops tailored monitoring solutions.

Vibration engineering expertise relies on the combined exploitation of vibration simulation, testing and measurement skills.

Thanks to its complementary skills in instrumentation, data acquisition and processing, V2i also offers the development of tailored solutions dedicated to the monitoring of machine condition or structural health.

V2i has been working for more than 15 years with industrial leaders from Defense sector.

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www.xris.eu**HEAD OFFICE**

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Values & Mission

X-RIS's number one priority is to develop portable and stationary digital radiology solutions that are very user-friendly and intuitive for industrial, laboratory and security applications without skimping at any time on the image quality.

Story

X-RIS was founded in 2010 and since then has developed its own range of X-ray generators, detectors and its software platform: Maestro. X-RIS also designs and manufactures its own mechanical and electro-mechanical solutions for Dxbox cabinets and special solutions.

Team

The company counts today 23 collaborators and is particularly technologically oriented: more than two-thirds of the team are graduated engineers. We also collaborate with several universities and R&D centres in Belgium and abroad. X-RIS can rely on a young, dynamic and skilled team surrounded by experienced staff, all dedicated both to the development of our products and to provide full support to its partners.

SPECIFIC COMPETENCE

NDT.

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Cenaero is a private non-profit applied research center and provides to companies involved in a technology innovation process numerical simulation methods and tools to invent and design more competitive products.

Internationally recognized, in particular through its research partnership with Safran, Cenaero is mainly active in the fields of aeronautical design, spacecrafts, manufacturing processes, and buildings and smart cities. Cenaero provides expertise and engineering services for high performance composites, machine learning for modeling, optimization, data mining, monitoring & control, manufacturability & multidisciplinary design for manufacturing, metallic manufacturing processes modeling, multiscale mechanics through lifetime, high resolution computational fluid dynamics, hypersonic flows and phase-changing materials, thermo-fluid processes and systems modeling, turbomachinery design, and high performance computing.

Cenaero also provides software through its massively parallel multi-physics platform Argo, its manufacturing process simulation and crack propagation platform Morfeo and its design space exploration and optimization platform Minamo. Cenaero operates a high performance computing infrastructure (14,000 computing cores, tier1.cenaero.be/en) for fundamental, applied and industrial research. Cenaero is certified against the EN 9100:2018 and ISO 9001:2015 standards.

SPECIFIC COMPETENCE

Virtual prototyping
and optimisation.

www.cetic.be**HEAD OFFICE**

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As an applied research centre in the field of ICT, CETIC's mission is to support economic development by transferring the results of the most innovative research in ICT to companies, particularly SMEs.

Thus, CETIC helps companies with the integration of technological breakthroughs in their products, processes and services, enabling them to innovate faster, save time and money and develop new markets. CETIC develops its expertise in key technical areas related to Big Data, Cloud Computing, the Internet of Things, Combinatorial Optimisation, Software Quality through model-based approaches.

These fields of expertise are combined into innovative solutions in AI, Cybersecurity and autonomous systems in application domains of primary importance to society, such as health, smart mobility, energy and industry as well as in defense and security sector.

All expertise areas are continuously improved through CETIC's active involvement in European and regional projects.

RC

CRM GROUP



www.crmgroup.be



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CRM Group is a collective research centre having as Core Members two major worldwide steel companies and as Associated Members numerous companies producing non-ferrous metals, providing services to the steel industry or promoting the use of metals.

We have been entrusted with the mission of creating value for our Members through innovation in metallic products, metallic solutions and associated production processes.

Our technical and R&D services are also available to external companies, with a special focus on services to SMEs and towards European, Belgian and regional economies.

Based on our competencies and facilities, we are developing solutions for different sectors among which Defense and we are involved in different projects with wallon industrials of the defense sector (ex Herstal group, John Cokerill Defense, Thales).

SPECIFIC COMPETENCE

Advanced manufacturing and coatings, printed and structural electronics, industry 4.0, stealth solutions.

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www.rma.ac.be
**HEAD OFFICE**

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**Environmental Mechanics
and Mobility Applications.**

The EMMA research pole focuses on the relation between mechanical devices and their environment (vibrations, acoustics, ageing, air quality, sensing) as well as on the performance, stability and technology of mobility platforms in the air, sea, and land domains whether manned or unmanned.

**Signal, Systems & Sensors,
Information & Intelligence, Communication.**

The SIC develops a high-level expertise in C4I systems. The research focuses on the processing of data recorded from a wide area of sensors (radar signals and images, optical and thermal images, navigation signals, radio signals, ...) in order to support a decision process in a contested environment.

Weapon Systems and Ballistics.

The activities of the department resolve around the evaluation of survivability of combat systems, internal, external, and terminal ballistics. The experimental work is conducted in the accredited laboratory hosting a 100m indoor shooting range.

SPECIFIC COMPETENCE

Aerodynamics.


www.multitel.be
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Multitel is an innovation centre, leading applied research and development activities for industry leaders and SMEs.

Multitel's mission is to promote innovation by providing market-driven scientific and technical support for developing, implementing and monitoring new technologies, in a variety of technological domains.

More precisely for Defense sector, activities of Multitel concern:

- prototyping of optical fibre sensors for SHM (Structural Health Monitoring), fibre lasers (for LIDAR applications), material processing (composite materials, surface texturisation) and non-destructive characterization (THz, OCT), custom optoelectronic systems.
- (speech oriented) HMI for aeronautics.
- communication systems (GCS/UAV -5G, Tactical data link L16, L22).
- certifiable navigation (DO-178, DO-254, certifiable AI).
- satellite based IoT systems.
- satellite/drone image processing (visible, IR, hyperspectral,...).
- image oriented non-destructive quality control.

SPECIFIC COMPETENCE

AI.

www.sirris.be**HEAD OFFICE**

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Sirris is the collective centre for and by the technological industry.

We offer Belgian companies three key assets to help them remain innovative: years of experience and comprehensive expertise in a wide range of industries; high-tech testing infrastructure spread across the country; and an extensive network of partners.

This way we help large and smaller players in Belgian industry make the right technological choices and achieve sustainable economic growth.

SPECIFIC COMPETENCE

Product solutions.

www.synhera.be



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SynHERA is the only office which represents applied research within the French-speaking Universities of Applied Sciences (UAS), 19, and associated Research Centres, 10, from Belgium.

To support you with your project, SynHERA draws on the scientific skills and expertise of its network. Different skill sets are available from all the categories of the Universities of Applied Sciences (agronomy, technical subject fields, economics, social, educational, paramedic studies and applied arts).

Based on your needs, SynHERA helps you finding the right research partner in our network to collaborate on your R&D projects.

SPECIFIC COMPETENCE

Technological engineering, economics, education.



www.ulb.be



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ULB is a major research player in various domains including the defense sector covering a wide range of competences and expertise :

Automation, predictive maintenance, fluid mechanics, UAVs (control, mission planning, communication ...), (cyber)security and data management, optimization and computational modelling methods of materials, signal processing for emerging digital communication systems with application for satellites, AI, IoT, model-based real-time monitoring of systems (satellites power, aircraft lubrication), life-cycle analysis, research experiments under microgravity conditions,... (Non-exhaustive list)

ULB is involved in research projects through different research programs in Belgium, collaborates with different actors of the defense sector and plays a part as a source of technological innovation.

www.uliege.be**HEAD OFFICE**

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Founded in 1817, the University of Liège (ULiège) is a major public university of the French Community of Belgium. The university proposes one of the most diversified educational offer and gathers more than 25,000 students and 3,500 lecturers and researchers.

ULiège is also a key research and economic player in Wallonia. Committed to its region, this technological leader stimulates innovation, creativity and entrepreneurship. To date, the University of Liège is at the origin of more than 140 spin-off companies and manages more than 190 intellectual property procedures and 430 active licenses and technology transfers.

ULiège offers numerous services to companies, including among others:

- access to the skills and equipment of laboratories and research centres
- support for collaborations and research partnerships
- access to secured technologies (technology transfer)
- organization of meetings-conferences and creative workshops
- access to diploma training and continuing education

www.web.umons.ac.be
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Research at UMONS is carried out by more than 900 researchers in some 100 departments within 10 research institutes.

Each institute brings together the skills of experienced researchers, post-docs and PhD students from several UMONS faculties. The strength of the UMONS Research Institutes lies in the multidisciplinary nature of their teams and the flexibility of their organisation.

At the same time, UMONS recently launched the label “UMONS Innovation Center” which highlights the close collaboration with its associated research centres, such as Materia Nova and Multitel, which are located in the Initialis Science Park of Mons. With all the spin-offs created in recent years, UMONS is actively involved in the development of its region.

UMONS is active in a wide range of scientific disciplines related to defense including, but not limited to, materials and production technology, sensors and telecommunication and artificial intelligence.

SPECIFIC COMPETENCE

UMONS is active in a wide range of other thematics that could be related to defense, including but not limited to, risk management, human and social sciences, innovative sensors, etc.

www.unamur.be
**HEAD OFFICE**

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Founded in 1831, the University of Namur today has more than 6500 students of 66 different nationalities, nearly 1300 staff members, more than 900 researchers and a R&D budget of 26 M€.

It aims to develop quality projects and is involved in multiple research networks, often interdisciplinary, at the local, regional, federal, European and international levels. Its research aims above all at excellence and maintains the necessary balance between fundamental and oriented research.

It excels in niche sectors such as in health sciences, sciences and technologies and human sciences. The research landscape includes 11 transdisciplinary research institutes, and 9 technological platforms combining state-of-the-art scientific equipment, technical know-how and recognized expertise, accessible to the scientific community as well as to companies.

The results of research have led to the filing of numerous patents, technology transfers to industry and the creation of 17 spin-offs.

SPECIFIC COMPETENCE

Health, human-machine interface, AI, security and privacy, technology, ethics & society.

VON KARMAN INSTITUTE (VKI)



www.vki.ac.be



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Chief Project
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The von Karman Institute for Fluid Dynamics (VKI) is an educational and research organisation specialized in Fluid Dynamics, in the areas of Aeronautics & Space, Environmental & Industrial Flows, and Turbomachinery & Propulsion.

VKI started in 1956 with postgraduate education to keep expertise in high speed aerodynamics in NATO countries at the highest level. For aeronautics, VKI specializes in aero-propulsion by means of turbomachinery, with advanced aero-thermal research on both compressor and turbine side.

VKI also performs research to improve the lift of aircraft wings. For space, VKI focuses on atmospheric re-entry flows and thermal protection systems. VKI is also active in cryogenic propellant management and is pioneering in electrical propulsion.

VKI has unique expertise in hypersonic aerodynamics. VKI operates more than 50 testing facilities and wind tunnels. This infrastructure allows VKI to study complex flows with speeds ranging from a few mm per second up to mach 14.

SPECIFIC COMPETENCE

Hypersonics.

COMPANIES



AIR



LAND



SEA



SPACE

ACIC

SME



ADDIPARTS

SME



AEROSPACELAB

SME



ALKAR TECHNOLOGY

SME

ANY-SHAPE

SME



BALTEAU NDT

SME



BASE DE BARONVILLE

SME



BREUER TECHNICAL DEVELOPMENT (BTD)

SME



CARAT DUCHATELET

GE



100

CASTINGPAR

SME



CITIUS ENGINEERING

SME



DECUBE GROUP

GE



DINEC ASSEMBLY BY HTS

SME



DYNALI

SME



ELIOSYS

SME



EUROMULTITEL

SME



EUROPEAN METROLOGY SYSTEMS (EMS)

SME



FN HERSTAL

GE



FREE FIELD TECHNOLOGIES

SME



GDTECH

SME



	UNMANNED INTELLIGENT AUTONOMOUS SYSTEMS (UIAS)	INFO. PROCESSING DATA MANAGEMENT COMMUNICATION EMB. INTELLIGENT SYSTEMS	MUNITION, EFFECTORS & INTEGRATION	MATERIALS & STRUCTURES	LIFE CYCLE SUPPORT & SERVICES	OTHER SPECIFIC COMPETENCE (SEE COMPANY PAGE)
	✓	✓				✓
				✓		✓
		✓				
				✓		
	✓		✓	✓		✓
					✓	✓
			✓	✓		✓
						✓
						✓
			✓	✓		
				✓		✓
	✓			✓		
				✓	✓	
	✓	✓		✓		✓
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	✓	✓	✓	✓	✓	
				✓	✓	✓
	✓		✓	✓		✓

COMPANIES



AIR



LAND



SEA



SPACE

GENITEK ENGINEERING

SME



GROUPEMECA (VANHULEN)

GE



HEXCEL COMPOSITES

GE



ID2MOVE

OTHER



INNOVATICE COATING SOLUTIONS (ICS)

GE



ISOMATEX

SME



IT-OPTICS

SME



JDC INNOVATION

SME



JOHN COCKERILL

GE



LAMBDA-X

SME



LGM BELGIUM

SME



MEBF

SME



MECAR

GE



MECASOFT

SME



MOCKEL

SME



MPP

SME



NSILITION

SME



NUMFLO

SME



OPEN ENGINEERING

SME



PATRIA BELGIUM ENGINE CENTER

GE



	UNMANNED INTELLIGENT AUTONOMOUS SYSTEMS (UIAS)	INFO. PROCESSING DATA MANAGEMENT COMMUNICATION EMB. INTELLIGENT SYSTEMS	MUNITION, EFFECTORS & INTEGRATION	MATERIALS & STRUCTURES	LIFE CYCLE SUPPORT & SERVICES	OTHER SPECIFIC COMPETENCE (SEE COMPANY PAGE)
		✓			✓	
			✓	✓	✓	
				✓		
	✓					
			✓			
		✓		✓	✓	
	✓	✓	✓	✓		
	✓	✓	✓	✓	✓	
						✓
	✓	✓	✓		✓	
			✓	✓		
			✓			
			✓			
				✓		
				✓	✓	
		✓				✓
	✓		✓			
	✓			✓		✓
					✓	✓

COMPANIES



AIR



LAND



SEA



SPACE

PB CLERMONT-EURENCO

SME



PIRON PRÉCISION COATINGS

SME



Q-SQUARE AEROSPACE

SME



RHEA SYSTEM

MIDCAP



SABCA

GE



SABENA ENGINEERING SA

SME



SAFRAN AERO-BOOSTERS

GE



SAGITA

SME



SCOUP

SME



SENSY SA

SME



SHUR-LOK INTERNATIONAL

GE



SIEMENS (SAMTECH)

GE



SKYANGELS

SME



SOBELCOMP

SME



SONACA

GE



TECHNICAL AIRBORNE COMPONENTS

SME



TELESPAPIO BELGIUM

GE



THALES BELGIUM

GE



V2I

SME



X-RIS

SME

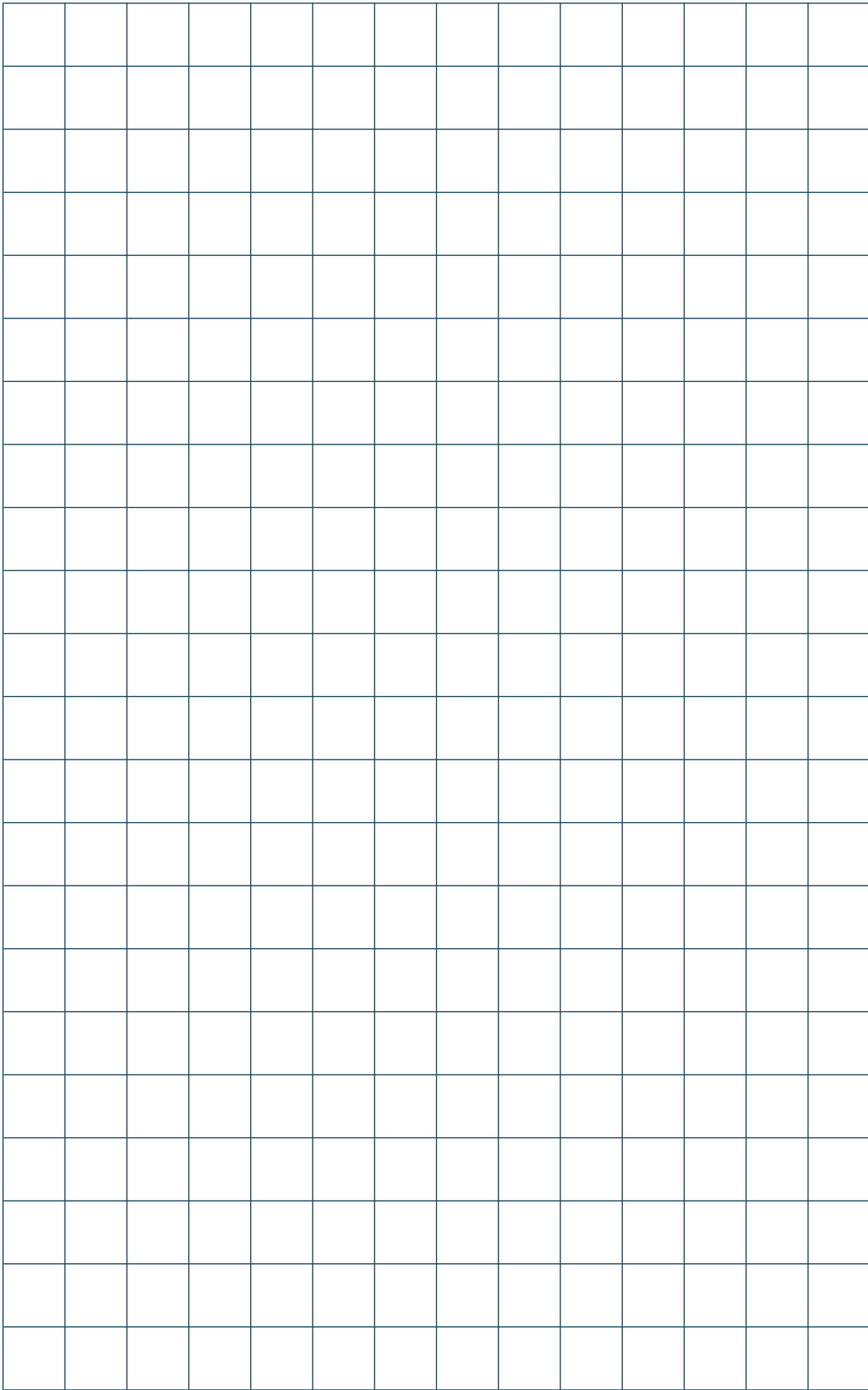


	UNMANNED INTELLIGENT AUTONOMOUS SYSTEMS (UIAS)	INFO. PROCESSING DATA MANAGEMENT COMMUNICATION EMB. INTELLIGENT SYSTEMS	MUNITION, EFFECTORS & INTEGRATION	MATERIALS & STRUCTURES	LIFE CYCLE SUPPORT & SERVICES	OTHER SPECIFIC COMPETENCE (SEE COMPANY PAGE)
				✓	✓	
	✓	✓	✓	✓	✓	
					✓	
	✓	✓			✓	✓
	✓		✓	✓	✓	
			✓	✓	✓	
				✓	✓	✓
	✓					
	✓			✓		✓
	✓	✓		✓	✓	
				✓		✓
				✓		✓
	✓	✓				✓
				✓		
	✓			✓	✓	✓
				✓		
	✓	✓	✓		✓	✓
	✓	✓	✓	✓	✓	
	✓		✓	✓	✓	✓

RESEARCH CENTERS & UNIVERSITIES

		 AIR	 LAND	 SEA	 SPACE
CENAERO	RC	✓			✓
CETIC	RC	✓	✓	✓	✓
CRM GROUP	RC	✓	✓	✓	✓
ERM	UNIV	✓	✓	✓	✓
MULTITEL	RC	✓	✓	✓	✓
SIRRIS	RC	✓	✓		✓
SYNHERA	UAS				
ULB	UNIV	✓	✓		✓
ULIÈGE	UNIV	✓	✓	✓	✓
UMONS	UNIV	✓	✓	✓	✓
UNAMUR	UNIV				✓
VKI - VON KARMAN INSTITUTE	RC	✓		✓	✓

UNMANNED INTELLIGENT AUTONOMOUS SYSTEMS (UIAS)	INFO. PROCESSING DATA MANAGEMENT COMMUNICATION EMB. INTELLIGENT SYSTEMS	MUNITION, EFFECTORS & INTEGRATION	MATERIALS & STRUCTURES	LIFE CYCLE SUPPORT & SERVICES	OTHER SPECIFIC COMPETENCE (SEE COMPANY PAGE)
			✓	✓	✓
✓	✓			✓	
	✓	✓	✓		✓
✓	✓	✓	✓		✓
✓	✓		✓		✓
		✓	✓	✓	✓
✓	✓		✓	✓	✓
✓	✓		✓	✓	
✓	✓		✓	✓	
✓	✓		✓		✓
✓	✓		✓		✓
✓					✓





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COVER BACKGROUND
Outer Space by Daniel Olah

COVER IMAGES
FN Herstal, Safran, John Cockerill, Lockheed Martin, Airbus Helicopters