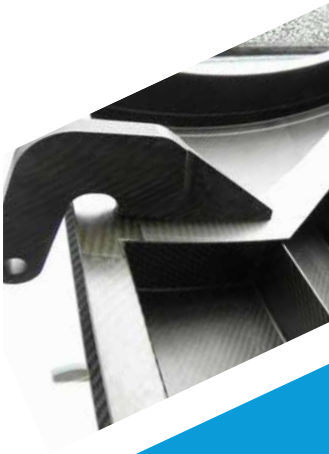
Skywin

Aerospace cluster of Wallonia



2017-18
MEMBERS DIRECTORY
AERONAUTICS

BELGIAN AEROSPACE

SKYWIN IN A NUTSHELL...

The Belgian aerospace cluster "Skywin Wallonie" is a group of companies, training centers and research units engaged in a public and private partnership and building synergies around common and innovative projects in the Walloon region of Belgium.

Skywin represents some 7.000 direct jobs and more than € 1,6 billion in revenue, exporting 90% of its products.

Skywin counts more than 150 members among which one finds more than 90 SME's: a proof that Wallonia is a dense and rich playground for innovation!

As a competitiveness cluster, Skywin's objective is to foster and promote the technological advance of Walloon aerospace companies and therefore supply competitive products and services, which are the mainstay of business development.

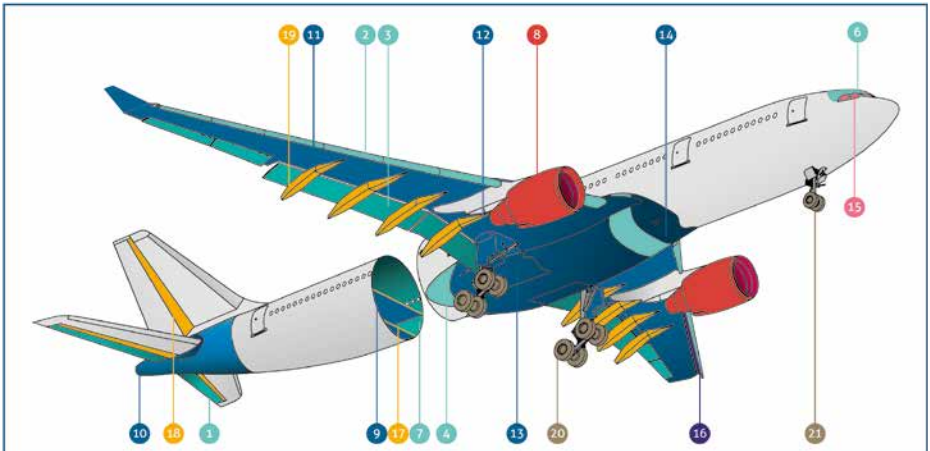
Since the redefinition of its strategy, the priorities and strategic orientations of Skywin were updated as follows:

- Composite materials and processes
- Metallic materials and processes (including Additive Manufacturing process)
- Embedded systems (for airplanes, satellites or drones)
- Airport services
- Space or drone applications and systems
- Modeling and simulation (as transverse orientation)

At the end of 2016, Skywin was managing 72 R&D, Investment or Training projects. These projects totalize about 300 contributions from innovation actors in Wallonia, led by Industry (with a strong involvement of our SME's).

The total budget of those projects is nearly 225 M€.

The Walloon Aeronautics Industry (1350 M€, 5500 employees) is mainly focused on Aircraft Engines and Structure, Equipment, Simulation and Training.



Disclaimer: this picture is illustrative of the main Walloon contributions to a typical civil aircraft program. Therefore, it is not an comprehensive list.

MAIN COMPONENTS

Sonaca
Leading edges, slats flaps & tracks
1 2 3

Composite fuselage parts
4 5 6

Fuselage frames and beams
7

SAFRAN Aero Boosters
Engine boosters
Lubrification groups
8

SABCA
Cabin floor, Wing box
Tail cone, main gear doors
9 10 11 12 13 14

Thales Belgium
Cockpit communication systems
15

Technical Airborne Components

Bodair
Carbon fiber rods
16

Hexcel
Honeycomb sandwich panels
17 18 19

Bridgestone Aircraft Tire
Rechapping wheels
20 21

INDUSTRIAL PARTICIPATIONS

METALLIC COMPONENTS

Britte-Mustad
High precision components

Capaul
High precision machining for engine components

Dumoulin aero
Machining of metallic components

Mecasoft
High precision components, electro-erosion

Mockel
High precision components

Precimetal
Metallic components

Shur-Lok
Fasteners, nuts & fittings

Vanhulen
Springs

AMI Metals Europe
Aluminium plate & sheets

Consolidated Precision Products
Metallic complex components

Doncaster Settas
Titanium components

SURFACE TREATMENTS, COATINGS

Advanced coatings

La Nitruration Moderne

Lescav Aero

COMPOSITES AND PLASTIC COMPONENTS

Coexpair
Engineering, equipments and tools

Sobelcomp
Composites parts

JDC Innovation
Composites parts

Feronyl
Plastic injected components, composite materials

Isomatex
Enhanced volcanic rock filaments

Nanocyl
Carbon nanotubes, epoxy resins

The Walloon Space Industry (250M€, 1500 employees) is mainly focused on Equipment for satellite payload and launcher, System exploitation and Space applications.

TABLE OF CONTENTS

AERONAUTICAL INDUSTRY

ACTE

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info@acte-sa.be | www.acte-sa.be

As a company acting for waste heat recovery, ACTE designs and manufactures innovative heat exchangers dedicated to waste heat recovery from micro-gas turbines and industrial applications including energy production units and vehicles.

Thanks to its unique arrangement of modular ring-shaped components and a specific primary surface profile, ACTE heat exchange technology is flexible and fits with a wide range of applications and processes with a specific focus on lightweight and compactness.

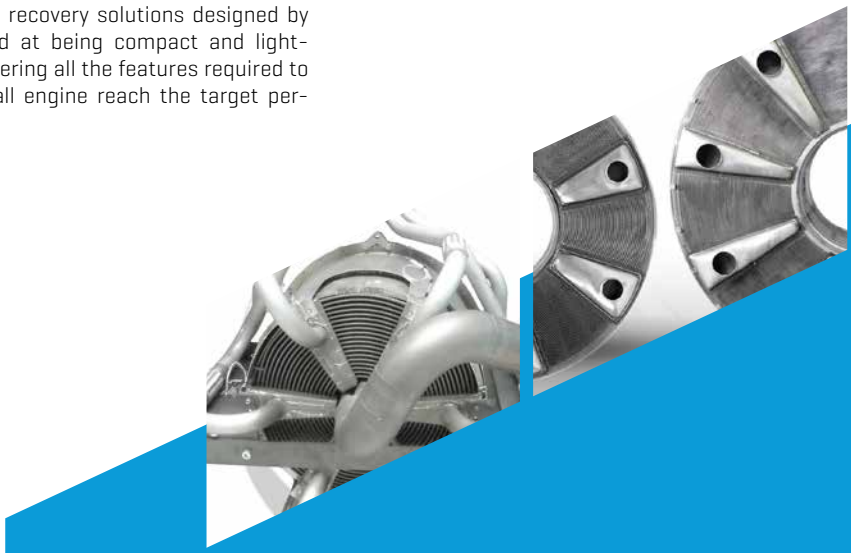
ACTE S.A. leverages more than 15 years of experience in high performance gas-gas heat exchangers, mainly used as heat recuperators on turbine engines. ACTE is therefore able to deal with primary surface heat exchangers in extreme environments: high power densities, large range of mass flows, thermal shocks, creep and thermal fatigue, combustion gases, etc.

The waste heat recovery solutions designed by ACTE are aimed at being compact and lightweight while offering all the features required to make the overall engine reach the target performances.

In order to respond to each customer needs, ACTE answers several ways:

- Standardized solution supply
- Adaptation from ACTE standard products
- Full development
- Prototype to mass manufacturing

ACTE also offers service related to the whole spectrum of heat transfer.



ADDIPARTS

Zoning Industriel de Jumet | Allée Centrale 68 | 6040 Jumet | BELGIUM
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c.demoulin@addiparts.com | www.addiparts.com

Additive Manufacturing Services for the Industry
ADDIPARTS is a service company specialized in industrial applications of Additive Manufacturing.

AM requiring new approaches to design, we guide our customers to the best technology and material for their need and then provide rapid prototyping and digital manufacturing services, pushing away limits to what they create.

ADDIPARTS consulting services and solutions accelerate the design and validation process as well as the industrialization and production of new products, improving time to market and competitiveness.

ADDIPARTS professional performances allow customers to meet their development and production deadlines, as well as to reduce their costs and risks.

ADDIPARTS works with customers to define the right AM technology and material for the right application.

ADDIPARTS designs and prints complex parts, per unit or in small batches, using high performance industrial thermoplastic materials.

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.

ADVANCED COATING

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info@advanced-coating.com | www.advanced-coating.com

Advanced Coating is a reference in thermal spray coating technology, as well as in flat and cylindrical grinding, super finishing and balancing of technical parts of any dimensions.
Advanced Coating is an optimally sized, customer-oriented company with the skills to provide its customers high added value. Quality, reliability and flexibility are the watchwords of our family company who can meet the tightest design, development and manufacturing deadlines on the market.

Products

- Advanced thermal sprayed coatings (metals, alloys, abradables, ceramics and carbides) onto mechanical components up to Ø2000x6000 mm

- Main properties:
  - wear resistance (abrasion, erosion, fretting)
  - abradable
  - thermal barrier
  - high temperature corrosion resistance
  - electric insulation
  - power conductivity...

Capabilities

- Automated sandblasting up to Ø2000x5700 mm
- Cylindrical grinding up to Ø1524x5700 mm
- Modern thermal spraying processes including Plasma, HVOF, HVAF and Cold Spraying
- CN cylindrical grinding up to Ø350x1000 mm
- Super finishing up to 0,01 µm Ra
- Flat grinding up to 4000x500 mm
- Balancing up to Ø1000x5700 mm and 3,5 T

Certifications

- EN 9100:2009
- NADCAP Coatings
- ISO 9001:2008
- Qualified as test laboratory for Safran Group (Metallography)
- ISO 14001:2004

Main References

- References of intermediate and final customers: SAFRAN Group (SNECMA, TECHSPACE AERO) – GENERAL ELECTRIC
- Working of following programs: LEAP - GP7200 - CFM 56 – SILVERCREST – TP400

AEROFLEET

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Aerofleet is specialized in High-Tech composites.

Nowadays we produce all kinds of high technical quality prepreg parts under vacuum and in autoclave.

Composite materials, using prepreg materials offer technical and environmental qualities.

Among other realizations, our company has built the domes for the Very Large Telescope, developed for ESO on the site of Cerra Paranal (Chile), the nozzles and the fairings for the A380 Airbus, weapon protection for the "FN"...

AIRCRAFT TRADERS BELGIUM S.A.

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info@atbelgium.com | www.atbelgium.com

AIRCRAFT TRADERS BELGIUM AIRCRAFT DEPARTMENT will subject your needs to the most meticulous analysis so as to determine the type of aircraft best suited to your needs. We will take into account anticipated usage and expected workload, as well, of course, as your budgetary goals. We will study the market's potential to satisfy the body of your personal or corporate needs, in budgetary and technical matters. With AIRCRAFT TRADERS BELGIUM, you sidestep the tedious burden of shopping, and armed with judiciously and professionally targeted data, you will be afforded the opportunity to make a clear-headed decision. Our own fleet available immediately for lease consists of DC9's, B727's and B737's freighters.

AIRCRAFT TRADERS BELGIUM UAV DEPARTMENT is manufacturing the most performant UAV on the market able to fly 6 to 7 hours powered by an electrical engine fed by Li-Ion batteries and solar cells. The automatic pilot AIRELECTRONICS is controlled by radios and 3G/4G telemetry communication system. Life images are sent by Streambox Avenir Drone 3G/4G/Lte router to the ground station via internet. Treatments of images can be executed during the flights by a powerful computer on board.

AKKA BENELUX

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AKKA Technologies is an international Group with 12.200 employees working in Europe, America and Asia. It experts serve in the field of innovation, assisting large manufacturing and tertiary services companies in the full range of their innovation processes and in the lifecycle of their products, from initial studies to the start of large-scale production.

For over 30 years, AKKA Technologies develops its global aeronautical offer: from manufacturer design offices to operators, including OEMs, airlines owners and lessors. This tailored support at every stage of projects can be provided in the form of Technical Assistance of Work Packages, thanks to our international footprint.

AKKA Belgium, with its 800 experts is the leader in industrial engineering consulting in Belgium. Our engineers work our Engineering Center or directly at our clients' sites (Safran Aero Boosters, Sonaca, Asco, Sabca, Safran Aircraft Engine Services Brussels...).

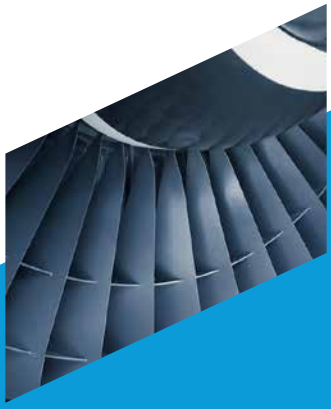
Our high-added value solutions to cover the whole project life cycle and to meet future issues:

- Cockpit ergonomics
- Embedded Software
- System conception and integration & installation: hydro-electric, avionic...
- Aerostructure: metal, composite, static calculation, stress/non linear, cinematic
- Flight physics and aerodynamics
- Power plant
- Aircraft modifications
- Software development
- 3d tools: virtual maintenance, digital mockup, viewer 3d real time...
- Flight ops and maintenance
- Ground/flight tests
- Technical publications maintenance, service bulletin, electrical schematics...

Certifications

For TC or modifications, upgrades & new developments, STC (avionics, cabin, conversion, external liveries) EASA Part 21 DOA & POA and GCAA DOA certificates

As a specialist in engineering and technologies, AKKA Technologies also developed expertise in other sectors such as automotive, space/defense, pharmaceuticals, energy, telecommunications, railway, chemicals, etc.



AMI METALS EUROPE

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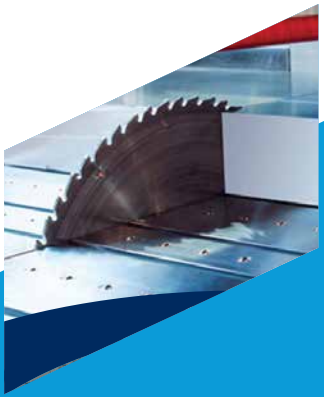
cgoffin@amimetals.com | www.amimetals.com

AMI Metals is the industry's leading provider of aerospace aluminium products. Our vast inventory of s heet, Plate, Rod, Bar and Extruded Products enable us to support all of your raw material needs, delivering the highest quality at the best value. This means with AMI Metals, you get a supplier who can respond quickly to any demand, including large order quantities, irregular sizes, oversize material and Just in Time deliveries.

Sheet and Plate
- Just-In-Time Deliveries
- Cut-To-Shape
- Demand Aggregation Nesting
- Angle cut-Wing spar
- Trapezoid shapes
- Buikhead Nests

Firsr Operation Machining Services
- Long Part Machining Preparation
- Small Part Machining Preparation
- Close Tolerance Holes
- Tooling Holes
- Drill and Tap
- Counter-Bores
- Profile Shapes

References and/or Certifications
- Airbus
- Boeing
- Fokker
- Embraer
- Bell Helicopter
- Bombardier
- Cessna
- GKN Aerospace
- Goodrich
- Lockheed
- Gulfstream



Any-Shape
additive technologies for industry

ANY-SHAPE

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info@any-shape.com | www.any-shape.com

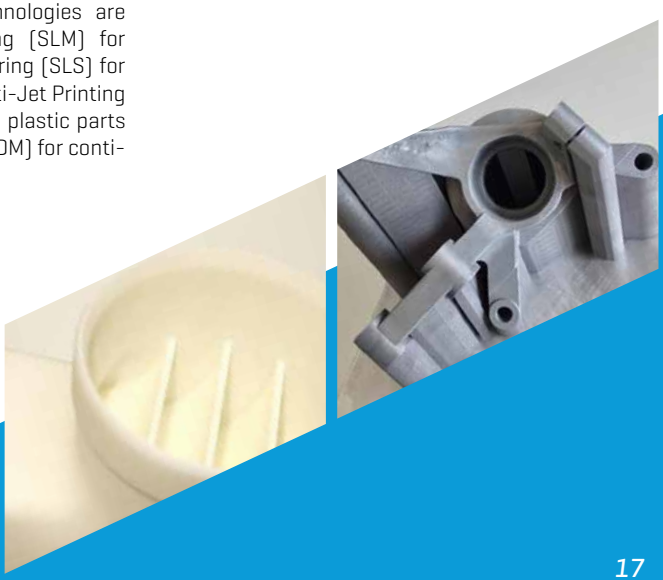
Any-Shape is a leading company dedicated to Additive Technologies (3D Printing) for Industry with state-of-the-art equipments for the production of plastic, composites and metal functional parts. Any-Shape provides its customers with services in the whole Additive Manufacturing (AM) value chain, with a specific focus on engineering for AM, high standard production and quality assessment.

Any-Shape competitive assets are based on three main pillars:

- **Engineering, co-conception & design for additive manufacturing:** Any-Shape provides its customers with a professional support to exploit the full possibilities of industrial 3D printing while properly accounting for manufacturing constraints from the concept to the detailed design phase.

- **Metal, plastic and composites parts serial production:** Any-Shape manufactures high value functional for highly competitive industries. Consistent state-of-the-art technologies are available: Selective Laser Melting (SLM) for metal parts, Selective Laser Sintering (SLS) for (reinforced)-polyamide parts, Multi-Jet Printing (MJP) for high-definition ABS-like plastic parts and Fused Deposition Modeling (FDM) for continuous fibers composites parts.

- **Quality assessment:** Providing our customers with the best quality standards is our main concern as a way to favor the rapid introduction of 3D printed parts in highly demanding industrial applications. Each part is referenced and traceable in our quality management system (EN9100). Detailed on-line and a posteriori process control is performed in parallel to rigorous part quality assessment.



BALTEAU NDT

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balteau@balteau-ndt.com | www.balteau.com

BALTEAU NDT is an NDT manufacturer specialized in X-Ray solutions designed for the quality control of industrial products since 1932. Balteau NDT is involved in various industries and has been deeply involved in the aeronautic industry for decades, with portable equipment and Real Time System.

Understanding new requirements is very important for Balteau as we are always looking to answer your needs with the best solutions. Balteau has evolved into digital applications and developed products such as software suite, calibration tools, etc. that are specifically designed for the aeronautic industry.

Balteau is involved is most industries by having portable units, stationary & mobile equipment, real time systems (standard and customized), NDT software, digital imaging, etc.

Balteau is one of the most experienced and complete x-ray solutions manufacturer and we are delivering high quality and highly reliable x-ray equipment since 1932.

After sales service is very important and this is why we worked hard to offer one of the best service possible. Thanks to a worldwide network, we are able to be responsive, offer a fast delivery and allow every user to have fast maintenance and / or repairs in case the equipment needs it.

Highly qualified engineers, a customer orientated staff and an extensive network is one of the main reasons to the success of our brand and to your possibility of always getting service, maintenance and a qualified and professional support.

BarcoSilex

BARCO SILEX

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Barco Silex, your partner for DO-254 ASIC and FPGA design services

SILEX, Barco's center of competence for FPGA and ASIC design, has established a solid reputation in the development of DO-254 certifiable hardware designs. We design for different Design Assurance Levels from DAL-D till DAL-A. These FPGAs and ASICs are used in equipments that have been ETSO and TSO certified.

Starting from your upper level requirements, we provide all services needed to create the necessary hardware design life cycle data according to a DO-254 requirements process. Thanks to our broad suite of development and verification tools as well as our long-standing expertise and strong relationships with ASIC and FPGA providers, our services are valued by industry leading professionals worldwide.

Do-254 competences: Specific plans like HPAP, HCMP, HDP, HVVP and PHAC are developed.

All documents and their content, generated during the design life cycle process, are defined by means of templates.

Tool qualification effort is limited by using different types of tools from numerous EDA vendors. Validation and verification is maximally performed at component (ASIC or FPGA) level.

Quality assurance is guaranteed by independency of reviews, audits and processes.

Currently, DO-254 is mainly used in the civil aeronautics market. However, since this recommendation targets the quality and safety aspects of a hardware design life cycle process, our expertise is strongly appreciated by other markets where safety or quality (and maintainability) is mandatory like: Medical, Automotive, Aerospace and Railroad market.

BELGIUM ENGINE CENTER

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jean-pierre.eggen@bec.eu.com | www.bec.eu.com

Belgium Engine Center (BEC) is a one-stop shop for Maintenance, Repair and Overhaul services, serving both commercial and military fleets around the world.
We provide a complete, single MRO solution through a wide range of in-house repair capabilities, customizable according to our customer's needs. Our spare parts provisioning and trading offer shorter lead times and off-the-shelf readiness while our engineering and logistics services are targeted to reduce overall cost for our clients.
BEC has served as an MRO Center of Excellence for the F100-PW for over four decades, currently supporting more than 15 air forces.

Summary of services

Versatile and complete MRO solution
Our comprehensive in-house capabilities (NDT/NDI, Item Repairs, Module Overhaul) provide our customers with a complete, single MRO solution resulting in competitive pricing and turn time, eliminating the need to rely on a dispersed repair network.

Extensive choice of Non Destructive Testing & Inspections
BEC is an ideal local partner for NDI/NDT requirements.

Modern portfolio of repair capabilities
BEC not only restores a wide range of components in-house, but our engineering team offers custom repair processes and services according to customer's needs.

Efficient spare parts provisioning & trading
Our close collaboration with the OEM, leading to shorter lead times in hardware procurement, is complemented with our ability to offer an attractive off-the-shelf availability of new and serviceable parts.

Smart selection of engineering & logistics services
As a reliable and knowledgeable partner, we provide custom services that aim to lower customers' overhead cost, such as material forecasting, configuration management, technical support and warehouse services.

Liège, a competitive logistics hub
Located in the heart of Europe, only a few miles from a major cargo airport, BEC leverages this highly industrialized area with an excellent infrastructure to offer more efficient transit time and lower logistics costs for our customers.

BODAIR

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info@bodair.com | www.bodair.com

BODAIR SA is active in the development, design and production of carbon fiber rods, struts, tubes and shafts.

- As a result of the R&D conducted by BODAIR, new technologies in carbon fiber rods, struts and shafts are emerging.
- BODAIR is eager to offer high quality rods and advanced designs allowing significant weight savings that largely exceed the current designs & mechanical performance of aluminum and/or stainless steel rods, struts and shafts.
- Thanks to the combination of a completely new manufacturing process with a new carbon fiber design, BODAIR has acquired a unique competitive advantage over traditional technology & design.

BODAIR uses the pre-impregnated carbon fiber filament winding technology.

- This technology will allow maximum control of the process and guarantees porosity levels that are significantly lower than the traditional RTM processes. It also ensures maximal repeatability and consistency in overall product quality.
- BODAIR uses patented production methodologies and designs enabling the production of parts which previously were not possible to manufacture.

BODAIR's design makes it possible to integrate metallic inserts and flanges with a carbon fiber tube without using any glue or sealant. These metallic parts are positioned during the filament winding process and are consequently an integral part of the final product.

- Rods with adjustable ends feature one or two inserts in stainless steel, aluminum, titanium or HR polymers with a thread.
- Struts with fork type ends
- Shafts with metallic flanges at both ends will transfer high torque loads.

References and/or Certifications

ISO 9001 and EN 9100

BRIDGESTONE AIRCRAFT TIRE EUROPE S.A.

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sales@bridgestone-bae.com
www.bridgestone.com/products/speciality_tires/aircraft

Bridgestone Corporation, with headquarters in Tokyo, is the world's largest tire and rubber company. With passion for excellence and creative pioneering, Bridgestone Aircraft Tire Europe S.A. serves the commercial aviation industry with the highest quality aircraft tires, providing its customers and worldwide passengers with superior safety and reliability.
Located in Belgium, with a state of the art retreading plant, Bridgestone Aircraft Tire Europe S.A. supplies new and retread tires in the EMEA Region to more than 160 airlines and wheelshops.

Aircraft tires work under extreme conditions, carrying up to 35 tons per tire and accelerating up to 380km/hour at takeoff, in addition to enduring varied environmental stress when in flight and taxiing.

With more than 80 years of experience and insistence on quality in aircraft tire manufacturing, Bridgestone ensures that its aircraft tires remain one of the most trusted brands in the aviation industry.

References and/or Certifications

- Federal Aviation Administration (FAA)
- European Aviation Safety Agency (EASA)
- Certified EN 9110, ISO 9001, OHSAS 18001, ISO 14001

Britte PRECISION ENGINEERING certified EN ISO 9100
MUSTAD certified ISO 9001
A member of Mustad United Group founded in 1832

BRITTE-MUSTAD

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gsa@britte.be | www.britte.be

Britte-Mustad: "Customers satisfaction first!"

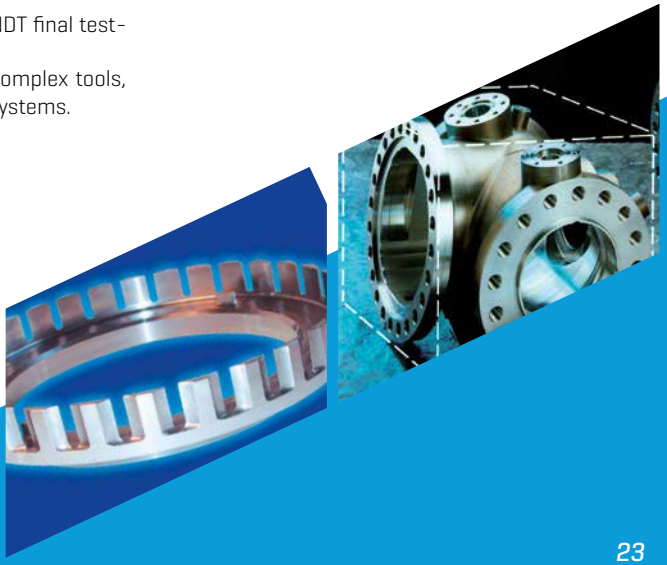
"Britte Mustad" belongs to the mechanical division of the family group MUSTAD INTERNATIONAL GROUP founded in Norway in 1832. This Family Group has built his reputation on the Quality of their products, their diversified and industrial strategy, but also on the respect of their commitments.

Since 1980, Britte-Mustad has built an important expertise in the Aircraft and Space industries by machining various components and sub-assemblies for a large variety of engines.

Britte Mustad's core business is:

- to machine high precision mechanical components in all existing materials including composite, super alloys... by various machining technologies like milling, turning, grinding, EDM, etc. With 32 different technologies inside, Britte-Mustad can manufacture in series high added value products with competitive prices and short delivery time.
- to produce assemblies including NDT final testing for all industrial sectors.
- to design and manufacture very complex tools, including measuring and control systems.

Britte-Mustad is also active in other sectors like Defense, Spatial, Energy, Medical, Transportation, and Machinery Construction.



BRUSSELS SOUTH CHARLEROI AIRPORT

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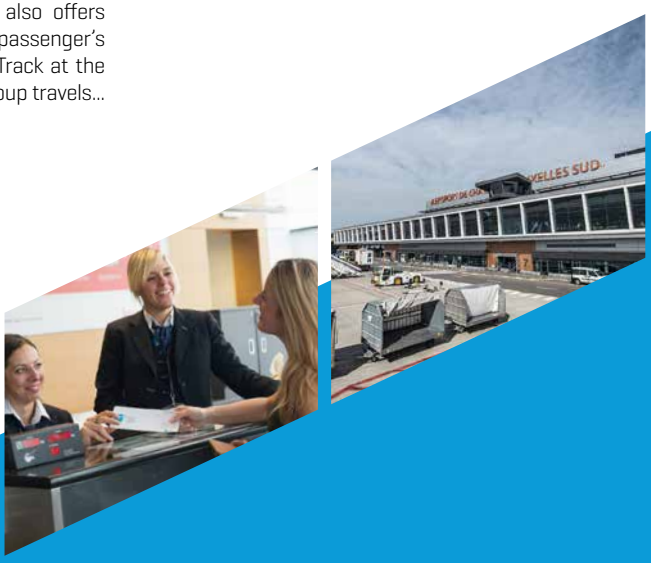
Brussels South Charleroi Airport is Belgium's second international airport, situated in Gosselies. The airport is situated at approximately 40-minutes-drive from Brussels. The operations at Charleroi Airport started in 1919 but grew significantly in the 90's.By the end of the 90's and with the arrival of the Irih low-cost carrier, Ryanair, the expansion of the airport started and keeps on going currently. Today, the airport welcomes the passengers of six airlines, i.e. Wizz Air, TUI fly, Pegasus Airlines, Ryanair, Belavia and Air Corsica.

More than 7 Moi passengers travel every year through Brussels South Charleroi Airport for its accessibility, low-fares and its stress-free environment.

3rd most punctual airport (OAG Punctuality League 2016) Brussels South Charleroi Airport is the second most punctual airport in the world (OAG Punctuality League 2014) and has been awarded several times for the quality of its infrastructure.

Brussels South Charleroi Airport offers a wide range of destinations worldwide. Passengers can choose among more than 180 destinations in Europe, North Africa and the Middle-East.

In addition to its destinations, BSCA also offers tailor-made services to make every passenger's journey more enjoyable such as: Fast-Track at the security, premium passes, All in 1 for group travels...



CAPAUL

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info@capaul.be | www.capaul.be

Capaul - High quality service - Uncompromising precision - Excellent delivery performance. Highly qualified workforce as well as the flexibility of a medium-sized enterprise are the keys of the success of Capaul.

Capaul masters the complete metal-cutting manufacturing of mechanical components and complex subassemblies: modules for aircraft engine - Subassemblies for complex medical equipment - complete installations from the procurement of raw material to the finished product.

Capaul offers high-precision CNC machining and 5-axis simultaneous machining till diameter 1250mm x 1000mm in a 1500m² fully air-conditioned hall. It facilitates to manufacture parts with the highest precision at a constant temperature of 20°C and to control these parts on one of the high-precision 3D-Measuring machines.

Products and fields of application

A modern plant can offer the following capabilities:

- CNC turning on 2 to 5 axis Turn-Mill Centers up to Ø 1250 mm
- 3, 4 & 5 axis machining (pallet & pendular machining) up to 1250x1000x1000 mm
- Machining of big sized work pieces up to 3000x6000x1300 mm
- Hydrostatic vertical turning up to Ø 3000 mm
- Machining on Horizontal Centers (pallet machining) up to 500x500x500 mm
- Hard Turning in air-conditioned environment
- EDM machining
- Complete integration of subassemblies (CFM56)

Main References:

- Certified: EN 9100:2009 + ISO 9001:2008
- References of intermediate and final customers: AIRBUS – BOING – GENERAL ELECTRICS – EMBRAER - SAFRAN Group (TECHSPACE_AERO)– ASCO – SONACA –SABCA – TECHNICAL AIRBONE COMPONENTS
- Working of following programs: CFM56 - Leap - CF34 - A330/340 - A400M - A380 - Embraer E2- F7XC GE90 - GP7000 - TP400

CEGELEC INFRA TECHNICS S.A.

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christian.delrez@cegelec.com | www.cegelec.be

Cegelec Infra Technics is one of the leaders in the sector of technological service for private and public companies.

The Business Unit Industrial Measure & Control Systems (IMCS) has developed expertise in the domains of:

- Automation and Process Control
- Communication and Hard Real Time Software
- Measurement and Control
- Functional Safety
- Global Support Package
- Cyber Security Assessment of Industrial Control Systems

IMCS is used to provide services in the aeronautic and space domains since more than 40 years.

Measurement and Control Systems

The **MCS2000** is a decentralized measurement and control system:

- open system, always evolving to meet the customer needs and to integrate technological evolutions
- operating on multiple hardware and software platforms
- broad range of interfaces (standard and customized, high speed acquisition, industrial and specialized interfaces...)
- hardware-in-the-loop (HIL) simulation
- easy to use and intuitive configuration and programming software

Amongst the numerous deployment of **MCS2000**, these are the most significant and recent ones:

- SABCA in Brussels (Belgium)
  - several generic test benches provided in the frame of the Aircraft System Validation Rig (ASVR) project, to develop and qualify the Electro Hydrostatic Module (EHM) within the framework of the Power Optimised Aircraft (POA) programme
  - several test benches (100 logical and analog inputs/outputs, 1553 specialized interface) provided for the development and qualification of the various actuators of Vega launcher
  - upgrade of a Vega test bench for use in acceptance/qualification tests on the IXV FpCS subsystem
- DLR in Lampoldshausen (Germany)
  - Installation of a high performance test bed (2000 logical and analog inputs/outputs, high speed analog acquisition and storage of up to 5,000,000 samples per second, multi-user programming software) to test the evolutions of the Vulcain engine
- Snecma (Safran group) in Vernon (France)
  - Installation (in progress) of a test bench, similar to the one provided to DLR, used for the qualification of the Vulcain engine

CISSOID

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sales@cissoid.com | www.cissoid.com

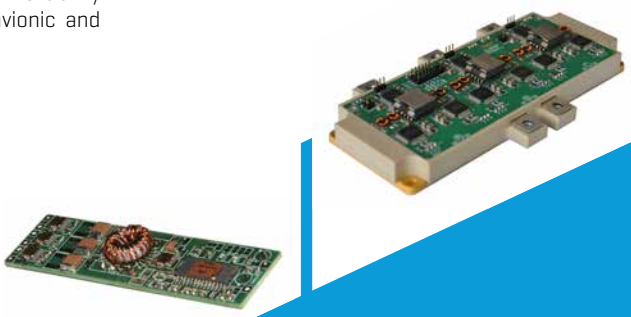
CISSOID is the leader in high temperature semiconductors, delivering integrated circuits and custom electronic modules for power management, power conversion and signal conditioning. CISSOID components reliability outperforms the one of traditional electronic components; they enable energy, weight and cost savings in lighter and more compact electronic systems.

CISSOID provides high reliability electronic components and custom module solutions guaranteed from -55°C to +225°C:

- For Motor Drives and Power Converters: Gate Drivers, Power Modules, SiC MOSFET Intelligent Power Modules;
- For Power Supplies: Linear Regulators, DC-DC Converters, PWM Controllers, Drivers, Power Transistors (Si & SiC);
- For Timing, Digital and Signal Processing: Oscillators, Timers, Logic, Amplifiers, Comparators, Analog-to-Digital Converters;

High temperature capabilities translate into outstanding lifetime: with CISSOID products, mission-critical systems and high-reliability electronics can now effectively achieve lifetime in the order of hundreds of thousand hours of operation at 125°C, which hits the most recent reliability requirements coming from leading avionic and aerospace players.

CISSOID Silicon Carbide (SiC) power modules and gate drivers solutions enables gains in power density thanks to lower cooling requirements and lower losses. This leads to lighter and more compact power converters and electromechanical actuators for the More Electric Aircraft. CISSOID already supplies leaders in aeronautic and aerospace markets such as SAFRAN, THALES and NASA.



CITIUS ENGINEERING

Liège Science Park | Rue Louis Plescia 7 | 4102 Seraing | BELGIUM
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info@citius-engineering.com | www.citius-engineering.com

Citius is an engineering company specializing in design and realization of turnkey solutions for industrial facilities in production and testing. Its engineering office offers key competences in mechatronics, mechanical and electrical engineering as well as in automation.

Citius operates along three axes:

- Advanced production systems, robots and vision. Citius develops and integrates 'turnkey' production means, from defining the need to final implementation. Citius also sets up complete solutions for handling industrial processes, thanks to its skills in automation, robotics, electricity, industrial computing and instrumentation.
- Testing solutions. Citius develops specific solutions for testing equipment, provides its customers with own integrated testing facilities, and proposes complete solutions of testing means based on its specialized skills in the instrumentation sector.
- Engineering and consultancy based on recognized competences in the field of mechanical design, piping and structures, energies and technical project management.

Citius ensures the development of complete systems, from the early beginning by defining concepts, to the full development of the solution, as well as the commissioning and start-up of dedicated applications. Its works cover all aspects of a project:

- Design and studies of concepts and detailed solutions
- Selection and integration of on-the-shelf components and systems
- Planning and follow-up of installations, site management, coordination of work forces, reporting to clients
- Testing, commissioning, start-up
- Quality aspects, procedures, regulation, security
- Budgetary follow-up and reporting
- Risks management

Founded in 2009, Citius Engineering is based on a strong team of 38 specialists representing a buoyant healthiness for this cutting-edge expertise.

Citius enjoys a growing number of customers in the aeronautic sector (the SAFRAN Group, Sonaca, Sabca), in the spatial and agro-food sectors (AB INBEV, Groupe Tirlemont, Belourthe), in the defense and security sectors (Thales, FN Herstal, CMI), in the sectors of chemistry, pharmaceutics and transport (Alstom, JTEKT, AW Europe), energy (GDF-Suez, Groupe Emerson), and life sciences (Mithra, UCB, GSK). In addition, Citius cooperates with the Liège University's faculty of Applied Sciences, with a double objective: to develop an automated cell for the production of small and medium-sized series; and to provide the operator with an easily configured user-friendly solution.

CMI INDUSTRY

Avenue Greiner 1 | 4100 Seraing | BELGIUM
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industry@cmigroupe.com | www.cmigroupe.com

Leading-edge heat treatment furnaces meeting international safety & quality standards, as well as innovative & sustainable facilities for surface treatment.

Thermal Treatment Furnaces

Drawing on its extensive experience and evidenced by numerous worldwide references, CMI Industry provides the latest technology for heat treat products (continuous, semi-continuous and batch) to treat a wide range of materials (steel, copper, brass, stainless steel, aluminum, zirconium, tungsten, titanium, beryllium, etc.) in a multitude of sizes, shapes and thermal cycles.
Its optimized and customized heat treatment furnaces and integrated systems set standards for product quality and combustion efficiency while meeting local, national and international safety & quality standards, including :

- NFPA 86
- NEC (NFPA 70)
- UL508A
- AMS 2750E
- NADCAP

Surface Treatment Facilities

Based on the solid technical know-how of its two entities, CMI Sleti and CMI Beugin, CMI Industry, a leading designer of electrolytic and chemical surface treatment facilities for electroplating equipment, offers a large variety of products and services to its customers, ranging from the construction of new installations, as well as their revamping or transfer, to providing complete and standardized documentation, after-sales services and spare parts. CMI also offers maintenance contracts, technical assistance and specific and targeted training.

COEXPAIR

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andre.bertin@coexpair.com | www.coexpair.com

Coexpair SA – composite expertise for aircraft – is an aerospace company that combines an engineering office and composite development facility. We develop processes and equipment to transfer the best technologies to the customer. Coexpair is the European Partner of Radius Engineering (USA).

Focused on net shape composite technologies (RTM, SQRTM) in close partnership with Radius Engineering, leader of these technologies for nearly 30 years, Coexpair is a unique resource to the European aerospace industry. Coexpair supplies all equipment required for serial production of parts by our customers. Founded in 2006 Coexpair is successfully growing with a team of 17 highly qualified engineers, technicians and administrative.

Engineering – Net-shape composites are an opportunity to improve performance: lower weight, lower cost, shorter manufacturing cycle. Our expertise covers design, material & process selection and analysis.

Equipment – We provide our customers with press equipment and injection system designed and manufactured at Coexpair. Equipment are available in our shop for demonstration, parts development & training activities.

Tooling – The quality of the mold determines 90% of the part quality. Our team offers development of your mold. Our network of qualified NC machine shop offers the right balance of quality, lead time and budget.

Composite Parts Development – Once the level of risk is reduced to an acceptable level our shop is the right place to manufacture your first full scale elements. Our shop is dedicated to prototyping for our customers.

Training – Coexpair offers a 3-day intensive introduction course of (SQ)RTM for Aerospace.

CONSOLIDATED PRECISION PRODUCTS BELGIUM (CPP)

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xavier.delandshere@cppcorp.com | www.cppcorp.com

Consolidated Precision Products Belgium is an investment casting facility using vacuum casting techniques to produce structural castings, rotating blades and nozzle guide vanes for aeronautical gas turbines.

Consolidated Precision Products Belgium is a major supplier for the aerospace market including helicopter, missile and airplane engines.

Consolidated Precision Products Belgium has a subsidiary company named CPP-Slovakia in Slovakia Republic for low cost manufacturing and is part of CPP Corporation including 14 casting facilities in the USA and in Mexico pouring Aluminium, Magnesium and Superalloys.

Consolidated Precision Products Belgium has the strength and agility to exceed customers' demanding expectations in a continuously changing business environment and is specialized in challenging products that require exotic alloys and complex geometries.

Consolidated Precision Products Belgium keeps aircraft flying by providing a wide array of critical components to the aerospace and defense industries.

CPP produces the entire line of hot gas path (HGP) components - including Directionally Solidified (DS), Single Crystal (SC) and Equiaxed blades, nozzles guide vanes and structural castings. CPP also provides and manages such post-cast processes as machining, grinding and stem drilling.
Product quality, technical capability, customer service, delivery response and cost effectiveness are key factors when choosing a casting vendor.
With state-of-the-art facilities on two continents - as well as superior expertise and service - CPP Corporation is a recognized and major supplier of sand casting, investment cast products and services for the aerospace.

Consolidated Precision Products Belgium is certified NADCAP for special processes and the European aeronautical standard EN 9100:2009.

DARDENNE

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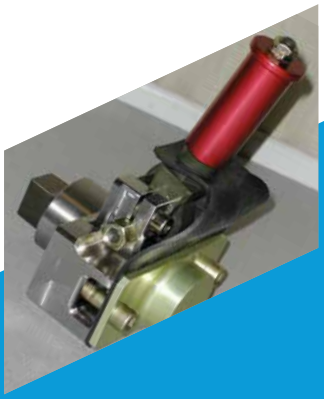
info@dardenne-meca.be | www.dardenne-meca.be

DARDENNE: High-precision mechanics combined with the agility of a SME.

Since 1978, DARDENNE has a recognized technical expertise for the manufacturing of mechanical parts of the highest accuracy.
Active mainly in Aeronautics and Space Industries, the company is EN9100:2009 Certified.

Our workshop is equipped with up-to-date CNC equipment for Turning, Milling, Wire Cut EDM, Die Sinking EDM and Flat & Cylindrical Grinding.
The combination of all these technologies with our highly qualified technicians allows us to master the manufacturing of any mechanical part from the beginning to the end.
Every part produced is Quality Controlled in an air-conditioned metrology lab fitted with 3 three-dimensional measuring machine.

Dardenne is providing a complete service from single prototypes to large-sized series production and is active on most of the major engines programs: LEAP, TP400, GTF, CFM56, Passport, Silvercrest...



DELTATEC

DELTATEC

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contact@deltatec.be | www.deltatec.be

Created in 1986, DELTATEC is a high-tech design company, specialized in advanced hardware and software technologies.

With a team of more than 30 high-level designers, DELTATEC is active in various sectors: TV broadcast (design of boards, automation of live shows), space and aeronautics (on-board imaging subsystems, on-board computers, EGSE...) and industry (embedded systems, quality control projects).

Main references in aeronautics relates to the design of high-performance elements of test beds.

For Safran Aero Boosters, DELTATEC designed a powerful IP based distributed data acquisition system for aircraft engine tests, with up to 3000 temperature measurement points. While providing easy system configuration and data collection through the IP network, Proximity with the engine allows high accuracy measurements and dramatic reduction in the cabling needs, also meaning lower total costs. Not forgetting the challenges to operate reliably in a harsh environment.

Another example is the design of an electronic actuator based on synchro/resolvers to emulate the engine gas throttle. Security and safety were addressed using redundant functionality on all the critical paths, ensuring En954-1 level 2 directive compliance.

DELTATEC also developed several control systems for solenoid valves.

Based on its experience in the space sector and R&D activities in the scope of the Marshall Plan, DELTATEC also supports development of on-board equipment for aeronautics.

DONCASTERS SETTAS

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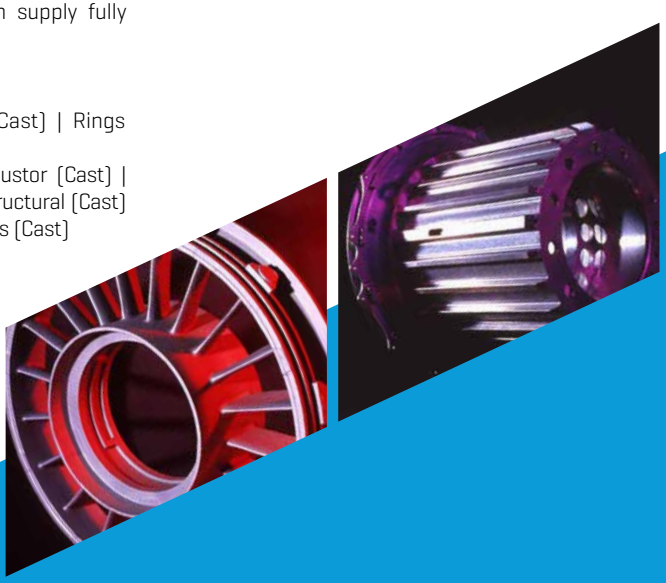
bhermant@doncasters.com | www.doncasters.com

Part of Doncasters Group, Settas operates one of the largest foundries in Europe with a vacuum furnace capacity of 1 ton of titanium. Settas centrifugally pours into cold moulds on the largest centrifugal table in the world.

This process provides excellent consolidation of metal during solidification, enhancing both the surface aspect and mechanical properties of the component.
Mechanical properties achieved are within parameters set by forging specifications, reducing the need to apply a casting factor in design.
Production techniques include; centrispinning, investment and precision sand casting, producing medium to large, simple to complex components up to 400 kg (880 lb) delivered. Our manufacturing envelope is up to 1100 mm (44 in.) investment cast and 2600 mm (102 in.) precision sand.
Settas benefits from Doncasters Group's vertically integrated structure and can supply fully machined and assembled parts.

Aerospace Market Products:
- Engine Structural Components (Cast) | Rings and Discs (Cast)
- Casings - Fan, Compressor, Combustor (Cast) | Defense Casings (Cast) Defense Structural (Cast) | Airframe Brackets and Components (Cast)

Accreditations:
- AS/EN 9100 : 2009 - (ISO 9001:2008 included), ISO 14001 : 2004
- OHSAS 18001 : 2007, NADCAP NDT (RT) – Digital, NADCAP NDT (PT) + (Etching included), NADCAP Welding, PED 97/23 (EC Annex 1,4.3), NORSOK M650 (Offshore) MDS-T02



DUMOULIN AERO S.A.

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gcammermans@dumoulin-aero.com | www.dumoulin-aero.com

In 2003, Dumoulin Aero, specialized in the manufacturing of Fine Hunting Guns, has operated a significant diversification by launching a program to manufacture titanium and other allied steel parts for aircrafts.

Although, the company was rather inexperienced in this particular field, the rigor and precision needed in the manufacturing of fine firearms, considerably contributed to the success of this reconversion and enabled the company to establish a performing operation and obtain the EN 9100 Certification.

In a short period, Dumoulin Aero has successfully assimilated the quality requirements, the organizational and production aspects and adopted the strict control requirements needed for the manufacturing of high precision parts sub-contracted by manufacturers such as AIRBUS, BOEING, BOMBARDIER or EMBRAER.

Today, Dumoulin Aero employs 30 people specifically trained to operate modern machines and equipment and has the capacity to perform a broad range of operations from turning-milling and milling mostly for connection parts between Tracks and Flaps and Tracks and Slats as well as Carriages.

We have also a strong partnership with La Nitruration Moderne (Nadcap and required qualifications against specs) which allows us to deliver complete treated parts (NDT, Passivation, Zn Ni, Cadmium Plating, Painting and Ink Identification...).

The light structure of the Company and its geographical location enables a quick and efficient response to customer needs always in accordance with strict quality criteria and allocated deadlines.

DUMOULIN AERO is positioning itself as a key partner for aeronautic companies willing to establish a close and fruitful relationship based on know-how, reliability, flexibility and cost-effectiveness.

ESPACE DRONE

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www.espacedrone.be | www.drone-days.be

EspaceDrone is the first Belgian training center for professional UAVs.
Drone-Days is the European Drone Fair organized at Brussels Expo (Heysel)

EspaceDrone offers professional training specific for "Class 1" and "Class 2" operations, such in accordance with the Belgian legislation.

Practical and theoretical training is provided by instructors approved by the BCAA.
To date, we have trained more than 440 pilots, including the largest Belgian audio-visual media RTL & RTBF, the Belgian civil protection services, the Belgian federal police, Doctors Without Borders, Infrabel, real estate agencies, farmers, etc.

Drone-Days, the European drone fair is devoted to the European players on the drone market such as retailers, manufacturers, training centres, professional pilots, insurers, etc.
Drone-Days collaborates with Enterprise Europe Brussels in order to organize a European meeting platform between professionals in the drone sector and businesses in more conventional sectors that are interested in the advantages offered by civilian drone expertise.

The B2B made it possible for 17 European companies to meet with each other and enabled the organization of more than 250 appointments.

The 2017 edition of DRONE-DAYS & PHOTO-DAYS welcomed more than 11,625 visitors.

ETIENNE BONNE FORTUNE

Rue de l'informatique 8 | 4460 Grâce-Hollogne | BELGIUM
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contact@ebf-meca.be

Etienne Bonne Fortune sa located in Grace-Hollogne (Liège), is active in subcontracting in the fields of general mechanics. We also master the machining (milling, turning and grinding), sheet metal (bending and press), welding (TIG, MIG, ...), complex assembly (bolting and riveting).

Active in industrial subcontracting in general mechanics, Etienne Bonne Fortune S.A. , located in the industrial zone of Grâce-Hollogne, serves primarily Belgium and Europe.

Based on a mechanical experience of almost 50 years, a dynamic team of about thirty professionals and diversified production means (machining, fine sheet metal, welding, assembly), our company guarantees the satisfaction of his customers through Mastery of the quality of our products and of our mechanical production processes in small and medium series.

Your requests are directly taken care of by different specialized departments (technical and launching office, production and quality control) in order to guarantee fast implementation and compliance of your requirements.

We also have a technical office that, on the basis of your plans, orientations or projects, carries out the mechanical study up to the realization of a prototype before the production phase series or integration in your industrial equipment or products.

The mastery of these various complementary domains allows us to offer our clients various services:

- Technical study & prototyping
- Manufacture of machined & welded components
- Assembler & integrator
- Company service
  - Logistics Service
  - Maintenance equipment

EURO HEAT PIPES (EHP)

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T. +32 (0)67 88 94 84 | F. +32 (0)67 88 94 99
info@ehp.be | www.ehp.be

Euro Heat Pipes (EHP) develops, produces and sells Two-Phase Heat Transfer Systems (Heat pipes, Loop heat pipes and Thermal Bus including deployment systems) that, thanks to their exceptional thermal performances, are enabling the development of more powerful, more reliable equipment / instruments.

From Space to Earth
Created in 2001, EHP know-how is based on more than 35 years of Space heritage. Developed for Space, now available on Earth, this 100% European technology is leading the European cooling market for Space applications and is strongly developing on Aeronautical, Defense and Terrestrial markets. EHP proposes its two-phase cooling devices that will enable equipment manufacturers to increase their equipment reliability with the management of high power densities, low temperature excursion, compact / miniaturized packaging and remote cold sources.

Full in-house capabilities
Based on a highly qualified staff of 55 people, Euro Heat Pipes, an EN9100:2009 certified Company offers full in-house capabilities (5,000+ m² of facilities) including ISO 8 to ISO 5 clean rooms, small to large vacuum chambers and mechanical tests rigs to be used for small to large production projects focused on: Design and simulation capabilities, Industrial manufacturing, Quality control and Qualification and acceptance tests.

Main customers (Telecom or Institutional markets)
Main customers are ESA, CNES, AIRBUS DS, Thales Alenia Space, Tesat, IAI, OHB... for Space markets.

EUROPEAN METROLOGY SYSTEMS (EMS)

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info@ems.be | www.ems-benelux.be

Active in the metrology for more than 20 years, the company EMS proposes the maintenance/ calibration, and reparation of measure machines, the parts scanning, the implementation of measures, training on the different softwares and systems, moving and retrofit of the machines.

Constitued of executives, sales managers, technicians, engineers, makes from us, one of the largest in innovative metrology solutions in the Benelux. EMS can contribute to your projects by supplying you a wide range of solutions. EMS is at the service of the customer. Our expertise does not stop selling metrology solution, but we want to profile ourselves as true experts in Metrology. Our group has built up an exceptional sales program made up of brands and first-class solutions over the years and acquired experience. The combination of our many years of experience & our know-how means that for each of your applications we are able to offer you a tailor-made solution. Our services can accompany you throughout the life of your investment. Through this & our approach centered on your needs, we want to make a difference! We offer you: Calibration of your measuring instruments, via our accredited laboratory, maintenance & repair, & the possibility to let us realize your measurements/controls or to carry out your parts scan, the dispensation of training for all the systems and softwares, we also have the expertise to move your machines to measure safely or realize the retrofit of your old machine or other measuring device.

E-XSTREAM ENGINEERING

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info@e-xstream.com | www.e-xstream.com

e-Xstream engineering, an MSC Software Company, is a leading global software and engineering services company, 100% focused on state-of-the-art modeling of advanced composite materials and structures to help material suppliers and end users across the industries to design and manufacture optimal composite products time and cost efficiently.

Digimat, the Material Modelling Solution developed at e-Xstream, is a Unique, Unified and Integrated Composites Simulation tool, offering complete capabilities to model the nonlinear multi-scale behavior of advanced materials. Recently, Digimat has been enriched by a complete solution that generate composite allowable with progressive failure analysis of Continuous Fiber Reinforced Polymer (CFRP). This solution enables to perform Virtual Test Campaign with the main standard tests used in the Aeronautics.

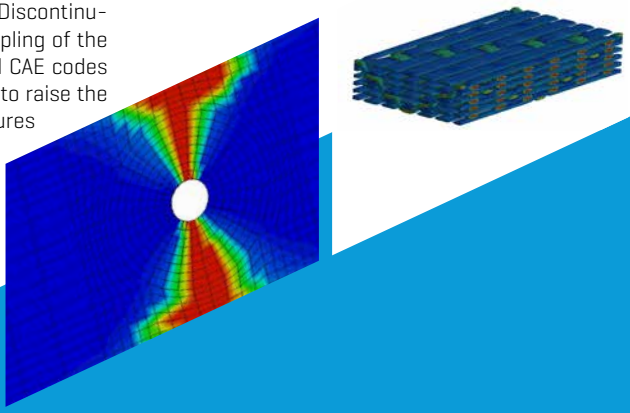
DIGIMAT fastens the development of optimal composite parts. Trough micromechanical modeling approaches, DIGIMAT accurately predict the nonlinear behavior of complex multi-phase materials.

Digimat Platform can support the development of any composite structures like CFRP, honeycomb sandwich structures, short fiber reinforced thermoplastics, 2D and 3D woven or Discontinuous Fiber Composites (DFC). The coupling of the material description with commercial CAE codes also to perform multi-scale analyses to raise the level of accuracy of composite structures simulations.

Airplane, spacecraft manufacturers and their suppliers use DIGIMAT to study the thermo-mechanical behavior of material lab samples and predict the influence of the material microstructure on the structure end performance. Through partnerships with the aerospace sector, e-Xstream has developed the appropriate tools and extensive know how for modeling materials involved in lightweight aerospace composite structures

References and/or Certifications

Airbus, Boeing, Alenia Aermacchi, Safran Composites, Honeywell Inc, Eaton



FERONYL

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feronyl@feronyl.com | www.feronyl.com

Injection Moulding of technical parts in plastics, metal and composite materials & tools since 1950.

Scope of activities

- Injection Moulding of technical parts in plastic, metal and composites.
- Research and design of plastic parts or new applications involving injected parts
- Assembly of sub-systems by gluing, clipping or ultrasonic welding

Certifications

- ISO 9001
- EN 9100

Highlights

- In-house engineering.
- More than 60 years of experience in the injection moulding of technical plastics and in the manufacturing of injection tools
- Dynamic, flexible and reactive team which enables a mastery of complete projects from A to Z.
- Partnership with research centers or organisations specialised in complementary services[material choice, tests, design, rapid prototyping, painting, surface treatment...]

We dispose of a wide variety of injection machines between 10 tons and 1300 tons of closing force, which allows us to inject volumes till 6 kg.

Transformed technical materials: PEEK, PEI, PSU, PA... eventually charged with glass, carbon or metallic fibers.

FLYGGER (AIR ENGLISH)

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business@air-english.com | www.air-english.com

All aeronautical professionals (pilots, ATCOs, technicians, ramp agents) must demonstrate a decent level of operational English. It is vital for safety.
Air-english.com exams can be done through face-to-face meeting (with a comprehension test on PC) and/or through web technology. All air-english.com examiners are aviation professionals or linguists who are duly trained to use our complete evaluation system.
Air-english.com tests are pragmatic, fair and tailored to your job. More than 10000 airmen have already chosen to take their exam with us, and passed it.
Book on line on www.air-english.com

Mobile testing system and methodology for aero professionals
ICAO ELP test (Level 4-5-6)

References and/or Certifications
- Approved by Civil Aviation Authorities
- Compliant with ICAO requirements
- ISO 9001 Quality Certified

FLYING-CAM

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info@flying-cam.com | www.flying-cam.com

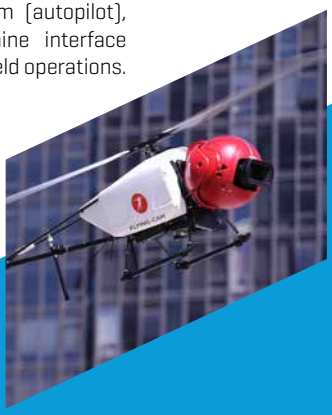
Flying-Cam has been the world leader in providing 25 Kg UAS VTOL system for the civil industry since 1988. We are now expanding to several markets: Industry, Military, Academic, Government, Entertainment. The vertical competence are the best asset for developing and selling breakthrough solutions.

Founded in 1988 by Emmanuel Previnaire in Liege, the company Flying-Cam SA is an Award-Winning company and world leader in developing high fidelity Unmanned Aerial Solutions with proprietary Flying-Cam Airborne Robotic Engineering Technologies.

Well-known firstly in the niche film industry, Flying-Cam had worked for blockbusters such as James Bond, Mission Impossible, Harry Potter, Oblivion, Prisoners, Da Vinci Code, Transformer, Game of Thrones ... etc.

Flying-Cam is dedicated to develop, manufacture and sell the high-end "SARAH" system, Special Aerial Response Automatic Helicopter. This is an unrivaled cutting-edge "Unmanned Aerial Intelligence" solution and only possible by mastering all the technologies and skills involved: helicopter platform, centimeter precision guidance, navigation and proprietary control system (autopilot), payload integration, human-machine interface design, training, maintenance and field operations.

Payloads are as versatile as 3D Laser Scanner, very high resolution medium format cameras, real time Live Broadcast solutions, thermal or multi-spectral cameras etc.



FN HERSTAL

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FN Herstal provides high added value defense solutions for multi-role military helicopters and subsonic aircraft based on combat-proven small caliber firearms. These solutions cover design, development, manufacture, and full integration of airborne weapon systems that combine unprecedented and unequalled firing capabilities, ease of use and crew safety. The company is ISO 9001 and AS /EN 9100 certified.

FN Herstal's integrated airborne weapon systems include crew-served and axially mounted machine guns, rocket launchers and a complete range of ammunition.

Airborne Pintle-Mounted Systems can be window-, door-, ramp-, or externally positioned and provide:

- Outstanding firepower (1,100 rounds per minute) through the .50 cal FN® M3M/GAU-21 machine gun designed, developed and manufactured by FN Herstal as a worldwide exclusivity;
- Outstanding balance, hence, high firing accuracy;
- Proven reliability and safety;
- Multi-weapon/multi-caliber capability, including compatibility with the 7.62mm FN MAG® machine gun and Minigun.

Airborne Podded Systems are available in various configurations depending on the ammunition box capacity, and requirement for links/cases collector and/or guided and unguided 2.75" rocket launcher tubes. Airborne podded systems offer:

- Outstanding firepower (1,100 rounds per minute) through the .50 cal FN® M3P machine gun (FN Herstal exclusivity);
- Pod weight optimization, optimal performance and reliability in all environments, including sand or dusty conditions.

FN Herstal continuously innovates to provide state-of-the-art, groundbreaking solutions for superior combat capabilities. Latest developments include:

- Digitalization of the complete axial suite, including the machine gun pods, the armament management systems (AMS) and the head up sighting system (HUDI);
- A full digital armament management system that offers improved integration with OEM's avionics computers and that controls up to 6 weapon stations (FN Herstal pods or other equipment) installed on the aircraft;
- A compact, digital and lightweight Head Up Display specifically designed for enhanced firing accuracy and reduced pilot workload.

Throughout the years, FN Herstal has built up a position as a leading provider of defense solutions to Military Agencies and Original Equipment Manufacturers, with FN integrated airborne weapon systems being qualified and fitted on over 4,500 carriers deployed around the globe.

With its decision to invest in the DO-178 DO-254 standard, FN Herstal reinforces its position as a major integrator of innovative airborne defense systems embedding the latest technologies.

GDTECH ENGINEERING

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info@gdtech.eu | www.gdtech.net

Engineering company, GDTech offers its expertise to industrial projects spanning across all necessary stages for Design, Simulation and Industrialisation.

- **Design and stress analysis**
- **Tools design and manufacturing**
- **Technical documentation**
- **Project management**
- **Engineering consulting**

At first, GDTech was founded to provide a service in the numerical analysis sector. Its offer has significantly expanded. The GDTech group mission is to build an integrated service offer covering the entire product development process. Our knowledge of the state-of-the-art industrial techniques and our extensive experience ensure a perfect balance between the services we offer and your project needs. Flexibility, reactivity and thorough skills are our business-enhancing opportunities.

Our consultants are: Designer (mechanics, electricity, boiler making, pipe, frame), Study Engineer, FEA Engineer, Modelisation Engineer, Project Manager, Hydromechanics Engineer, Documentation Engineer, Exploitation Engineer, Material Engineer, Tests Technician, Method Agent, Quality Management, Work Coordinator.

Enthusiasts about new technologies and permanently on the looking after real challenges, our staff will demonstrate their experience legacy and teamwork, enhanced by a never-ending quest for continuous improvement.

Thanks to our knowledge of the most advanced industrial technologies and our expertise, we provide you a customized solution.

Our assets, our expertise, our CAE complete offer and our quality commitment (EN 9100 certified).

GEONX S.A.

Rue Santos Dumont 7A Bloc C | 6041 Gosselies | BELGIUM
T. +32 (0)71 96 00 20
sales@geonx.com | www.geonx.com

GeonX S.A. started up its activities in 2012 with headquarters in Belgium and offices in France, USA and representatives in Korea, China and Japan. Our customers make a daily use of our flagship Virfac® modelling software to accurately simulate various manufacturing processes such as Additive Manufacturing, Machining, Heat Treatment and Welding.

GEONX S.A. develops robust and powerful software packages to support manufacturing engineers in their daily design duties. From the design office to the factory, VIRFAC® powered by MORFEO, provides an accurate, powerful and industrial platform of virtual manufacturing. Making of virtual manufacturing a reality is the mission of GEONX. Simulation today is an essential component of the design cycle, increasing a company's profits by significantly reducing time to market. Modelling the manufacturing processes allows designers to reduce tedious manual tuning, the waste of material and to optimize the resulting manufactured part in terms of mechanical properties, residual stresses and final deformations. After 10 years of development by engineers from the Research Centre Cenaero, specialized in advanced computational methods, GEONX is integrating this approach in today's product development environment by marketing its new generation manufacturing software VIRFAC® (VIRtual FACtory), powered by MORFEO (Manufacturing ORiented Finite Element tOol). This innovative software is the new reference in unified simulation for applications ranging from transformation and assembly processes to in-service structural response. MORFEO is built with the most modern object-oriented programming technologies and has been particularly designed to handle large and complex mechanical components for realistic industrial environments. GEONX S.A. will revolutionize in 2017 the modelling of additive manufacturing with the release of its new product Virfac iAM® optimized for high performance GPU computing.

GILLAM-FEI

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info@gillam-fei.be | www.gillam-fei.be

GILLAM-FEi is able to propose a wide panel of products and services in Aeronautics, Aerospace, Defence, Mission Critical Applications as well as Civilian sectors.

GILLAM-FEi aerospace/aeronautics activities are mainly focused in the following areas:
- Test benches and Simulators
- Avionics Systems
- Time & frequency solutions
- On-demand electronic designs

Our team of experienced engineers is at your disposal to attend your needs, throughout the project.

Study, design and supply of airborne electronic equipments for military and civilian use.
On-board Human-Machine Interfaces including illuminated control panels compatible with night vision (MIL-STD-3009).
Severe environmental constraints (RTCA DO-160, MIL-STD-810).
Design in accordance with aeronautical standards DO-178 and DO-254.

Main test benches achievements are EGSE for Main Frequency Generation Unit (Iridium Next program), EGSE for L-Band converter (Iridium Next program), RF suitcase for space dielectric & coaxial resonator oscillator (CRO / DRO), TWTA/RFDN Discrete Interface Simulators (ExoMars program), COMS ADEV STE (JUICE program), etc

Frequency and Time (F&T) Subsystem for the GALILEO Uplink Stations (ULS).

GILLAM-FEi experts have developed a high level of expertise necessary to design, to industrialise and to manufacture specific solutions and GILLAM-FEi, certified ISO9001-2015, can bring added value to partner or to customer.

GO2M

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go2m@go2m.com | www.go2m.com

GO2M's mission is to provide formulation expertise and advice and support for the industrialization of technological, innovative and efficient solutions. GO2M works on developing and commercializing aids for the formulation and creating prototypes of coating formulation in view of reduce the time to market.

GO2M Be & Fr enjoy an active symbiosis at equipment level for physico-chemical characterization of raw materials, application tests and formulation.

GO2M will provide technical advice and support for its customers to find on-site solutions. In this respect, we can count on the extensive expertise of our teams of process specialists. In addition to providing an appropriate response to the characteristics required for the development of products, these specialists will also take due account of many aspects such as safety, design and energy efficiency.

GO2M will be tasked to develop and market formulation and characterization equipment and to capitalize on the research results. It will also produce prototype batches to accelerate and secure the marketing of innovative and efficient formulations of paints, varnishes, inks and adhesives. Finally, GO2M will provide training programmes in its areas of expertise for manufacturers.

Transport sector (trains & aeronautics industry) is one of their business lines.

GO2M will draw on its expertise to play a key role among manufacturers in order to reduce the risk of placing innovative and efficient products on the market, but also to reduce the time to market.

HEXCEL COMPOSITES

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georges.soccal@hexcel.com | www.hexcel.com

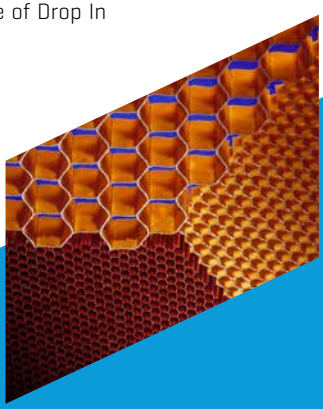
Hexcel's plant was established in Welkenraedt in 1967. It is Hexcel's European center of excellence for Engineered Core (HexWeb® EC), the name we give to our processed honeycomb parts that are machined and finished in any number of ways and then supplied as ready to fit "drop-in" parts to customers. Key applications for products made at Hexcel's Welkenraedt plant are aerospace structures - for civil and defense aircraft, helicopters and aero-engines. Our facility is ISO 9001, AS/EN9100 Rev. C and NADCAP certified for composites processing.

HexWeb® EC encompasses a wide range of unique processing technologies used to add value to blocks or slices of HexWeb® honeycomb, also known as flat core. With advanced computer-aided design and manufacturing techniques, flat core is formed, shaped, machined and/or bonded to create high quality core details and assemblies to precise customer specifications. With over 60 years of honeycomb manufacturing experience, Hexcel is the leading supplier of Engineered Core used in commercials and military aircraft including engine and nacelle applications. The expertise of our manufacturing and engineering staff, combined with extensive research and unique core processing technologies, results in precise complex shapes and core assemblies that allow our customers to streamline their production process and eliminate capital investment through the purchase of Drop In point of use components.

HexWeb® EC provides the following advantages for your volume production program:

I. High quality components
II. Precise dimensional tolerances
III. Fewer manufacturing stages and processes
IV. Dedicated technical support from HexWeb® EC experts

Hexcel Corporation is one of the largest US producer of carbon fiber; the world's largest weaver of reinforcement fabrics; the number one producer of composite materials such as honeycomb, prepregs, film adhesives and sandwich panels; and a leading manufacturer of composite parts and structures.



HIPPEROS S.A.

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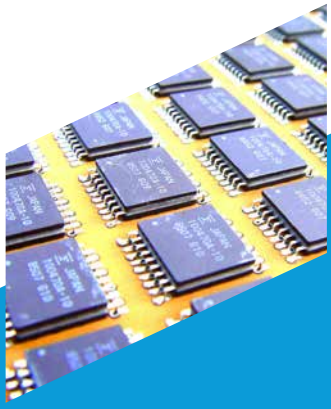
info@hipperos.com | www.hipperos.com

HIPPEROS is an innovative provider of software solutions for embedded & real-time systems. HIPPEROS creates high performance, security and reliability hard real-time operating systems (RTOS) for critical applications under constraints. HIPPEROS helps industries create safe, reliable and powerful applications in less time and with less effort. These applications cover fields such as aerospace, avionics, transportation, robotics, industrial control and medical devices.

HIPPEROS (High Performance Parallel Embedded Real-time Operating Systems) is the best of breed real-time operating system (RTOS) for multicore platforms.

HIPPEROS provides Services for embedded & real-time software development, modeling & optimization, multicore architectures, low power platforms and software reliability issues.



ISOMATEX S.A.

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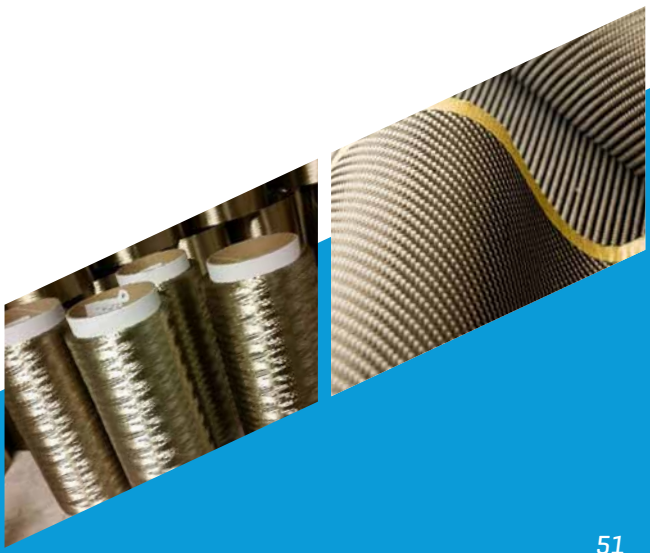
info@isomatex.com | www.isomatex.com

ISOMATEX is the global leading producer of enhanced volcanic rock filaments distributed under the trademark FILAVA ™. The production of FILAVA ™ is unique thanks to a genuine and innovative treatment of the raw material, basalt, which is enriched with various mineral additives to increase and guarantee its original mechanical and chemical properties.

Thanks to its innovative approach, its leading edge technological process and its tight quality control, the company ISOMATEX is known in the exclusive segment of high thermo-mechanical performance fibres as the only and therefore leading firm. ISOMATEX is keen to find the best solutions for each specific application and develops today tailored made fibres with an adapted sizing for the most prestigious companies in the segment of high-performance composite materials and technical textiles.

ISOMATEX proposes you different formats of FILAVA™:

- Single –End Direct roving from 68 TEX up to 100 TEX
- Conventional assembly Multi-end Direct roving from 136 TEX up to 2400 TEX
- Twisted yarns
- Chopped strands as from 4 mm
- Weaved fabrics as from 200 g/m²
- Unidirectional tapesBi- and Multiaxial fabrics
- Non-Woven Fabrics
- Geotextiles
- Knitting for engineering composites



IT-OPTICS

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lbassani@it-optics.com | www.it-optics.com

With 15 years of experience in the OpenSource field, we provide multiple IT services and business solutions. We take care of the design, implementation, support, and maintenance of your systems. We also provide on demand development, for a solution that will meet all your expectations.

Infrastructure: Our experts will analyze your systems and give you the best advices to optimize your infrastructure. We have a variety of solutions that will cover your needs, from virtualization, security, monitoring, back-up, communication, to hardware and more advanced options.

Transport and logistics: We provide various solutions to optimize your supply chain visibility and boost your competitivity on the market: firstly we have the Track&Trace solutions (RFID TECH, NFS, QR code), secondly an EPCIS solution for a transparent collect and sharing of the acquired data, and thirdly a Management System Platform to give you a clear visibility of your supply chain and easier assets management (inventories…), to reduce costs and to give your project room for evolution.

Health and clinical research: We provide solutions to obtain precise clinical data in real time with an efficient data processing. Our SensePRO solution will allow you to collect and share your data, and we will provide you with various supports (tablet, pc…) and hardware (sensors…).
On demand development: For a specific solution that fits all your needs, contact us, and we will work together to achieve your goals.

JD'C INNOVATION

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jdcinnovation@jean-delcour.be | www.jdcinnovation.com

In 2006, "Ateliers Jean Del'Cour" created JD'C Innovation to propose design and manufacturing services in high-technology fields (aeronautic, defense, green energy...). Being part of JD'C group allows JD'C Innovation to be very flexible and to be reactive.
JD'C Innovation has the following core activities: composite materials, multi-material adhesive bonding, industrialization of processes (curing, final assembly with rfid or connectics integration if needed), design of tools and composite components. JD'C Innovation is expert in the integration of these competences in one global service.

Competences: Composite materials: "hand lay-up" process with various epoxy matrix materials (glass and carbon).

Multi-material adhesive bonding: different technologies such as ultrasonic and thermobonding (hot/cold).

Processes Industrialization: competences and equipment to integrate high precision electronics elements in products (RFID tags, connectics...) or to perform the curing of several types of components requiring autoclave cycling.

Design: of composite components and the required tools.

Equipment: Autoclave (diameter: 2.4m – length: 3m) - Oven (section: 2mx2m – length: 3 m) - Clean room (class 100000) - Bonding room - high precision ultrasonic welding - Multi-material CNC machine. NDT ultrasonic control equipment and automatized cutting equipment for the prepeg fabrics.

Quality: In 2009, JD'C Innovation has been EN9100 certified by B.V.Q.I.: Airbus certification in process

Team: The JD'C Innovation team has skill and expertise in several technological areas, as well as in operating and manufacturing methods and processes. Today, the team is composed of 5 engineers and 9 technicians.

Social engagement: Through the development of the activities, the JD'C Innovation mission is to give work to fragilized people (disability, limited education ...). JD'C Innovation offers them intensive education and training, adapted to their situation and competences.

LA NITRURATION MODERNE

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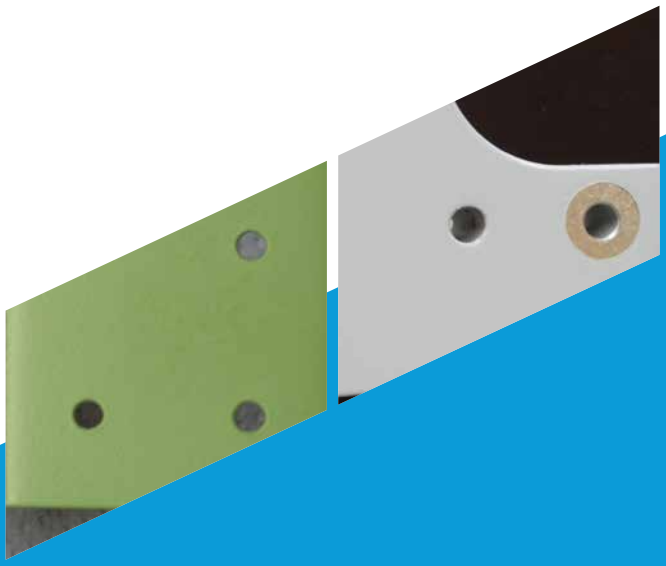
info@lanitruration.be | dambeckb@gmail.com
www.lanitruration.be

Surface Treatments and related activities such as Non Destructive Testing and Painting.

- Cadmium plating
- Zinc-Nickel
- TSA
- Chromic Acid Anodizing
- Sulfuric Acid Anodizing
- Passivation
- Chemical Conversion Coating
- Silver coating
- Fluorescent Penetrant Inspection
- Magnetic Particle Inspection
- Identification
- Dry Abrasive Blasting
- Wet Abrasive Blasting (vapor blasting)
- Zinc Phosphating
- Manganese Phosphating
- Painting

References and/or Certifications

- EN9100 and Nadcap accredited.
- Qualifications certified by Airbus, Bombardier, Moog and Embraer.



LEBRUN S.A.

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info@lebrun-nimy.be | www.lebrun-nimy.be

LEBRUN S.A., a medium-sized and financially independent company, has become "the reference" for conditioning aircrafts on the ground.

From the design of a cooling system to its completion and its maintenance, LEBRUN controls and coordinates all different stages of the manufacturing of conditioning machines for aircraft. Made up of skilled technicians and graduates from topmost engineering schools, our engineering department is at the leading edge of the refrigeration technology.

LEBRUN S.A. is specialized in air conditioning units (PCA units) that are developed to ensure the comfort of passengers and crew by maintaining the appropriate temperature inside the cockpit of any parked aircraft during pre-flight servicing, loading and maintenance.
Various type of machines are available: fixed or mobile serving all types and sizes of aircrafts (AIRBUS, BOEING, MD, EMBRAER, FALCON...) for civil and military aviation.

References and/or Certifications
Munich Airport, Schiphol, Frankfurt, Zaventem, Heathrow, Charles de Gaulle, Genève, KLM, Air-France, Lufthansa, Virgin, Ethiad, Airbus, Bombardier, DGA, Dutch Army...

LESCAV

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M. +32 (0)495 57 01 28
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Better protection, better performance.

Protection for special treatments:
- Plasma, HVOF
- Chemical bath
- Shot peening
- Sandblasting
- Thermal

Our know-how: protection solutions for industrial processes
Certain manufacturing processes require to hermetically protect parts during heat, chemical, sand blasting, shot penning and other treatments.
LESCAV designs and produces high performance protection tools, silicone, masks and industrial containers.

From design to production
Our LESCAV'S engineering consulting team complements your internal R&D engineers. Over 10 years of experience in these niche markets, complementary to your core activities, enables us to quickly provide adequate solutions to complex problems. According to your needs, your design phase can be followed with prototype making and production of low or high quantity items.

LGM BELGIUM S.P.R.L.

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belgium@lgm.eu | www.lgm.eu

LGM Belgium S.P.R.L. is the Belgian subsidiary of LGM Group.
We have been developing our references in the aeronautical sector by providing the highest level of reliability and effectiveness.
The key words for our expertise are RAMS engineering (Reliability, Availability, Maintainability and Safety), ILS (Integrated Logistic Support), Technical Publication, Project Management and Quality Management.
LGM is your long-term partner; we make sure your product meets your customer's reliability requirements.
For a maintenance application, LGM documents your solutions by taking into consideration the purpose of the system, the level of maintenance, the update of your products...
Our know-how of the aeronautical sector gives us a leading asset in Project Management engineering.
We support your organisation by defining and deploying new standards for process improvement.
LGM is also your partner for management and support in operational quality.

Regarding Tool & Test Benches, we have developed a turnkey offer which can be adapted to your needs by a tailored approach.

- Technical Documentation: Documentation Expertise, Design and Drafting of Technical Documentation, IETM (Interactive Electronic Technical Manual),
- Development and Implementation of Documentation Management Tools,
- ASD S1000D, S2000M, IT 8805, MAT 10000, ATA iSpec 2200...
- RAMS Engineering: RAMS Analysis and Management of System, Software, Electronics, Mechanical Components
- Project Management: PMO, Contract Management, Risk Management, Planning, Change Management, Optimization of Industrial Performance
- Integrated Logistic Support: Maintenance Engineering, Optimization of Life Cycle Cost...
- Tools & Test Benches: Design and Development of Test Integration Tools, Integration of Software Solutions, Development of Qualification Benches, Maintenance Benches and Acceptance Test Benches Manufacturing, Maintenance Tool Development

MECASOFT S.A.

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contact@mecasoft.be | www.mecasoft.be

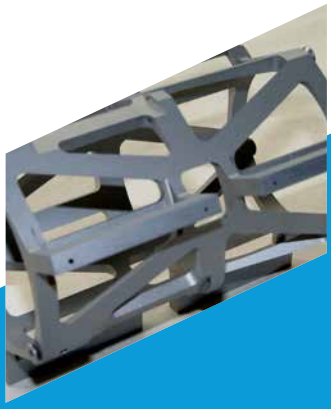
Mecasoft is a manufacturer of high precision pieces and tools with all EDM technologies.
With 18 EDM installations in service, we can offer a complete service for prototypes, short or high series with flexibility and controlled delivery time.
Size of the components up to 1000 x 1000 x 400 mm.

Since 5 years, Mecasoft is the leader in micro EDM technologies (micro holes, 3D micro milling, micro EDM cutting). Minimum size of details is 15 µ, roughness Ra 0.03 and tolerance <1µ.

We manufacture components for aeronautic, space and defense industries especially in the programs of A340 –A350 – A400M – EMBRAER 170-190 – CRJ700-900.
We also participate in R&D for special technologies in pharmaceutical industry and for the CERN (Geneva). We participate in the new Boeing 737NG program.

References and/or Certifications

- Certified EN 9100-2009 and ISO 9001-2008.
- SAFRAN certification for special process
- AIRBUS certification for EDM processes



MF METAL FORMING sa

METAL FORMING

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metal.forming@skynet.be

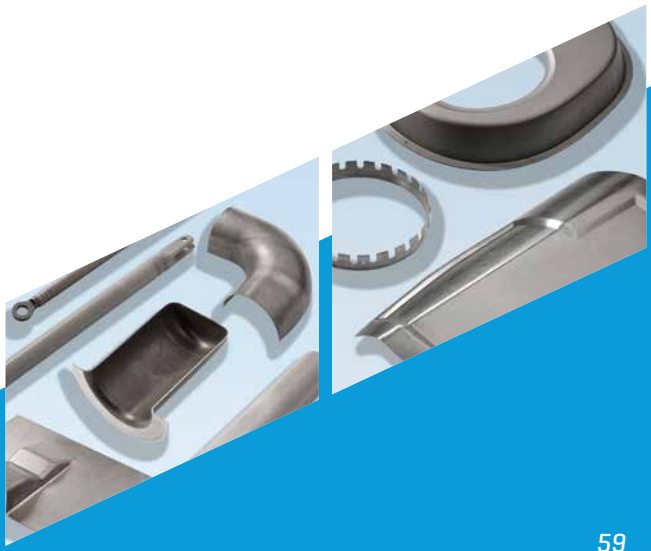
Tube and sheet forming by special processes.
Prototype development - Complex shape
Cooperation with universities and industry Research centers

Processes
Punching, bending, deepdrawing, swaging, hydroforming, HERF (Hight energy rate forming), magneticforming

Materials
Aluminium alloys, Nickel Alloys, precooted steel, Titanium, refractory steel, Stainless steel, Hight tensile steel

Main references
DAHER-SOCATA - EUROCOPTER - SABCA - SONACA - TECHSPACE AERO.

Programs
A330 - 340 - CFM 56 - F7XC - Super Puma - TBM 700 - Ariane 5



MOCKEL

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info@mockel-precision.be | www.mockel-precision.be

MOCKEL is active in the field of high precision mechanics meeting the complex needs of our customers in the defence, aeronautics and space industries. MOCKEL currently has a workforce of 55: 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 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 machines.

The company offers a wide range of industrial services:

- Turning CN 2 to 5 axes
- Milling CN 3, 4 and 5 axes
- Quality control (2 air-conditioned halls)
- Finishing zone (grinding, thread-rolling, marking, etc.)
- Assembly groups

In addition MOCKEL has developed a wide range of services to satisfy the customer: Project management, supply chain management, assembly of part...;

The company has also a large network of international authorized suppliers for heat and surface treatments, in order to deliver its customers with finished products.

MOCKEL is certified ISO 9001/EN 9100 and ISO 13485.

During the last years, we invested highly in automatization: robot system with two five-axis machines combined turning-milling machines... COME and VISIT US!

MSC SOFTWARE BELGIUM

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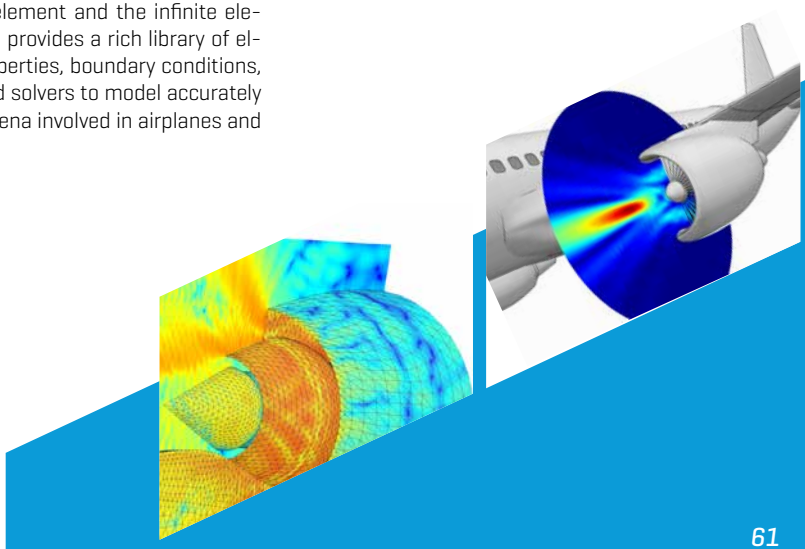
Free Field Technologies (FFT), a subsidiary of MSC Software Corporation, closely collaborates with many leading aerospace companies and provides dedicated solutions for improving the acoustic behavior of aircrafts. FFT develops the Actran acoustic CAE software suite and provides related technical services such as support, trainings and engineering projects. Actran is the most complete acoustic, vibro-acoustic and aero-acoustic CAE software suite for studying acoustic problematics the aeronautic industry is facing.

Actran offers best in class technologies allowing:

- Fuselage and cockpit acoustic insulation assessment
- Engine nacelle liner optimization including installation effects
- Helicopter turboshaft engine acoustic design
- Ramp noise
- Airframe aeroacoustic noise prediction such as landing gear noise and slap/flap noise
- Acoustic fatigue of payload during space launch phase

Based on the finite element and the infinite element method, Actran provides a rich library of elements, material properties, boundary conditions, solution schemes and solvers to model accurately the acoustic phenomena involved in airplanes and space craft applications. FFT's extensive know how allows providing off-site projects, on-site assistance or technology transfer initiatives fitting the needs of the aerospace industry.



MUBEA SYSTEMS S.A.

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info@mubeasystems.com

Mubea Systems: the right machine for each process

Mubea Systems manufactures a complete range of 5-axis CNC machining centers: we offer machinery designed for automatic tooling of exceptionally long aluminum profiles and high speed cutting of solids in aluminum and new materials like titanium. Mubea Systems offers advanced solutions for the aviation industry.

2015: FIRST HIGH SPEED MEGA-FLEX FOR XI'AN AIRCRAFT INSTALLED

Mubea Systems installed the Mega-Flex High Speed machining center for XIAN AIRCRAFT, the biggest aircraft manufacturer and developer of large and medium-sized airplanes in China.

The Mega-Flex High Speed will be used to machine Aircraft Structural Frames.

For more information about our machines visit: www.mubeasystems.com

NANOCYL

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sales@nanocyl.com | www.nanocyl.com

Nanocyl S.A. is the global leader in carbon nanotube production and offers complete carbon nanotube solutions for high performance composite materials.

Integrating carbon nanotubes (CNTs) inside composite materials can help you produce high performance parts and components that are stronger, lighter and multifunctional.

CNTs confer higher damage tolerance to composite parts, and improve their overall mechanical properties, resulting in final materials that have longer life cycles, higher reliability, and lower maintenance cycles. Carbon nanotubes (CNTs) are among the most advanced toughening agents when used in our EPOCYL™ formulations. These technologies help provide enhanced durability and crack propagation resistance—without the drawbacks of conventional solutions. Also, where delamination resistance and crack propagation resistance are dimensioning factors, integrating EPOCYL™ in composite designs can reduce the overall weight and simultaneously increase performance.

CNTs also impart electrical conductivity to composite materials, helping to generate multifunctional parts and components that have less weight and unparalleled performance. Dedicated EPOCYL™ products greatly improve the electrical conductivity of epoxy formulations. The adjustable level of conductivity, combined with the preservation of the intrinsic matrix properties without changes in density, make this solution highly versatile and superior to conventional fillers for high conductivity materials.

Nanocyl offers three ranges of CNT products that complement industrial process requirements while bringing new performance levels to composite materials:

- EPOCYL™: Epoxy resin systems for structural conductivity, strength and durability, and weight reduction
- PREGCYL™: New range of prepreg formulations for reinforcement materials
- SIZCYL™: New generation of patented sizing agents containing carbon nanotubes. Efficient, cost-effective solution for infusion and RTM composite manufacturing

Nanocyl S.A. participates to a project in the frame of the third calls of the pole SkyWin. The project is called ICS that stances for Intelligent Cooling System and 10 partners are working to achieve different goals in heat management, scavenge management and supply management. Nanocyl S.A. works especially in this field on the integration of CNT in Aluminum in order to increase the thermal and mechanical properties of an oil-air exchanger used in the airplane motors.

NUMFLO

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info@numflo.eu | www.numflo.eu

CAE and CFD simulation software is largely used by industry today. General software tools are available on the market and cover a large variety of applications, but often fail in providing a fast, reliable and cost-effective solution to challenging industrial applications. Reliable simulations rely on understanding a large number of physical properties and models and the manipulation of various software tools. NUMFLO addresses these requirements and accompanies your CAE and CFD workflow. We provide high level consulting services and technology to simulate and optimize complex industrial components and processes.

Our main areas of expertise are:
- Simulating complex fluid flows and multiphysics applications;
- Providing innovative technology and models in response to specific requirements;
- Integrating in-house or new technologies in commercial CAE software systems, guaranteeing maintainability and support.

We cover a wide range of industrial applications where fluids play an important role.
NUMFLO is working in close relation with universities and research centers worldwide and is active in several national R&D funded projects.

NUMFLO is an engineering company active in the field of CFD ("Computational Fluid Dynamics") simulations. NUMFLO offers advanced consultancy services for fluid flow analysis, design, and optimization, as well as dedicated technological solutions for fluid/solid multiphysics and heat transfer modeling. NUMFLO is a subsidiary of NUMECA International (www.numeca.com), worldwide leader in industrial CFD software development. Our activities cover a wide range of applications where fluids play an important role: aeronautics, aerospace, turbomachinery, marine, energy, aeroacoustics and environment.

References and/or Certifications
NUMFLO is a certificated company (ISO 9001 – AS 9100)

OPEN ENGINEERING

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Part of the GDTech group, the open engineering company is active in the Computer-Aided Engineering (CAE) market.
Open engineering designs, develops, and sells OOFELIE::Multiphysics, a multiphysics software solutions.
Open engineering provides training & engineering services in multiphysics.

Successful technical innovation is based on robust designs. A growing number of high precision systems have to perform under harsh conditions. Sensitive to multiple physical effects and to manufacturing process parameters, they might be influenced by their package and their surrounding environment.

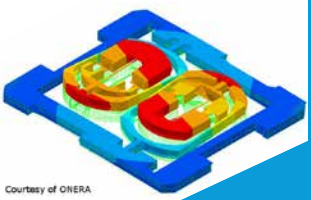
The OOFELIE::MULTIPHYSICS SUITE helps understanding and optimizing the performances of complex devices to make them more robust.

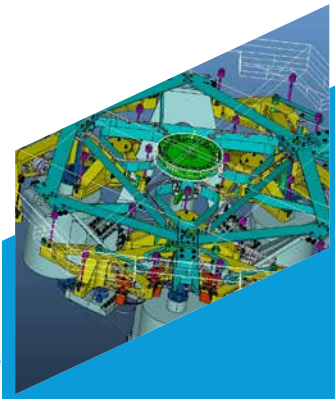
OOFELIE::MULTIPHYSICS SUITE's features are focused on:
- Sensors, actuators and MEMS
- Optomechanical systems and MOEMS
- Fluid-Structure Interaction applications

These encompass a broad range of products in the aeronautics, space, defence, automotive and electronics markets.

For your innovation activities, the open engineering company provides:
- Multiphysics simulation software
- Engineering services
- Customized solutions

Cut the number of design cycles and accelerate your innovation capacity by choosing the 3D multiphysics FEA solution from open engineering: the OOFELIE::MULTIPHYSICS SUITE


Courtesy of ONERA



OPTIMAL AIRCRAFT DESIGN

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info@oad.aero | www.oad.aero

OAD proposes Design Tools that will help you to accelerate the design process of any aircraft and to improve the quality of your products.

OAD Activities:
- Software development
- Subcontracting and consultancy
- Training session organisation

OAD Develops ADS (Aircraft Design Software)
ADS is one of the most user-friendly and accurate software packages dedicated to take the designer through the entire aircraft conceptual design process. ADS can handle light aircraft, UAV and commuter category aircraft of any configuration. ADS can be used either to design a new aircraft from scratch, or to design modifications to existing aircraft. ADS is used all over the world, by leading aerospace companies, Universities and individuals.

Subcontracting and consultancy play a key role in OAD's activities
We can design all kinds of planes, with any specifications: UAVs, light aircraft, jets, single and twin-engine planes, with electric or internal combustion engines. We can offer comprehensive or specific assistance. We can simply help the designer to define the specifications, or take part in the complete development of the project.

We can design a new prototype or help with modifications to an existing design. We use our own calculation models to answer most questions that arise during the pilot study incredibly quickly.

OAD regularly organises training sessions in businesses and academic institutions
We adapt our training solutions to the level of the participants as well as to the teachers' requirements. The courses can last anything from 1 day to 1 week.

Professional ADS

OSCARS BELGIQUE

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Specialized in Oracle technologies (more precisely its Spatial components), OSCARS federates and optimizes the use of data coming from Geographical Information Systems (GIS). Oscars' expertise covers the installation, configuration and optimization of « Oracle Spatial » databases, consulting services in the area of enterprise GIS data usage as well as training. GIP4Airports is one of OSCARS' flagship software, a powerful analytics and geolocated information correlation tool which aims at optimizing airport management. For further information : www.oscars-sa.eu

OSCARS is an innovative independent consultancy company specialising in the Oracle Spatial sector. It can help you to make the data within your GIS profitable. The company is recognised as a reference player by Oracle, and can help you optimise your use of GIS data, thereby enabling you to increase returns on permitted IT investments...
Given the various GIS players on the market, it is essential that your data be interoperable. Exploiting it for decision-making purposes is a real advantage and a source of new services.

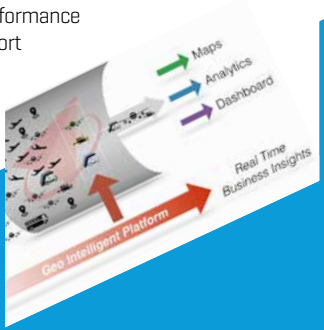
OSCARS, your partner for GIS and Oracle Spatial, is a certified company that has won several awards from the giant Oracle and is recognised as a reference partner.

GIP4Airports is one of OSCARS' flagship software, a powerful analytics and geolocated information correlation tool which aims at optimizing airport management.

GIP is a platform for acquiring and treating geolocalised data, allowing you to set off alerts in real time in response to previously defined spatial events. You can define your own alerts and spatial events; this generates associated workflows that you can later activate or deactivate as and when you like.

GIP is a generic, non-intrusive tool essential for relevant decision-making in real time, based on position and events, whether implemented or not.

The underlying GIP technology takes care of the real time monitoring and management of all equipment elements, players and events pertaining to the airside airport zone (runways, taxiways, car parks and boarding areas). GIP4Airport goes further than the mere cartographic analysis of objects and events. The solution makes it possible for airport authorities to crossreference the data that have been collected. The purpose is to enrich the databases (AODB3) and to allow systems to communicate with each other in order to improve the management and automatic decision making process, based on the rules, constraints and performance indicators each airport has to cope with .



PEGARD PRODUCTICS

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Pegard is active in the machine-tool business for more than 50 years and became well-known in the whole industrial world for its large and precise horizontal boring and milling machines. Created in 1937 and now a subsidiary company of the group OGEPAR, Pegard engineers and delivers tailored solutions for the flexible machining of large precision parts offered to the customer in a turnkey solution. Pegard also provides services in machining and after-sales services.

Machine tools manufacturer
Pegard is specialized in the manufacturing of large horizontal boring and milling machines and machining centers committed to high quality and performance. Our customers are users demanding ultimate levels of precision and automated machining of large mechanical parts, such as turbine rotors, valves, pumps, engine blocks, compressor housings, components for earth moving equipment...

Pegard has also developed its business in manufacturing of vertical turning lathes (Ø1250-4000mm table) and offers you a large panel of sharpening machines through its brand HARO Technologies.

After-sales service
Besides its boring and milling machines and vertical lathes, Pegard offers of course a well-known after-sales service (works on site, spare parts, preventive maintenance...), the retrofit of existing machines as well as an electric department able to realize complex sub-contracting works

Machining subcontracting
Pegard can machine your parts thanks to its large panel of machine tools. Here are our capabilities:
- CNC horizontal machining centers / 3 to 5-axis / up to 9600x3000x700mm
- CNC turning up to Ø5600x2500mm
- Flatbed grinding up to 7200x2200x1350mm
- Quality inspection (Cimcore infinite 2.0 3D arm)
- CAD/CAM softwares

References
BOEING (Spirit aero) – AIRBUS (Premium Aerotech) – SONACA – ASCO – SAFRAN – TECHSPACE AERO – FIGEAC AERO– IBA – KENNAMETAL – CMI

ATELIER DE MÉCANIQUE DE PRÉCISION
POLMANS

POLMANS S.A.

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COMPANY BACKGROUND
Year of establishment: 1973
Number of employees: 50
Export: +/- 28 %
Main Export countries: NL – G – CH – GB – GDL – F

ADDED VALUE
We are specialised in the manufacturing of high precision mechanical parts, from diameter 1 mm to diameter 750 mm. Maximum length: 6000 mm.

In addition to the usual CNC machines, we have several centers lathes allowing 6 axes machining. We also have welding MIG-TIG department for the manufacturing of welded and milled structures.

We are also specialised in the manufacturing of closed circuit systems, where the vacuum must to be created.

We have a specific machine to realise all vacuum tests required.

We are able to machine all type of material, like stele, cupper, titanium, stainless steels, nickel, etc.

We also have injection moulding machines for which we created our own design and moulds.

In addition, we have a drawing office.

RANGE OF PRODUCTS
Turning: diameter 1 mm to 750 mm, length: 10 to 6.000 mm
Milling: </= 3.500 x 1.000 x 1000 mm and 2.000 x 1.200 x 1.500 mm

PRECIMETAL PRECISION CASTINGS

Parc Industriel | Chaussée de Mons 89 | 7180 Seneffe | BELGIUM
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edward.rabendzki@precimetal.be | www.precimetal.com

Investment casting (lost wax process). Steel and stainless steel technical parts for aeronautics.

Civil and military aeronautics: steel, stainless steel, copper and cobalt alloys technical parts:
- For aircraft structures, door locking systems, landing gears, engines...
- For embedded electronic and optics, light and heavy weapons.
- Components and complex pipes for fluid transport and control
- Seat fasteners and other level 2 and 3 parts.
- Machined and coated parts ready for the assembly on production line.

Other sectors:
- Besides the aeronautical and defence sector, Precimetal supplies the nuclear and petrochemical markets, general engineering, food production equipments, fluids processing, defence, building, railway and automotive...

Rapid prototyping:
- Fast casting of steel prototypes based on 3D files and STL models

Technical data:
- Investment casting process (lost wax)
- Parts from 1g to 50 kg
- All steel and stainless steel grades
- Nickel, cobalt and copper alloys
- Machining and surface treatments on demand; ready-to-use parts
- Non destructive testing facilities

Certifications:
- EN 9100 / AS 9100
- ISO 9001
- NADCAP accredited (NDT including Digital X Ray)
- Qualified as test laboratory

References:
- AIRBUS, SAFRAN, STELIA, ZODIAC, LATECOERE, AVIC, HAL...

Investment casting strengths:
- Dimensional accuracy and surface quality
- Complex shapes, thin walls, design freedom
- Lower weight
- Reduced machining, welding and assembly
- Very wide choice of alloys

PRONOVEM
Intellectual Property Group

PRONOVEM GROUP

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astrid.de.ro@pronovem.com | www.pronovem.com

Towards sustainable competitive advantage...

We are an international group of law firms specialised in the field of Intellectual Property. We offer a full range of high-quality services in Intellectual Property matters, including patents, trademarks, designs, copyright, IP licensing and acquisition, IP dispute resolution and valuation of IP Rights.

PRONOVEM® built up the necessary competence to help you implement available assessment and management methods for Intellectual Property Rights.

We work for international companies, SMEs and individuals with a service adapted to the size and demand of the entity.
Passionate about Intellectual Property matters, we combine our legal expertise and individual engineering or scientific skills in various fields of technology: Mechanical Engineering, Electrical Engineering, Microelectronics, Material Sciences, Computer-implemented inventions, Coatings, Ranging technology, Satellite Navigation Systems, Nuclear technologies, Robotics, Telecom, Acoustics, Optics, Control systems...

Q3S S.P.R.L.

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info@q3s.com | ww.q3s.com

Q3S is an engineering company providing consultancy services to companies willing to master their operational, organizational and technological evolution.

Our main activities are:

- Safety-critical Systems and Products:
  - Architecture of safety critical systems and products
  - Engineering processes of Safety critical systems and products
  - Quality and Safety Management for safety critical systems and products
  - Software Verification & Validation
  - Safety studies and safety cases (risk analyses)
  - Independent Safety Assessment and Certification of Systems, Products and Software.
- Software Verification, Testing & Validation
- Requirement & Design Verification, Software code review, Software FMEA, Dynamic & Static Testing, Integration Testing, Validation Testing
- RAMS and Dependability Engineering for Systems and Products
- Analyses, studies & support in Reliability, Maintainability, Availability and Safety, Safety Case, Proof of Safety , Trade-off studies, Independent Safety Assessment
- Design Control & Management during Development phase
- Development process methodology, Functional Analysis, Quality Assurance, Safety Assurance, Requirement Management, Configuration Management, and Traceability
- Logistic and Maintenance
- Maintenance Policy Definition and Optimisation, Reliability-Centred Maintenance, Integrated Logistic Support, Life Cycle Cost

We are now also focusing on:

- UAV engineering, manufacturing and testing
  - State of the art knowledge of small UAVs (drones)
  - Knowledge of civil aviation rules and procedures (Design, manufacturing and assembly competences and capabilities related to R/C aircrafts (CAD/CAM, CNC)
  - On site testing capabilities (recognized RC Pilots) and facilities for Drone (In partnership with DGTA authorized Radio Controlled airplane field)

Our Clients

- ALSTOM, SIEMENS, BOMBARDIER, THALES,STIB, INFRABEL, TUCRAIL, SNCB
- CERTIFIER, BELGORAIL, KEMA, RAILCERT
- LOGIPLUS, FABRICOM, TRACTEBEL Development,
- Egnos (ESSP) , Septentrio

Q-SQUARE MANAGEMENT

Rue de Rodeuhaie 1 | 1348 Louvain-la-Neuve | BELGIUM
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info@qsquare.be | www.qsquare.be

Created in 2013, located in the suburbs of Brussels, Q-SQUARE Aerospace is a highly specialized company delivering Quality Management Consulting and Audit services.

Our team is composed of senior engineers and PhDs, each demonstrating track records of more than 20 years, running R&D and Production activities in the Manufacturing, Aeronautics, Space and Defence industries.

Our consultants complete their technical experience with key Quality certificates and have all implemented/run Quality Management Systems in the industry. Some also act as 3rd party auditors (ISO 9001, AS/EN 91xx series) for worldwide-recognized certification organisms.

The combination of technical skills, quality knowledge and team management gives you the best guarantees for success. Our missions are sharply defined and run at fixed costs.

Added value is very strong, especially for fast growing high-tech companies.

What we do?

- Audit your suppliers worldwide
- Supplement your teams with high level ad-interim Quality resources
- Run your gap analysis going to the latest revisions of aerospace standards (AS/EN 91xx)

How we do?

In a simple, pragmatic, flexible and cost-effective manner, thinking "out of the box"

Keywords

Quality Management, Product Quality, Aeronautics, Space, Audit, Defence, AS/EN 9100

RHEA SYSTEM

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info@rheagroup.com | www.rheagroup.com

Premier supplier of system engineering solutions, security and crisis management consultancy and software development. RHEA Group has 25 years of experience in the security and the space system engineering service market. Key clients include European Space Agency, Belspo, the European Commission, Federal Government of Canada, the City of Montreal, EUMETSAT, CERN, NATO, the European GNSS Agency and the European Southern Observatory.

RHEA Group is actively engaged in developing the latest advancement in the fields of security and crisis management, space systems, and engineering services. Some of the main products designed by the company are Nuvlabox®, SlipStream®, CDP®, and MOIS7®.

On Security and Crisis Management, the company offers the latest trends in physical security, cybersecurity and critical infrastructure protection. Some of the most groundbreaking security projects include: leading the first cyber-range for space systems and operations for the European Space Agency to contributing to the largest-ever NATO cyber-defense exercise.

On Space Systems, RHEA Group's MOIS7 software automates different complex processes, reducing the time spent by the user in operations' preparation while simultaneously increasing the quality of testing and safety of mission. MOIS is used as a standard by the European Space Agency (ESA).

On engineering services, RHEA Group is leading the market with its Concurrent Design method that has streamlined the complex engineering design for companies, facilitating the production of its products and reducing design time and lifecycle cost.

RHEA Group works with the best scientist and engineers to contribute to the more advanced engineering projects and space missions. Having contracts with the European Space Agency, the European GNSS Agency, the European Commission, the European Southern Observatory and EUMETSAT.

RHEA Group operates in ten countries with more than 300 scientists and engineers worldwide. The company has headquarters in Montreal, Canada, for operations in North America, and in Wavre, Belgium, for European operations.

Certified ISO 9001:2015 for system engineering and security and crisis management consultancy. Project management and development of software and systems.

ROVI-TECH

ROVI-TECH S.A.

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rovitech@rovitech.com | www.rovitech.com

ROVI-TECH is specialized in industrial vision system installed on production lines and also in the building of turnkey special machines for conformity and quality control of products according to customer request.

ROVI-TECH is active in all industrial sectors and also the aero-industry.

Our references in aero industry:

- Turn Key machine for quality control of roller bearings for reactors and turbines,
- Cosmetic control of reactor blades,
- Sorting of screws,
- Traceability by vision: automatic figures and characters reading and also images storage of all produced products before shipment.
- Vision operator assistance for manual operations.

Our last developments:

- Quick metrological station installed near the CNC machines as operator help by vision for an automatic control of the conformity of production samples and also saving of results.
- Metrological operator assistance for assembly of components.

SABCA S.A.

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sales@sabca.be | www.sabca.com

With strong shareholders (Dassault Group and GKN Aerospace/Fokker) and soon celebrating its first century in aerospace, SABCA, a Belgian company, has within his group 1160 highly motivated employees mastering all skills from design, manufacturing, qualification and support. The SABCA group location includes four plants in Belgium and in Morocco.

The SABCA group is a major player from design to certification of complex metal and composite "plug and fly" Aerostructures for aircraft and space vehicles, integrated and equipped.

Through his own-design expertise in actuation, SABCA is an European reference for Thrust Vector Actuation systems of satellite launch systems. Programmes like Ariane 5 and 6, Vega and Vega-Consolidation benefit from it.

SABCA offers high-end expertise in maintenance, repair and overhaul as well as modernization of military platforms and maintains most of the fleet of the Belgian armed forces. It also works with other European countries, as well as the US Air Force (USAFE), on the F-16.

Références and/or Certifications
EN/AS/JISQ 9100 certification, AQAP 2110 certification, POA i.a.w. EASA part 21 Subpart G, MOA PART 145.32, PRI-NADCAP certifications (Chemical Processing, NonDestructive Testing...), ISO-9001 certifications

sabena aerospace
KEEP ON FLYING, WE TAKE CARE

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www.sabena-aerospace.com

Sabena Aerospace is a leading independent and international aviation solutions provider for civil and military operators. Our century of experience enabled us to develop an internationally recognized expertise and savoir-faire as well as a responsive internal capability. Our mission is to facilitate and optimize our clients' business by offering highly qualitative, customized and efficient solutions.

Sabena Aerospace Engineering supports its customers with 5 different types of services:

- **Line Maintenance** support of major airlines in Brussels, Antwerp, Luxembourg and a series of outstations on the African continent
- **Engineering & CAMO** support of major airlines through our centralized Engineering Service Center in Brussels
- **Component Repair Services** for a wide range of aircraft components: Nacelle, Flight controls, Composite, Wheels&Brakes, L.S.E. & Tubing
- **Flex Aviation Service Team** providing Cabin Maintenance, Aircraft Decoration, On-Site Manpower and AOG assistance to our customers
- **Defence & Government** activity supporting Belgium's C130 fleet with heavy maintenance and NATO's AWACS fleet with component repair

SAFRAN AERO BOOSTERS

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Safran Aero Boosters designs, develops and produces modules, equipment and test cells for aerospace engines. Thanks to its high-tech products, the company equips the Ariane launcher and most commercial aircraft engines in all thrust ranges. Based in Liège, Safran Aero Boosters has approximately 1,450 employees on an integrated 65,000 m² site.

BOOSTERS

Low-pressure compressors and front bearing support

- Responsibility of low-pressure compressors for CF34, CFM56, GE90, GE9X, GEnx, GEPassport, GP7200, LEAP and Silvercrest engines
- Technology for developing more environmentally-friendly engines: light-weight booster (BluM® and composites) and high-speed booster
- Partnerships with Safran Aircraft Engines, General Electric and Pratt & Whitney

OIL SYSTEMS

Lubrication units, oil tanks, heat exchangers, special valves

- Responsibility of lubrication equipment for CF34, CFM56, GE90, GE Passport, LEAP, PW1000G (for MRJ, C-Series, E-jet), Silvercrest, TP400, SaM146 and helicopter engines
- A shift towards "more electric" aircraft and thermal management Maintenance, Repair and Overhaul for over 50 customers

TEST CELLS

Turnkey test cells, testing equipment, data acquisition and control systems

- Responsibility of military and civil test cells from A to Z, modernization and adaptation of test cells for all types of engine (turbofan engines, turbojets, turboshaft and engine components)
- Shift towards smart cowlings and more environmentally-friendly test cells (studies to find solutions that cut fuel consumption and recover energy)
- 50 customers: engine manufacturers, maintenance centers and armed forces

SPACE EQUIPMENT

Flow control valves for launcher engines and tanks

- Responsibility of flow regulation valves for the Vulcain 2® and Vinci® engines and stages
- Shift towards electrically actuated valves and boast enhanced features
- Partner of Airbus Safran Launchers for Ariane 5 & 6

SAGITA

SAGITA

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T. +32 (0)497 52 89 64
h.antoine@sagita.be | www.sagita.be

- The new TDR helicopter drive system; Turbine Driven Rotor
- The Sherpa: a ULM two seater helicopter featuring the TDR concept
- Innovative solutions in turbomachinery

Turbomachinery

- Turbines specifically developed to drive a contrarotating helicopter rotor
- Composite centrifugal compressor

Flight testing

- Wind tunnel and flight tests on small scale (1/5) models validate the TDR concept for autorotation, handling and stability, fuselage drag

Sherpa

- Currently undergoing ground testing
- The research and development is supported by the Walloon Region

SAMTECH
a SIEMENS Business

SIEMENS

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www.plm.automation.siemens.com/fr_be/products/lms/samtech/index.shtml

SAMTECH S.A. provides a complete suite of virtual prototyping and analysis solutions for structure analysis, including composites, thermal analysis and flexible systems simulation for aircraft and airframes, aircraft engines and Space, complementary to engineering services activities.

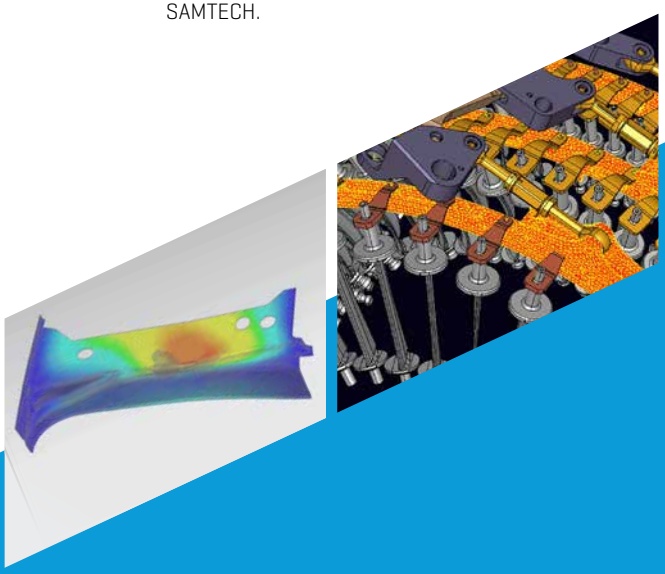
Subsidiary of Siemens PLM Software since 2013, SAMTECH S.A. develops since 1986 the general purpose Finite Element Analysis software LMS Samtech SamcefTM, the multidisciplinary optimization platform LMS Samtech Boss QuattroTM and the customizable collaborative engineering platform LMS Samtech CaesamTM, on which several professional software products are based for customized applications.

SAMTECH S.A. addresses complex engineering challenges associated with intelligent system design and model-based systems engineering.

The SAMTECH S.A. software technology has an unsurpassed reputation for its quality and reliability. It has been adopted by many major companies across all engineering disciplines as an integral part of their design process.

References and/or Certifications

Major Aerospace worldwide customers like AIRBUS, AIRBUS Defence&Space, AIRBUS Group Innovations, AIRBUS Helicopters, SAFRAN, SONACA, SABCA, TECHSPACE Aero, AMOS, V2I, GDTECH, AIR liquide, AVIC, CNES, COMAC, DGA, ESA, GTRE, Intespace, JAXA, KARI, MBDA, Rolls Royce, Sagem Defense&Security, Turkish Aerospace Industries or Thales Alenia Space trust the expertise of SAMTECH.



SECO TOOLS BENELUX

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www.secotools.com/be

Seco Tools has an established reputation as a leading manufacturer and supplier of carbide cutting tools and associated equipment.

Seco's range of products includes a complete program of tools and accessories for turning, milling, drilling and reaming and attachment systems of additional tools. With over 25,000 standard products, Seco is a leading provider of complete solutions for metalworking and machine tools.

The company headquarters are located in Fagersta in Sweden. Seco is present in over 50 countries worldwide, with 40 branches, distributors and channel partners.

For more information, visit the website www.secotools.be

SHUR-LOK INTERNATIONAL

A PCC COMPANY

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www.pccfasteners.com | www.pccaero.com | www.precast.com

Shur-Lok International 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 International has also strong expertise in producing hard metal machined parts for Aircraft engine and Helicopter components.

Shur-Lok International is EN 9100 & NADCAP certified and processes all aerospace materials, specifically high-alloyed steels, stainless steels, high-temperature-resistant steels, titanium or aluminium.

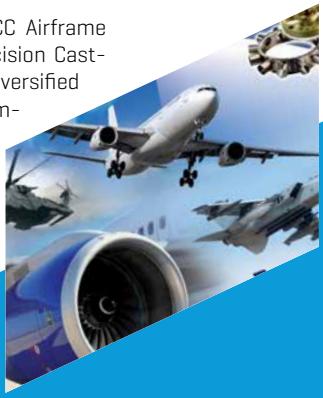
SL Fasteners are used in high vibration and load transfer applications to provide superior alignment, load transfer, resistance to wear and movement, and ease of assembly. Our key product lines include bearing locknuts, barrel nuts, expandable diameter fasteners, studs and inserts, lockwireless fittings,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

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

Shur-Lok International is part of PCC Airframe – Engineered Products Division, Precision Castparts Corp. (PCC) a worldwide, diversified manufacturer of complex metal components and products.

Precision Castparts Corp. is leader in structural investment castings, forged components, and airfoil castings for aircraft engines and industrial gas turbines. Airbus, Boeing, GE, Rolls-Royce, and many other leading manufacturers depend on us for critical airframe, engine, power generation, medical, and general industrial components.

With few exceptions, every aircraft in the sky flies with parts made by PCC. PCC is a wholly-owned subsidiary of Berkshire Hathaway Inc.



SKYANGELS

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T. + 32 (0)476 40 11 72
john.pyrgies@gmail.com | www.skyangels.aero

SkyAngels is a Walloon "Young Innovative Company" incorporated in 2014. Its mission is the design, the development and the DO178C certification of "intelligent" avionics software embedded in autonomous drones supporting the critical missions of military, police and civil security forces.

SkyAngels current research themes are:

1. The design, the development and the DO178C certification of "intelligent" (i.e. based on artificial intelligence) embedded avionics software implementing critical functions (ex sense-and-avoid) for enabling the autonomy of Unmanned Aerial Vehicles used to support the critical missions of military, police and civil security forces. This research is led in the scope of a PhD thesis initiated at the Namur University, in collaboration with the Belgian Royal Military Academy and the "Centre d'Excellence Drone" of the French Air Force.

2. The threat modelling of terrorist attack scenarios led with commercial micro-drones and the integration of mitigating technologies within systems aimed to detect, classify, track and neutralize, with electronic and kinetic means, a swarm of hostile drones. The research also includes the design of "intelligent" software controlling those Counter-UAVs systems.

3. The cybersecurity measures protecting governmental UAVs from cyberattacks.

4. The applications of UAVs for Search-And-Rescue and the transport of emergency medical equipment.

5. The concept of "UAVs-carrier airship" (Zeppelin like) used for military missions.

Counter-UAVs vehicule equipped by Hypercable and Kelvin Hughes

SOBELCOMP

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info@sobelcomp.be | www.sobelcomp.be

Sobelcomp studies and produces parts made from composite materials.

It has committed to a high-quality approach and has had its quality management system certified according to standard AS/EN/JISQ 9100 (and ISO 9001).

It's also convinced that innovation is the driving force behind its activity.

Aviation activity:

Safran Aero Booster: Sobelcomp designs the moulds and produces the air intake sleeves and the cowlings for plane engines. These are used when the engines are undergoing maintenance on test cells and are used to simulate the airflow as if the engines were flying (engine type: GEnx, CF34-10, CF34-8, Silvercrest and CFM56-5).

In order to satisfy Safran Aero Booster, Sobelcomp had to show inventiveness and competitiveness by offering technical solutions based on its expertise.

Sonaca: Sobelcomp produces specific tools which are then used to create the leading edges of the wings of planes.

Defence activity:

FN Herstal: Sobelcomp produces cowlings which are then mounted onto armed stations operated remotely.

Recently, the client asked us, in addition to producing the composite part, to take charge of the assembly of all the metal fittings and the painting to provide a finished piece ready for assembly.

Sobelcomp is currently studying a structural part from a helicopter. Thanks to its innovation, Sobelcomp was able to offer its client a part with a 30% mass gain.

CMI Défense: Thanks to its good reputation, Sobelcomp has just secured its first contract with CMI Défense. It will be producing mounted external hoods for tank turrets.

SOGEX-EREM S.A.

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info@erem.be | www.erem.be

Family company created in 1962, EREM is specialized in electro-mechanical machining of higth precision parts. We can produce in single part or large quantities for a variety of industrial sectors such as spacial, aerospace, medical, nuclear...

Erem started the manufacturing of components for start and stop ACEC engines such industrial resistor, contactor, relay...

We rapidly extended our activities to support our customer needs by manufacturing a wide range of high quality electromechanical products. With the time, we have in parallel developed a high know-how in industrial resistive elements.

Currently, we still propose these products with many other electromechanical devices based on customer's drawings but our investment in high technology manufacturing tools has enable us to specialize in precision machining on speciality parts using a wide range of materials such as steel, stainless steel, non ferrous materials (copper, aluminium, brass...), technical plastics, composite materials...

Recently we equiped our workshop with a Mazak simultaneous 5 axis CNC machine to increase our range of services for more complicated parts.

Quality controls are performed using, among others, a 3D control machine and CNC numerical optical control.

Our goal is to provide high quality products with excellent service levels and to be flexible to meet our customer needs.

SOLVAY S.A.

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Solvay is a multi-specialty chemical company, committed to developing chemistry that addresses key societal challenges. Its products and solutions are used in planes, cars, smart and medical devices, batteries, in mineral and oil extraction, among many other applications promoting sustainability. Its lightweighting materials enhance cleaner mobility, its formulations optimize the use of resources and its performance chemicals improve air and water quality.

Cleaner mobility

Manufacturers have to comply with ever more stringent regulations on CO2 and particulate emissions while meeting consumer demand for safer and more environmentally sustainable travel. Our solutions contribute to cleaner, safer and more energy-efficient modes of transportation. We produce lightweight materials for both the automotive and aerospace industries to help make vehicles and aircraft more fuel-efficient and cost-effective. We provide products that improve powertrain efficiency through effective thermal control and protection against corrosion. In the field of electric vehicles, we contribute to developing batteries offering higher energy density and greater power. Our high-performance silica reduces the rolling resistance of tires, which helps cut CO2 emissions, while we also produce rare earth materials that help reduce NOx emissions from diesel engines.

SONACA GROUP

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sales@sonaca.com | www.sonaca.com

Leading Tier-1 Player in aerospace, Sonaca Group is a global Belgian company active in the development, manufacturing and assembly of integrated structures for civil, military, and space applications.

Leading Tier-1 Player in aerospace, Sonaca Group is a global Belgian company active in the development, manufacturing and assembly of integrated structures for civil, military, and space applications. In response to strong demand from our customers, Sonaca Group today also supplies engineering services, wing panels, composite structures, forming parts, and machined parts. Sonaca achieves this through customer focus, recognized operational excellence & innovation. It employs 2500 people including 350 engineers. Sonaca has production facilities in Belgium, Brazil, Canada, China and Romania combining best cost country and customer proximity locations. All sites are robustly organized as one-stop-shop manufacturing with all necessary qualifications and approvals.

TECHNICAL AIRBORNE COMPONENTS (TAC)

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sales@tecairco.be | www.tecairco.be

Technical Airborne Components Industries (TAC), established in 1981, designs and manufactures rods and struts for the aerospace industry. TAC is recognized worldwide as the reference source for high quality, custom engineered control, structural and system rods.

Its expertise in design, development and manufacturing of metallic & composite struts and rods is complemented by related machined parts (e.g. cranks, brackets), special tubular links, telescopic rods, torque shafts and special rod ends.

As one of the leading suppliers in this industry TAC today supplies to its customers all over the world products for all segments in aerospace: commercial aircraft, regional and business jet, helicopter, military and space program.

Whether your needs are for specific design, innovative solutions, built to print or standard items TAC will provide a tailor-made answer for all requirements of aeronautical struts & rods.

Over 180 employees are working at TAC offering the complete scope of competence from developing solutions to performing qualification testing and hence rapid prototyping and production.

TAC is part of TransDigm Aerospace units.

References and/or Certifications

- Certification EN 9100
- NADCAP certification NDT
- ISO 14 001

THALES

THALES BELGIUM S.A.

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dany.emonts@be.thalesgroup.com | www.thalesgroup.com

Thales Belgium has served worldwide and the Belgian defense, security, safety and transportation markets for more than 50 years. Today the Group employs more than 200 people at 3 sites across Belgium, in Herstal, Tubize and Genk. 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 customers.

Added value

- Supplier of tactical communication systems & sensors
- Partner of NATO's program to upgrade its AWACS early warning and control aircraft
- Unique company able of offering and mastering the whole air-to-ground rocket system
- Technologies: propulsion, pyrotechnics, mechanics, electronics, ballistics, guidance

Range of products

- 2.75''/70 mm air-to-ground rockets systems for aircraft & helicopters including ammunition, rocket launcher, weapon system management, GSE and integration
- Tactical communication systems and a variety of onboard sensors for all platforms
- Modernising the communications systems as a Tier 1 supplier to aircraft manufacturer
- Cryptographic & cyber security solution to protect on-board data
- Digitalisation of aircraft operations based on Electronic Flight Bag (EFB) solutions

Main references

- Customers & partners: Nato / Napma, Belgian Defense, Luxembourg Defense, Boeing, Raytheon, Northrop Grumman, Lockheed Martin, Thales Avionics, Thales Communications & Services, Astrid, Airbus, Stib Brussels
- OEM: Airbus Helicopters, Hindustan Aeronautics, Leonardo Helicopters, BAE Systems, Denel, more than 300 platforms are operated by End Users with FZ Rocket systems adopted by 55 countries and 70 armies worldwide

Certification

Thales Belgium is certified according to ISO 9001:2008 and qualified supplier by various helicopter and aircraft OEM's

V2i

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info@v2i.be | www.v2i.be

V2i provides a full range of services in the field of mechanical vibrations

- Based on researches of international repute of the University of Liège in the field of structural dynamics
- Continuously improved and updated in close collaboration with the Department of Aerospace and Mechanical Engineering

Thanks to its complementary expertise in numerical modeling and experimental testing, and thanks to innovative tools, V2i offers to its customers the necessary integration of simulation and testing in customized solutions.

List of services:

- Shaker testing
- Vibration measure
- Finite Element modeling
- Turnkey tailor-made monitoring systems

- Finite Element Modeling
  - Modal parameters
  - Spectral response
  - Fatigue behavior, lifetime prediction
  - Shaker Testing Simulation
  - Model correlation and updating
- Shaker and Environmental Testing
  - Qualification, certification
  - High Cycle Fatigue Testing
- Vibration Measurement and Analysis
  - Modal analysis, Operating Deflection Shape
  - Rotor dynamics
  - Calibration
- Turnkey Tailor-made Monitoring Systems
  - Machine Condition Monitoring
  - Laboratory Test Rig
  - End Of Line Testing

Certifications:

- ISO 9001:2008
- Safran - Rolls-Royce
- 3 Certified LabView Developers
- National Instrument Alliance Partner

References:

- Safran
- Rolls-Royce D
- Thales
- Sabca
- Sonaca
- FN Herstal
- ArcelorMittal
- Emerson

HIGH PRECISION SPRINGS

VANHULEN

Zoning Industriel des Hauts Sarts Zone II
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info@vanhulen.be | www.vanhulen.be

Compression Springs. Traction Springs. Form Springs. Torsion Springs. Double Torsion Springs. Induction Coils. Locking Rings.

Stamping of items in single or combined toolings, by electroerosion, laser and chemical components for prototype building and small series.

Assembling of mechanical, plastic or electronic parts in using conventional or specific processes (tig and ion-beam welding...).

The quality of the VANHULEN products is officially certified by standards such as ISO 9001:2008, EN 9100 P2 (First in Europe) and ISO/TS 16949:2009.

VENYO EUROPE

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Venyo's activity is to design, manufacture and market professional flight simulators (EASA/FAA certified). Since 2009, Venyo has been working on a revolutionary FSTD prototype (B737NG) which was revealed and made its "World Premiere" at the Paris Air Show in 2013. It was the very first time that the aeronautical industry was able to view an innovative and fully functional flight simulator operated on site at Le Bourget. Qualified as a "Game Changer" by the professional community, not only confirmed but encouraged Venyo's intention to continue to invest and move from concept to commercialization.

As new entrants in the flight simulator market space, we're proposing a B737NG aircraft specific shell and flight deck, offering the form, fit, feel and function of a Full Flight Simulator without the motion. Designed from day one to be certifiable as EASA FTD Level 2 (even FFS Level D), our product is ideal to off-load training tasks that would otherwise be done in an expensive Level D full-flight simulator at an unrivalled budget.

WOUTERS TECNOLUB

Zoning Industriel des Plénesses
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info@wouters-tecnolub.com | www.wouters-tecnolub.com

The company Tecnolub has been created in 1988 merging his initial lubrication expertise with the aeronautical industry needs of lubricants pulverization and has grown up by developing a global concept for the mechanical industry.

Tecnolub was immediately interested by the Microlubrication and has developed systems that can provide flexible and adapted solutions to its client's requirements.

Micro-lubrication advantages:

- Controlling the volume of lubricant, and reducing consumption by 50 to 90%.
- Reducing the volume of products to be recycled, less storage, less handling.
- Reducing costs for metalworking (tools, products).
- Better working conditions: improved health and safety. Greater respect for the environment.
- Use of a lubricant that is always fresh, and thus always has optimal characteristics.
- Increased machining performance, possibility of increased speeds.
- Improved surface condition of machined components.
- Reduction of temperature rise due to friction.
- Increased tool life, since the lubricant is consumed during operations and is always fresh.
- Dry swarf: no spinning required and has added value.
- Possibility of using a soluble lubricant (better tool cooling).
- Perfect visibility during machining.
- No formation of oil mist in the workplace.
- Elimination of problems of bacterial and fungal.
- Particularly adapted and interesting for machining in open table.

Recently, Tecnolub expanded his activity to food, concrete and plastic industry for deposition off thin layers of liquids (alcoholic aromas, alcoholic gum, alcoholic coolant, release agents...)

Located in the centre of Europe, we deliver our products all over Europe and the North of America. Since June 2004, Tecnolub has started a new branch in Montréal.

WOW TECHNOLOGY

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mail@wowtechnology.com | www.wowtechnology.com

With more than 20 years of expertise in the aero industry, fully understanding the normative and documentary requirements, WOW Technology developed "tailor-made" equipment as specified below. Founded in 1983, the company is a world-renowned global leader for the development and the manufacturing of exceptional automated and test & measurement solutions in a wide range of industries (pharmaceutical, glass and cosmetics, medical technology, food and transportation industry). WOW Technology sets new industry standards in terms of innovation, effectiveness and ecological balance. It combines proven technologies and tried-and-tested automation modules with specially designed construction details in order to provide an integrated solution that fits exactly into the production lines of its clients.

Description of Products and/or Services

- Functional testers of electronic equipment
- Mechanical and thermal stress test benches for actuators
- Control systems for test benches
- Automation and robotics

Références and/or Certifications

References: major tier 1 aeronautical and aerospace companies
Certification: ISO 9001-2008 (since 2001) and ISO 13485-2003 (since 2013)

X-RIS

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ic@xris.eu | www.xris.eu

X-RIS ACTIVITIES:

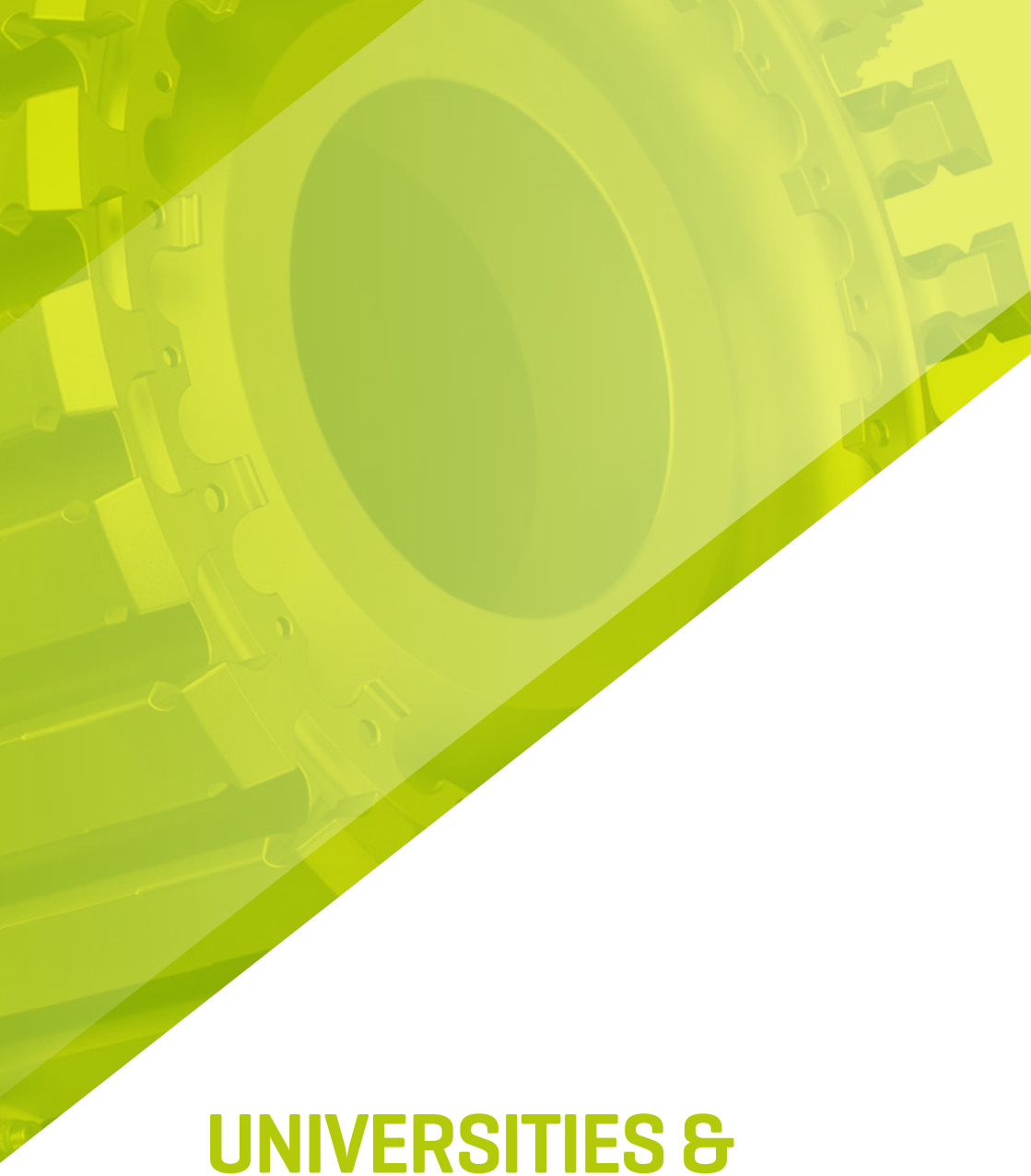
X-RAY Imaging Solutions is active in the developmenht and the delivery to customers of up-to-date solutions in Digital Radiology both in NDT and in Security. The company offers standard and customized solutions.

The company is located at Liège in Wallonia (Belgium), an aera that benefits from a worldwide reputation for its competences in industrial x-ray.

Company philosophy is to provide user-friendly and efficient solutions that fit at best the application needs. To achieve these goals, X-RIS relies on the complementary competences of its young, dynamic and highly skilled team.

The company is particularly technologically-oriented with 6 engineers et 3 technicians from 25 to 50 years old cumulating more than 80 years of experience in the field of x-ray. Our engineers are dedicated to the development of standard and customized solutions but also to provide training and support to all our customers and partners.

X-RIS principally works with the Security and NDT department and collaborated with FBI, Safran, Airbus, Pratt & Withney, Dassault, TOTAL, and so on.



UNIVERSITIES & RESEARCH CENTERS

UNIVERSITÉ CATHOLIQUE DE LOUVAIN

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sebastien.adam@uclouvain.be | www.uclouvain.be

With a scientific task force of more than 3500 researchers and an annual research budget of 125 M€, the research is a true driving force behind UCL's activities. Through European, national and regional research programs, particularly in the aeronautics and space areas, UCL continuously contributes to the advances in a variety of research topics:

- Composites & Engineering materials
- Multi-physics & multi-scale modeling
- Thermodynamics & fluid mechanics
- Mechatronics
- Information & Communication Technologies
- Research platforms: fabrication, characterization & testing facilities directly accessible for companies

Both fundamental and applied researches are carried out with the technical support of research platforms and experimental laboratories.

Composites & Engineering materials

The Research center on ARChitectured and COmposite MATerials federates the activities of several teams working in the field of architectured, hybrids and composite materials: the Engineering and Rheology of Composites and Macromolecules (IMCN/ERC&M) and the Materials and process engineering (iMMC/IMAP) research groups. ARCOMAT gathers expertises on (in)organic materials, on experimental characterization and multi-scale/physics modeling, and on mechanical and functional properties. Researches are articulated around the development of innovative composite or architectured material solutions through processing, characterization, testing, assembling, modeling and selection of engineering materials. ARCOMAT also offers an integrated support to the industries working in the field of composites.
More information: uclouvain.be/en/research-institutes/imcn/bsma
uclouvain.be/en/research-institutes/immc/imap

Multi-physics & multi-scale modeling

The MEchanics MAthematics division (iMMC/MEMA) has two main activities in the field of aeronautics. Firstly, based on multiscale modeling schemes, MEMA develops constitutive laws for advanced materials used in aeronautics. Nonlinear mean-field approaches accounting for different types of reinforcements (particles, short, long fibers or foams) as encountered in polymer-based composites and in metal-matrix composites. Novel crystal plasticity models are developed in order to investigate forming of multiphase metallic alloys. Secondly, based on home-made numerical codes, MEMA performs intensive finite element simulations of multi-physics processes. Its expertise is in adaptive meshing, parallel computing, unit cell calculation of materials with intricate microstructures, and robust integration algorithms in fluid mechanics.
More information:
uclouvain.be/fr/instituts-recherche/immc/mema

Thermodynamics & fluid mechanics

The research at the division of thermodynamics and fluid mechanics (iMMC/TFL) in the field of aeronautics covers three main topics: (1) fluid mechanics, aerodynamics and hydrodynamics: external flows past streamlined and bluffbodies, aircraft wake vortex flows, shear flows, internal flows, reacting flows, advanced numerical methods, advanced turbulence modeling; (2) energy systems and combustion: thermodynamics, thermal cycles, heat transfer, analysis of processes, combustion equipments, thermal engines; (3) two-phase flows: particle-laden flows, critical flows, ejector flows, atomization, nucleation. The research benefits from the technical support of the HPC facilities of UCL.
More information: uclouvain.be/en/research-institutes/immc/tfl

Mechatronics

The Center for Research in Mechatronics (iMMC/CEREM) focuses on the design, modeling, simulation, optimization and prototyping of mechatronic systems, i.e. systems optimally integrating sensors, actuators and control strategies within mechanical devices. More specifically, the CEREM develops five axes of research and expertise: Multibody and multiphysic modeling; Optimal design of mechatronic devices; High Performance Actuators; Power electronics; Innovative joining process.

More information: www.cerem.be

Information & Communication Technologies

The Institute of Information and Communication Technologies, Electronics and Applied Mathematics (ICTEAM) carries both basic and applied world-class research in various sub domains with direct applications in the aeronautical sector: Communication systems and networks (positioning, channel modeling, navigation systems...); Cryptography and Information Security (strong security protocols design & analysis); Dynamical Systems, Control and Optimization; Electronic Circuits and Systems (embedded systems, ultra low power for harsh environments, radiation hardness, sensors); Micro and Nano Technologies and Systems (characterization of material properties at the nanoscale, composite materials for EM shielding); Microwave Engineering and Applied Electromagnetism (numerical electromagnetics, RF & microwave circuits, antenna design, satellite communications); Signal and Image Processing.

More information: uclouvain.be/en/research-institutes/icteam

Research platforms

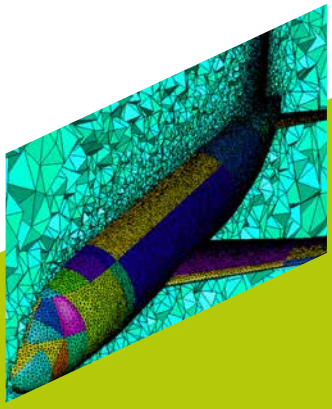
The Wallonia Electronics and Communications Measurements platform (WELCOME) proposes a wide panel of **characterization** techniques under various electromagnetic, mechanical and temperature conditions that are of prime interest for automotive, space, aeronautics and radar applications. Tools and expertise result from key research axes including micro- and nanotechnology, SOI technology, RF circuits and antennas, digital systems and VLSI architectures, cryptography, MEMS/NEMS, ultra low-power circuits, extreme-environment components (radiations, temperature) and wireless communications.

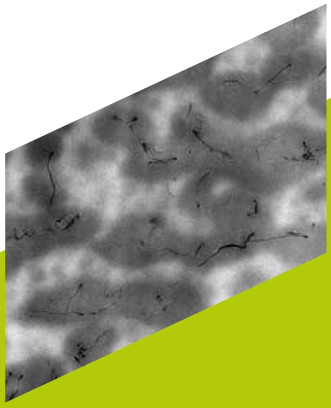
More information: sites.uclouvain.be/welcome

The Wallonia Infrastructure Nano Fabrication facility (WINFAB) is a shared resource serving academic and industrial researcher. Main activities include the **fabriaction** of SOI-CMOS integrated circuit processing, MEMS/NEMS, nanoelectronics, organic electronics, photovoltaics and sensors. WINFAB supports a broad line of lithography, thin-film deposition, reactive ion etching, and characterization tools in support of device fabrication for a variety of materials.

More information: sites.uclouvain.be/winfab/NEW_website/login.html

The Laboratory of mechanical **testing**, structures and civil engineering (iMMC/LEMSC) provides, in the field of aeronautics, an integrated research platform for mechanical testing of materials, especially composites, and structures, under ISO 17025 certification.





UNIVERSITÉ DE LIÈGE

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The University of Liège has a long tradition in aeronautics within the Faculty of Applied Sciences. shared between three departments and one research center: Department of Aerospace and Mechanical Engineering(A&M), Urban & Environmental Engineering (UEE), Department of Electrical Engineering and Computer Science (EEI Montefiore) and Centre Spatial de Liège (CSL). Various skills are offered and available.

A&M Department

The **Aeroelasticity and Experimental Aerodynamics Research Group** of the University of Liège carries out internationally recognized research in the fields of aeroelasticity, experimental aerodynamics and fluid-structure interaction. Applications include air vehicles, civil engineering structures and land vehicles.
The research group collaborates closely with the University's large, closed return multidisciplinary low speed wind tunnel. It has two working sections, with a maximum cross-sectional area of 2.5x1.8m (width x height) and a maximum airspeed of 60m/s. (***www.ltas-aea.ulg.ac.be***)
The **Computational & Multi-scale Mechanics of Materials research unit** (CM3) focuses on the developments of multi-scale numerical methods for complex non-linear engineered materials, such as the failure study of composites, foamed materials, and MEMS. The research is achieved through international collaborations with other universities, research centers, and industries; it is financed through national and European projects. (***www.ltas-cm3.ulg.ac.be***)
The **Metallic Materials Science Unit** (MMS) studies the physico-chemical phenomena that governs optimization of metallic materials and determines their properties.
The main focus is concerning thermal treatments, phase transformations at liquid and solid state for aeronautical alloys (Al, Ni, Ti, special steels) and thermophysical properties.
The MMS researches concerns also microstructure obtained through particular processes such as: thixoforming, vacuum coating and deposition of thin foils, friction stir processing, laser cladding, electron beam melting, powder metallurgy.(***www.metaux.ulg.ac.be***)
Current research activities of the Aerospace & Mechanical Department Turbomachinery Group are applied thermodynamics, simulation of flows in turbomachines and aircraft engine health monitoring. (***www2.ulg.ac.be/turbo***)
The **Computer Aided Geometrical Design group** is active in research in CAD/CAM/CAE and the link with novel numerical simulation techniques. Among our research topics, the following have applications in aeronautics:

- Novel simulation techniques like the Extended Finite Element Method (X-FEM)
- Application of the X-FEM to the simulation of composite structures (structural analysis or manufacturing techniques)
- Structural analysis-driven automatic model simplification
- Mesh Generation for numerical simulations

(***www.cgeo.ulg.ac.be***)
LTAS-Computational Mechanics specializes in tailored software developments and numerical simulation of problems involving large deformations, complex contact situations and multi-physics couplings.

Our finite element based software METAFOR can deal with complex material behaviors including damage and fracture propagation for both metallic and composite materials. Domains of application are:

- Impact simulation and crashworthiness
- Hot and cold metal forming processes
- Tire mechanics & rubber.
- Biomechanics

These numerical models result from many collaborative projects with industry and funded by the European Community, the Walloon Region and the Marshall Plan. [***www.ltas-mnl.ulg.ac.be***]
The field of expertise of the **"Vibration et Identification des Structures"** [LTAS-VIS] research group relies in the theorical and experimental dynamic analysis of jet engine mechanical components. The main topics on which LTAS-VIS has developed a strong research expertise are the following:
- Structural design of aircraft engines;
- Turbomachinery rotordynamics;
- Vibration testing and modal analysis.

Research developments are performed with the aim of implementation in industrial finite element programs such as Samcef and/or Oofelie. Experimental activities are closely related to the setting-up of vibration testing facilities [***www.ltas-vis.ulg.ac.be***]

Urban & Environmental Engineering (UEE)

The **Laboratory of Materials and Structures Mechanics (M&S)** offers possibilities for aeronautical firms to carry out mechanical tests on different types of aircraft components like rods, lubrication groups, bearing supports, flaps actuator parts, engines composite or metallic carters. The equipment park includes hydraulic and electro-mechanic machines with a load capacity from 10 kN to 2500 kN. On a test floor, movable static hydraulic jacks (50 to 1000 kN) and movable dynamic hydraulic jacks (100 to 1000 kN) can be used. Collaborating with M&S laboratory; **MSM team (Materials and Solid Mechanics)** focuses on material models (steel, Ti, Al...). Development and identification of constitutive thermo-mechanical-metallurgical laws rely on macroscopic phenomenological or multi-scale approaches and crystal plasticity models. Implemented within FEM codes, these laws predict stress, strain, and damage fields during forming processes, specific static or cyclic loading cases. Since 1984, MSM team has developed its own non linear finite element code **Lagamine**.

[***www.uee.ulg.ac.be/cms/c_2672632/fr/mecanique-des-solides-et-des-materiaux-msm, www.uee.ulg.ac.be/cms/c_2371593/fr/laboratoire-des-materiaux-et-des-structures-mecaniques***]

EEI-Montefiore Department

Applied and Computational Electromagnetics (ACE) group: Electromagnetic Compatibility (EMC) tests according to MIL STD 461 (D/E/F) and RTCA DO 160 in reverberating and semi-anechoic rooms. Modeling of electromagnetic systems from statics and quasistatics to wave scattering and optics.
[***ace.montefiore.ulg.ac.be***]
The main research fields of **Microsys laboratory** are the exploratory R&D in the field of microsystem and the energy harvesting or scavenging systems. Microsys conducts inter-disciplinary and cross-disciplinary innovative research in edge-cut fields:
- Exploratory R&D in the field of microsystem R&D in the field of micro-assembly, packaging and interconnect technology
- Microsystem design using off-the-shelf sensors and components, including packaged and bare die
- Pathfinding research on Energy harvesting and scavenging

Microsys is involved in the design and integration of ultra low power wireless sensor microsystems for structural health monitoring and environment sensing in harsh conditions. [***www.microsys.ulg.ac.be***]

Centre Spatial de Liège

Centre Spatial de Liège (CSL) is an Applied Research Centre of the University of Liège, Belgium dedicated to space in relation with the most prestigious space agencies such as ESA, NASA, JAXA, CNES, CONAE... Relying on 90 highly skilled and passionate people, CSL develops, assemble, calibrate and/or test unique instruments and systems capable to operate in the harsh environment of deep space.
CSL is also an actor for the economical deployment of the region through a dynamic participation to technological and data processing application projects with the industry [***www.csl.ulg.ac.be***]

UNIVERSITÉ DE MONS

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The University of Mons deploys its scientific expertise in areas like materials sciences and engineering, new technology applications in the arts and media, bioscience... Most of the research at UMONS is organized in 10 institutes which cover: New Arts and Media Technologies (NUMEDIART), Biosciences (BIOSCIENCES), Information Technologies and Informatics (INFORTECH), Language Sciences and Engineering (LANGUAGE), Materials Sciences and Engineering (MATERIALS), Risk Management Sciences (RISKS), Complex Systems (COMPLEXYS), Energy (ENERGY), Health Sciences and Technologies (HEALTH), Human and Organizational Research and Development (HUMANORG).

The university maintains many fruitful exchanges with its Multitel, Materia Nova and INISMA research centres and with the spin-offs and start-ups which gravitate around it.

UMONS is active in many scientific disciplines related to Aeronautics and Space research development: Materials and Production technology, Fluids Mechanics and Thermal Engineering, Reliability and Maintenance, Surface treatment.

In order to meet the needs of the industrial sector UMONS participates in several joint Research projects with private firms.

- Materials and Production technology
- Fluids Mechanics and Thermal Engineering
- Reliability and maintenance
- Surface treatment

Materials and production technology

UMONS develops an expertise in the field of manufacturing processes. Specific research projects address design of closed mold composite parts for aircrafts or simulation of high-speed machining.

Other topics to be mentioned are the design of piezoelectric motors to provide a gain in weight and control in space applications, the gained experience in additive manufacturing methods such as EBM, the development of reinforced high temperature thermoplastic and thermoset resins, and the design of power electronic motor drives.

UMONS has some projects related to the manufacturing of composites parts for aircraft applications by a specific process, Resin Transfer Molding, which consists in injecting some resin in a closed mold filled by a fibrous reinforcement

Keywords: Resin transfer Molding, Piezoelectric actuators, Virtual manufacturing, Composite Materials, Additive Manufacturing, Thermoplastic and Thermoset resins, dc-dc converter, wide bandgap components.

Fluids mechanics and thermal engineering

UMONS research efforts concentrate on the study and simulation of any type of flow. Research is mainly carried out with advanced CFD (Computer Fluid Dynamics) software. Numerical simulation methods for radiant transfer in absorbing media are also developed in UMONS as well as combustion gases special properties modeling.

In particular: Modeling, development and simulation in Computation Fluid Dynamics (CFD) for aeronautical, turbomachinery and multiphysical applications. The main development themes concern fluid-structure interactions, advanced preconditioning methods and turbulent transition modeling. Applied studies are focused on design and optimization for flow problems in facilities or engines (optimization of fans, compressors and turbines, design of separator and cyclone chambers...)

Keywords: Design and optimization of fan and turbo-generators blades, modeling and numerical simulation of high temperature systems, Turbo-alternators cooling

Reliability and maintenance

UMONS research activities aim at developing techniques to improve the safety of mechanical equipment and optimize their maintenance strategies. UMONS has significant expertise in structure dynamics, rotating machines, and vibratory solicitations.

Past and current research activities include: experimental modal analysis and finite element model updating, identification of input forces by inverse methods, vibration testing and finite element modeling of electronic boards embarked on spatial vehicles, equivalence criteria between vibration tests, analysis and modeling of pyroshocks, prediction of ground vibrations induced by railway vehicles.

Keywords: Diagnosis of vibration problems, Estimation of the residual lifetime of equipment, Optimization of maintenance policies, Predictive maintenance of electromechanical devices, Pyrotechnical shocks on electronic spatial devices

Surface treatment

Materials performances depend on the properties of their surface and on the interactions of the latter with the surrounding media. Modifying a surface or introducing surface layers contribute to optimizing materials properties or make new properties appear (self-healing, corrosion resistance, wetting, absorption, friction and wear, optics, viscosity, etc.). UMONS research activities focus on this.

UMONS is also specialized in the study of surfaces and interfaces: with the structural, electronic, and optical properties (OLEDs and organic solar cells), thin film deposit (plasma technology) and surface analysis (depth profiling and elemental composition).

Keywords: Plasma surface treatments, thin organic coating, Surface functionalization, Corrosion resistance, Surface and interface characterization, Chemical Sensors, Electrochemistry of functional coatings, texturing surface

UNIVERSITÉ DE NAMUR

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Already renowned for its excellence in teaching, the University of Namur (UNamur) is increasingly recognized for the quality of its research. Many research units, from within six faculties, gather academic, scientific, administrative and technical staff, all sharing a common passion for research. The University of Namur belongs to and partakes in several, often interdisciplinary, research networks at the local, regional, federal, european, and international level.
With units specialized in materials (PMR and CES), modeling, optimization and space dynamics (naXys), as well as software engineering (PReCISE), the expertise gathered by the University of Namur covers a large part of the Skywin strategic axes.

Research Center in Physics of Matter and Radiation (PMR)

Laboratories from PMR draw on powerful and modern instrumentation to develop materials, processes, devices and modeling thereof.
It includes the development and applications of many spectroscopic techniques, the quest for new materials, the study of thin films, nanostructures and hybrid (nano)-systems. A selection of examples includes research on self-cleaning surfaces, photovoltaic cells, organic light emitting diodes and new transparent conducting oxide layers.
The research is focused on the study of materials, radiations and their interactions. LISE and LARN laboratories investigate surface deposition and/or modification of materials by ion implantation, physical deposition or RF plasmas. The surfaces and interfaces of those innovative solid materials are investigated by up-to-date optical, electron and ion spectroscopies. Quantum chemical calculations are also performed (***pmr.unamur.be/fr***).

Laboratory of Chemistry and Electrochemistry of Surfaces (CES)

Research objectives of the CES are the design and elaboration of surface and interfacial materials (thin and ultra-thin organic and inorganic films on metal, oxide and polymer substrates) by chemistry processes (electrochemistry, self-assembly, sol-gel film deposition...) The goal is to obtain structured surface materials with new and/or improved properties resorting to the bottom-up approach which depends on the control of processes and interactions at the molecular level.

Molecular self-assembly on active metals

The objectives are to chemically graft organic mono- or multilayers on various substrates - noble metal (Au, Ag, Pt...) and (re)active metals (Ni, Cu, Zn, Al, Ti, Ta...) - by bifunctional molecular connectors (X-spacer-Y) -X being a group (-SH, -SeH, -S-S-, -SiR3, -PO(OH)2...) selected to preferentially react with the surface substrate. The group -Y is chosen to impart either specific end-properties to the modified substrate (lubrication, anti-wear, corrosion resistance, anti-fouling, controlled wetting...) and/or (re)activity for additional surface processes (chemical anchoring and/or induced growth of one or more additional layers).

Others

Additional topics are related to carbon nanotubes functionalisation for composites elaboration (polymers/CNTs, metal or metal oxides/CNTs), surface modification for biomaterials applications, electrodeposition in ionic liquids...
(***www.unamur.be/sciences/chimie/cesa/***)

Namur Center for Complex Systems (naXys)

From the space debris to the whole universe, in the solar and extrasolar systems, the center naXys of UNamur is renowned for its numerical and analytical approaches of space dynamics.

The center naXYs (Namur Complex Systems) has a strong research component in orbital motions, space geodesy and physical cosmology. The researchers are partners of several space missions (BepiColombo, Euclid, Juice, Cheops) where their theoretical approaches are appreciated in the mission analysis and preparation phases; they contribute to the modeling of the dynamical problems and observables, as well as to the building and refining of suitable numerical software and tools (frequency analysis, efficient algorithms, statistical forecasts, chaos detection, stability criteria).

In many industrial and research projects, one attempts to improve a system by modifying its decision variables subject to constraints: this is optimization.

The research group focusses on the numerical solution of such problems that is the effective calculation of the best values for the decision variables.

We focus in particular on nonconvex and large scale instances. Both theoretical questions, such as design and convergence properties of the algorithms, and associated software issues are studied (***www.unamur.be/sciences/naxys***).

PReCISE

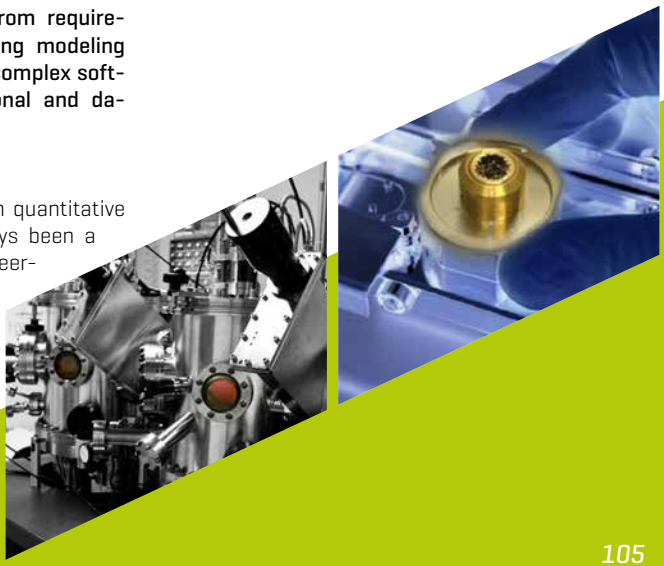
The PReCISE research center is dedicated to all areas of software engineering, from requirement engineering to testing, using modeling techniques to reason and design complex software systems both from functional and data-oriented perspectives.

Quality and Measurement

Assessing software quality through quantitative and reliable information has always been a major concern of software engineering. However, as the field evolved, software has become a complex product involving interrelated models with different abstraction levels targeting different stakeholders. During the past few years, the PReCISE center has developed innovative techniques, methodologies and tools dedicated to the quality modeling of complex software systems. Relying on software measurement and taking into account the complex relationships between software products (from requirements and design documents to tests and documentation), these techniques offer a more efficient understanding of software quality that benefits to all stakeholders (from customers to developers).

Model-based Engineering and Quality Assurance for Variability-Intensive Systems

For more than 10 years, the PReCISE center has developed techniques to specify, analyze, verify and test variability-intensive systems, a large class of systems regrouping software product lines and highly configurable software challenging current engineering techniques by the combinatorial explosion such configurability induces. Efficient quality assurance techniques and formal definition of variability-aware domain–specific languages are the keys to such challenges. Additionally PReCISE is concerned by the definition of generative approaches to systematically build such variability-intensive systems. Some of these innovations are currently being transferred in industry through a spin-off company dedicated to configuration software (***www.unamur.be/en/precise/***).



UNIVERSITÉ LIBRE DE BRUXELLES

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The ULB is a leading university located in the heart of Brussels, the capital of Europe. It is a multi-disciplinary university covering all major fields and study cycles, composed of 10 faculties, 32 schools and 1 institute.

The ULB is active in numerous disciplines related to Aeronautics and Space research development such as Active Vibration Control, Fluids Mechanics, Lubrication, Maintenance, Health Monitoring, Embedded Systems, Structural Dynamics, ... In order to meet the needs of the industry, the ULB takes part in several joint research projects with private companies. Here are the research units that deal with Aeronautics at the ULB.

Description of Products and/or Services
Aero-Thermo-Mechanics Department (ATM)

Keywords: Fluid mechanics - Lubrication - Aero-engines - CFD - UAV's - Heat exchangers - Helicopters - Space propulsion - N2/O2 separation

The research activities of the ATM department cover a wide range of fluid mechanics applications mainly focused on aeronautics: lubrication systems for aero-engines, air-oil heat exchangers (compact and surface coolers), CFD of reactive flows (combustion), propulsion systems for UAV's and helicopters among others.

Latest research projects:

- E-Break: Engine Breakthrough Components and Subsystems (FP7)
- ESPOSA: Efficient Systems and PrOpulsion for Small Aircraft (FP7)
- LuBest: Performance and qualification tests of lubrication system equipment (JTI Clean Sky)

More details: atm.ulb.ac.be

Structural and Material Computational mechanics (BATir-SMC)

Keywords: Computational mechanics – Multiscale Modelling – Damage and Failure - Robustness of structures – Microstructural Plasticity – Coupled problems - Structural health monitoring

The BATir-SMC research group develops advanced computational modelling methods for mechanical and coupled problems. The various application fields for the developed methods cover the modelling of composite materials, the study of microstructural plasticity processes in multi-phase metallic materials, lightweight materials and structural health monitoring.

Latest research projects:

- EnLightenIt !: Multiscale Modelling of Lightweight Materials (metallic foams and 3D printed lattices) accounting for uncertainties (PDR-FNRS)
- ENTROTOUGH: Développement, optimisation et modélisation des alliages à haute entropie (Wallinov)
- SEED: Consortium Erasmus Mundus Joint Doctorate – Simulation in Engineering and Entrepreneurship Development (EU-FP7 Marie Curie)

More details: batir.ulb.ac.be

Bio, Electro and Mechanical System (BEAMS - Embedded Electronics)

Keywords: Embedded systems - Digital electronics - Power Electronics - FPGA

BEAMS research activities focus on four major axes:

- Multi-processor System-on-Chips with real-time operating systems (MPSoC/ RTOS)
- Better algorithm/architecture adequation using system-level design flows
- 3D-chips design and optimization
- Control of power electronics devices

Latest research projects:

- Digital electronics based on micro-controllers, DSP and FPGA complex embedded processors (SoCV: System on Chip; MPSoC: Multi Processor System on Chip) in deep sub-micron technology and coarse-grain architecture, including an interconnection network (NoC: Network on Chip)
- Real-time networks (field busses) for industrial monitoring and control

More details: www.beams.ulb.ac.be

Bio, Electro and Mechanical System (BEAMS - Mechatronics)

Keywords: Active vibration isolation - Interferometric inertial sensor - Active vibration damping

The lab is specialized in the development of instruments and robust strategies for active control of structural vibration.

Latest research projects:

- MAVERIC: Maîtrise des vibrations des structures aéronautiques au moyen d'absorbeurs intelligents (Wallinnov)
- IGOR: Isolation of gravitational wave observatories (FNRS - MIS)
- AVIS: Active vibration isolation system (ESA - NPI)

More details: homepages.ulb.ac.be/~ccollett/research_main.html

Department of System Analysis and Control Engineering (SAAS)

Keywords: Automatic systems - Fault detection - Condition monitoring - Health monitoring systems - Robust control - Force feedback

The team of SAAS studies and develops model-based condition monitoring systems. Such systems process in real time the measurements available on the supervised device in order to detect and localize small degradations, and hence to plan maintenance operations in due time, before a failure occurs.

Latest research projects:

- HM+: The more intelligent airplane: health monitoring and predictive maintenance
- MINT: Intelligent maintenance
- POWER: Condition monitoring and optimization of the operation of wind turbines

More details: saas.ulb.ac.be

Transfers, Interfaces and Processes (TIPs)

Keywords: Microgravity - Multiphase systems - Mixing - Gas-liquid mass transfer - Dynamics of interfaces - Heat transfer - Evaporation - Crystallization - Wetting - Capillarity - Microfluidics

At TIPs, the main goal of the ongoing research is to develop new theoretical, numerical and experimental methods allowing to understand and predict the behavior of multiphase systems, and to design or optimize industrial processes dedicated to the transformation of matter (mineral, organic or biological) and energy.

Latest research projects:

- MULTIFLOW: Multiscale Complex Fluid Flows and Interfacial Phenomena (EUFP7 Marie Curie Initial Training Network)
- MicroMAST: Multiscale Applications of Surface Tension – Microfluidics and Micromanipulation (BELSPO IAP Network)
- Prodex-EVAPORATION et Prodex-HEAT TRANSFER (funded by ESA and BELSPO)

More details: www.sites.google.com/site/tipsulbacbe

Materials Engineering, Characterization, Synthesis and Recycling (4MAT)

Keywords: Additive manufacturing - Micro-structural characterization - Metallurgy

The research activities of 4MAT cover the entire life-cycle of materials from their synthesis and processing to the optimal management of their end of life going through the optimization of their (micro) structures. A special interest is given to the relationship between the process parameters and the properties (both bulk material and thin films).

Latest research projects:

- Additive manufacturing of Ti-6Al-4V parts: from microstructural control to architecture materials
- Titanium dioxide thin films deposited by pulsed vacuum arc

More details: www.4mat.ulb.ac.be/HOME-FR.html

ROYAL MILITARY ACADEMY (RMA)

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The Environmental Mechanics and Mobility Applications (EMMA) research group of the Royal Military Academy is conducting research in the domains of advanced mobility and dynamics (green propulsion and platform dynamics), mechanical and environmental engineering (vibrations and hazards in flows), as well as applied robotics (collaboration strategies, sensor-platform integration, close-in and stand-off detection). All with a strong emphasis on aeronautical research questions that are investigated using state-of-the-art multi-disciplinary numerical simulations or experimental measurements.

The EMMA research group is organized around three units:

- advanced mobility and dynamics dealing with green propulsion by rotors and propellers including aeroacoustics, gaseous jet injection, flight dynamics of helicopters and UAVs, and propeller aircraft design,
- mechanical and environmental engineering ranging from smoke containment and fine-dust dispersal, to noise propagation issues and vibration testing or control, as well as virtual vibrations and simulation,
- applied robotics for high-risk applications and challenging environments handling autonomous vehicles with a particular emphasis on collaboration strategies in swarms of heterogeneous platforms operations, sensor-platform integration, close-in and stand-off detection and decision

Research and development questions are dealt with a strong multi-disciplinary background and using state-of-the-art numerical simulations or experimental measurements which serve as the base for horizontal cross-fertilization. Several simulation packages are available for High Performance Computing. Next to a BELAC - ISO 17025 accredited vibration test facility with controlled climate, experimental facilities include several low-speed tunnels completed with a wide variety of measurement systems based on: Particle Image Velocimetry, Light Induced Fluorescence, Laser Doppler Velocimetry, Hot-Wire Anemometry, Infrared Thermography, Ultrasonic Anemometry and classical anemometry. Optimization techniques (genetic, adjoint, or gradient) are called in whenever necessary.

Fixed and rotary-wing unmanned systems are also available with different sensor suites.

CENAERO

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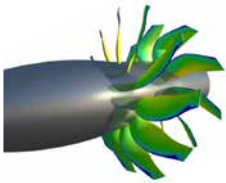
Cenaero is a private non-profit applied research center providing to companies involved in a technology innovation process numerical simulation methods and tools to invent and design more competitive products. Internationally recognized, in particular through its research partnership with Safran, Cenaero is mainly active in the aerospace (in particular turbomachinery), process engineering, energy and building sectors.



Cenaero provides expertise and engineering services in multidisciplinary simulation, design and optimization in the fields of mechanics (fluid, structure, thermal and acoustics), manufacturing of metallic and composite structures as well as in analysis of in-service behavior of complex systems and life prediction. Cenaero also provides software through its massively parallel multi-physics platform Argo and its design space exploration and optimization platform Minamo.

Cenaero operates experimental facilities in composite manufacturing and prototyping as well as the Tier-1 Walloon supercomputing infrastructure with 14,000 computing cores.

Cenaero is certified against the EN 9100:2009 and ISO 9001:2008 standards.

CETIC

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The Centre of Excellence in Information and Communication Technologies (CETIC) helps companies to enhance software-based solutions and to integrate ICT innovations into their products, processes and services. CETIC continually develops its expertise through collaborative research projects involving regional and European actors.

CETIC provides expertise in three complementary axes: software engineering, ICT technologies and embedded systems.

CETIC can support the Aeronautics sector with methods and tools

- for developing high-quality IT solutions;
- for Model Driven software engineering;
- to enhance software reliability, safety or security;
- for compliance with international standards, where software or embedded systems development life-cycle are impacted.

CEWAC

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CEWAC is a technical services and R&D centre intended to assist companies: studies, testing, expertises and controls (ISO 17025 accreditation). Its 2 departments offer various services:

Welding and Testing Department

- Welding processes: Arc (MIG, TIG, (μ)-plasma, Laser, Friction, Friction Stir, Electron Beam and Resistance welding
- Non-destructive testing: PT, MT, RT (2D and 3D), UT, VT and IT
- Destructive testing: metallography, (micro-)hardness, tensile & bend testing
- Calculations (FEM), conception & design in the fields of welding

Hydraulic Department

- Free flows studies: valves, pumps, separators, water treatment plants, filters...
- Development and design of tests in extreme conditions: fire, high and low temperature, cryogenic, high and low pressure, helium leak tests...
- Assistance to research and product design in vacuum, industrial, environmental & medical hydromechanics
- Research and development in the field of Renewable energy: biomethanisation, hydroelectricity, greywater heat recovery...

CORI (COATING RESEARCH INSTITUTE)

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CoRI is a research center specialized in paints, varnishes, inks and adhesives. It is characterized by its strong formulation skills.

CoRI's collaborative research activities are a source of technological innovation and business development support.
The results of this research are valued by contract research with industrial partners.
The CoRI testing and analysis laboratory (ISO17025) proposes chemical and physicochemical characterization of raw materials, but also tests of application, formulation and realization of test batches, up to 100 kg.

CRIBC (CENTRE DE RECHERCHES DE L'INDUSTRIE BELGE DE LA CÉRAMIQUE)

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CRIBC, the Belgian Ceramic Research Center, has a proven expertise in the field of technical ceramics and metal-ceramic composites.

In order to provide state of the art support to the industry, our experts rely on 2 technological platforms. The sintering platform proposes several densification techniques (SPS, Gas Pressure Sintering, HIP, HP...) to address all kind of ceramics - oxides, nitrides, borides, carbides... The second platform gathers original rapid manufacturing technologies: selective laser melting, laser cladding, inkjet printing, laser and hydrid milling.

MATERIA NOVA

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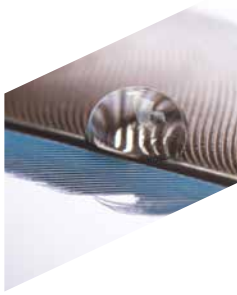
Materia Nova is an R&D center with a high level of expertise in surface treatment on different substrates: glass, metal, polymer, wood...

Materia Nova is specialized in the formulation and deposition of hybrid coatings by sol-gel and plasma processes as well as in ion implantation treatments. New formulations used with anodized aluminum (anti-corrosion protection), hydrophobic coatings or super absorbing optical layers are some main fields of research. Materia Nova promotes market-oriented activities through its advanced technologies, its pilot scale tools and its starts-up IONICS and NANO4.



MULTITEL

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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 aerospace 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
- development of multimodal speech centric man-machine interfaces
- real time asset tracking systems based on RFID technologies for localization of people and objects
- image processing (for aerial/remote sensing images), non-destructive video-based testing (quality control)

SIRRIS

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SIRRIS, the Collective Center for the Belgian technological industry.

Sirris, is the technology center of the Belgian manufacturing industry. It promotes and supports innovation in products, materials and processes for a very broad range of industrial activities.

Sirris is:

- A technology transfer partner of advanced and breakthrough manufacturing technologies
- A competence integrator in innovative projects, helping set up and management of multi-competence R&D consortia with its network of 2500 Belgian industrial and academic partners
- An R&D partner providing expertise and up to date equipment in additive manufacturing for complex metal or ceramic parts, in Micromanufacturing (circuit on foil, µMim, µreplication...), and in smart products design concept and development

von KARMAN INSTITUTE
FOR FLUID DYNAMICS

VON KARMAN INSTITUTE FOR FLUID DYNAMICS (VKI)

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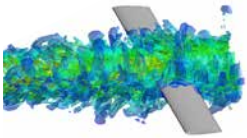
Space vehicles re-entry, safety of nuclear reactors, noise and pollution reduction, performance of aircraft engine and renewable energy systems define to a large extent the research performed at the VKI.



Located near Brussels, this non-profit international educational and scientific organization is specialized in fluid dynamics (anything which flows) in the areas of aeronautics and aerospace, environmental and applied fluid dynamics, and turbomachinery and propulsion. The von Karman Institute prides itself in providing "advanced training in research through research" and hosts more than 50 facilities and wind tunnels, some of them world-unique.

WALLONIA TRAINING CENTERS

TECHNIFUTUR

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Training, awareness, advising, e-learning and e-business are our assignments. They cover various fields, such as aeronautics, assembly, automation, design, measurement and inspection, machining, image and multimedia, etc. They meet the requirements of the regional, national and international industrial environment.

We target company staff, job seekers, teachers and students (for more information, go to our website www.technifutur.be).

More particularly and for more than 10 years now, Technifutur has been providing training to aircraft maintenance mechanics in the aviation sector. In 2007, the "Service Public Fédéral de la Mobilité et du Transport Aéronautique" granted the PART 147 approval, officially acknowledging Technifutur's competency and their right to conduct training and examination and to issue certificates for aircraft maintenance mechanics in accordance with the requirements of PART 66 levels A1, A2, A3 and A4.

On the basis of this recognition, of the acquired experience and the needs expressed by the aircraft industry, Technifutur now aims at expanding their skills and achieving the approval to provide levels B training and examination.

Technifutur is also recognized worldwide for its welding and non-destructive testing training courses.

WAN (WALLONIE AEROTRAINING NETWORK)

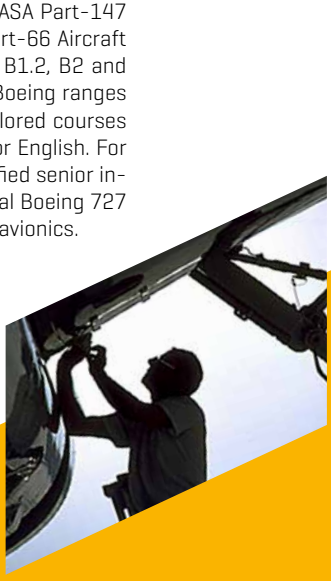
Chaussée de Fleurus 179 | 6041 Gosselies | BELGIUM
T. +32 (0)71 34 81 80 | F. +32 (0)71 34 81 81
info@wan.be | www.wan.be

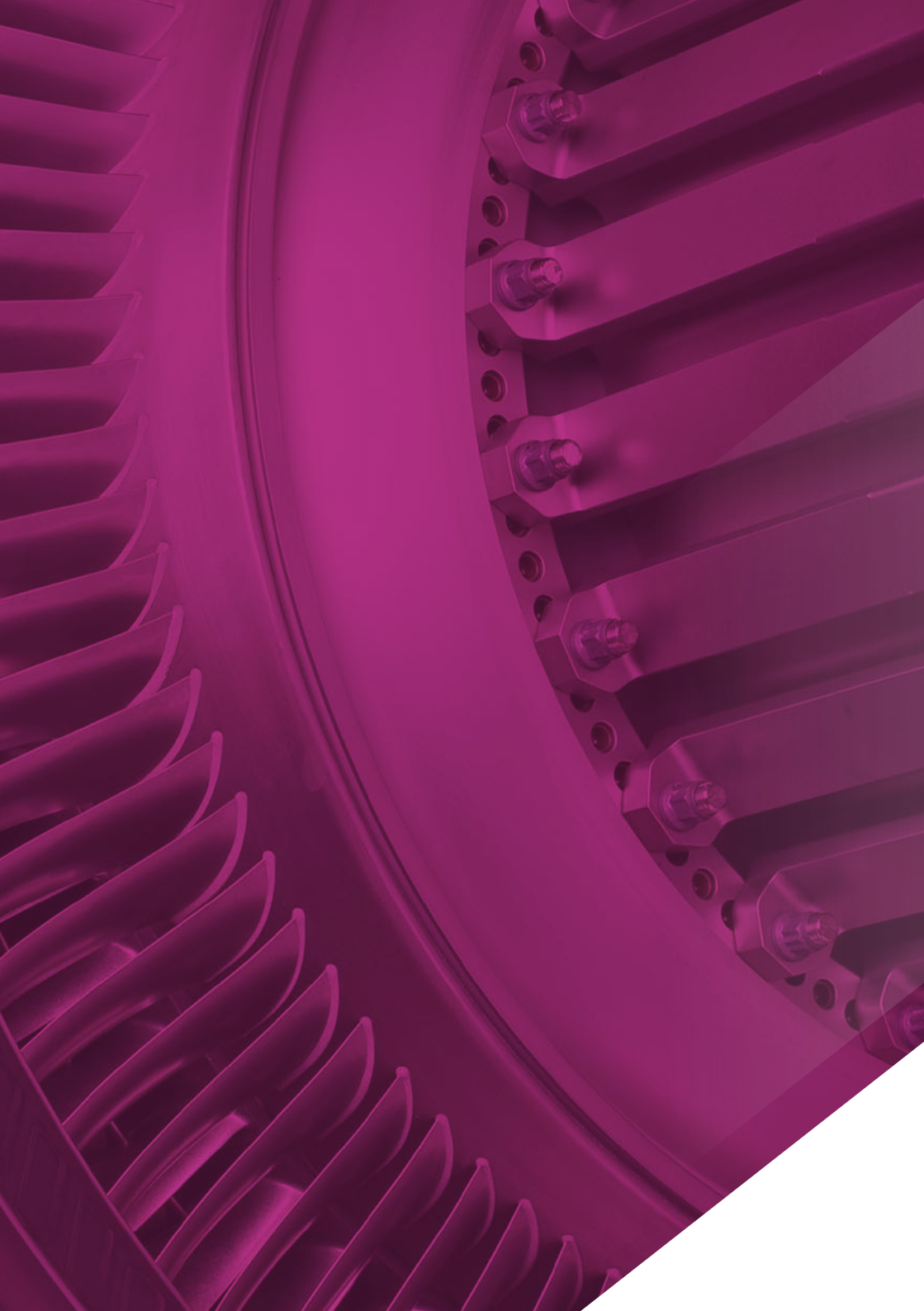
The WAN is an "assembly ground" of training. The WAN relies on different partners, such as centres of competency, aeronautical schools, Belgian Air Force and major players of industry (SONACA, SABCA...). The WAN covers all the needs of the aerotechnical sector.

PRODUCTION. All technologies and methodologies linked to design, manufacture, repair and inspect cells, engines, avionics. Such as: CAD/CAM (CATIA v5 & v6), analysis and functional dimensioning, operating gamuts, process understanding and assembly techniques (metallic/composite), non destructive testing, finite element analysis and resolution methods (SAMCEF/NASTRAN), quality (EN9100/EN4179), Lean Manufacturing, SPC methodologies...

MAINTENANCE. Trainings for jobs in airports or industrial aeroplane workshops, propulsion mechanisms, onboard equipment. Approved as official training centre (EASA BE.147.002), the WAN provides recognised (meets EASA Part-147 requirements) basic training for Part-66 Aircraft Maintenance License A1, A2, B1.1, B1.2, B2 and aircraft type training for Airbus or Boeing ranges for B1.1, B2 and C. Many others tailored courses and exams are possible in French or English. For its training, lectured by highly qualified senior instructors, the WAN owns a functional Boeing 727 and various aircraft parts, engines, avionics.

AUTOMATED FIBER PLACEMENT. An AFP machine manufactures complex shapes using composite material. An Ingersoll AFP is installed at SONACA facilities. The centre is able to conduct research for advanced aerospace applications and industrial process development. The WAN's main target is to train specialised people using AFP technology.





NETWORKS

TECHNOLOGICAL AND SCIENTIFIC INTERMEDIATION NETWORK

Are you looking for a solution to a technological problem? Do you want to launch out further into research and technological innovation?
Do you want to enhance your technologies? The technological and scientific intermediation network is at your service!

CEQUAL
Helps you to integrate Quality, Safety and Environmental Management Systems to improve your competitiveness
www.cequal.be

DGO6
The operational Directorate General for the Economy, Employment and Research (Research Department) offers a range of incentives and forms of assistance to increase the technological potential of researchers based in the Walloon Region.
http://recherche-technologie.wallonie.be

Drone Valley a.s.b.l.
Drone Valley is the federation of all the professionals in the civilian sector, from research and development to end-to-end solutions for all sectors of activity, including manufacturers, software developers and training centers.

EEN network
Assistance to your SME to develop and exploit your technological expertise by setting up European partnerships
www.wallonieeurope.be

InnovaTech
The coach for your technological innovations witch helps you to structure your technological innovation projects from the emergence of the idea until its commercial exploitation.
www.innovatech.be

LIEU Network
Provides access to the resources and competences of universities and higher education institutions
www.reseaulieu.be

NCP-Wallonie
Free professional assistance at every stage of your European research project.
www.ncpwallonie.be

PICARRÉ asbl
Decision-making assistance for developing a management policy for your intellectual assets.
www.picarre.be

Wallonia Clusters
Network of technological clusters active in Wallonia
http://clusters.wallonie.be

AWEX (WALLONIA FOREIGN TRADE AND INVESTMENT AGENCY)

Wallonia.be
EXPORT
INVESTMENT

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mail@awex.be
www.wallonia-export.be | www.wallonia-international.be

The **Wallonia Export-Investment Agency (AWEX)** is the Wallonia Region of Belgium's government agency in charge of foreign trade promotion and foreign investment attraction. The agency has a worldwide network of 109 Economic Commercial Advisors.
AWEX has been ISO 9001 certified since April 2002.

As **a foreign trade agency**, AWEX carries out a mission of promotion and information for the benefit of both Wallonia and the foreign business community.

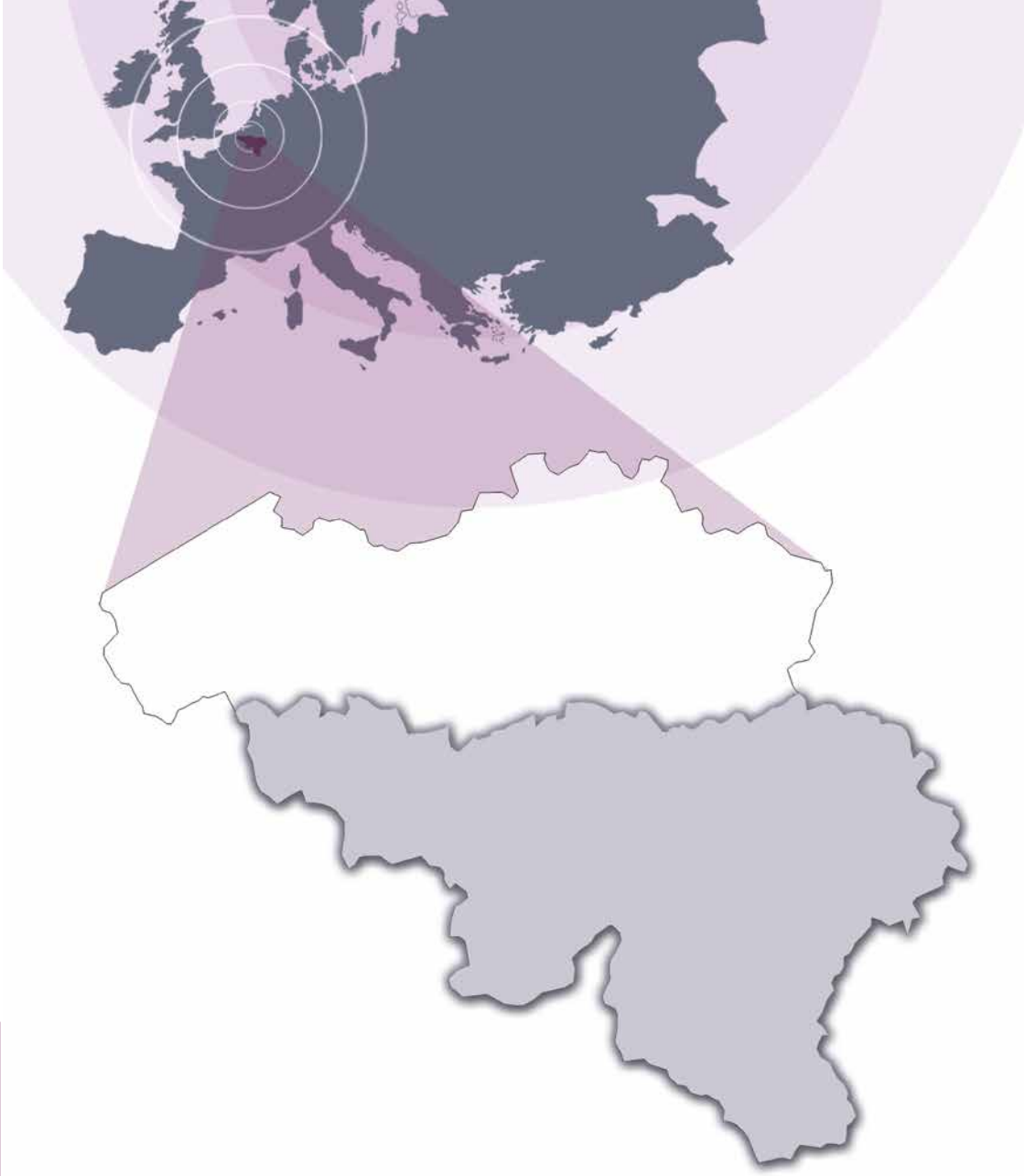
Upon request, AWEX assists buyers, decision-makers, importers and foreign prospects by:

- Providing economic data on Wallonia and its export potential
- Disseminating information on products and services from companies located in Wallonia
- Identifying companies in Wallonia for international partnerships
- Distributing lists of exporters from Wallonia

As an export partner for Wallonia-based companies, AWEX offers a wide range of export-oriented services and activities:

- General and commercial information on foreign markets
- Market studies tailored to specific areas upon request
- Organization and planning of marketing activities (international trade shows, economic missions, sector-based contact days...)
- Establishing contacts with international organizations
- Promoting Wallonia's export potential abroad
- Financial support and export financing
- Training in international careers

As a **foreign investment agency**, AWEX has an overall responsibility for the attraction of foreign investment in Wallonia. This includes seeking out and providing information to potential foreign investors. The agency also offers a pro-active follow-up service to investors already established in Wallonia. In addition, it is in charge of identifying new foreign investors for the acquisition of industrial sites under restructuring process.



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Skywin
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