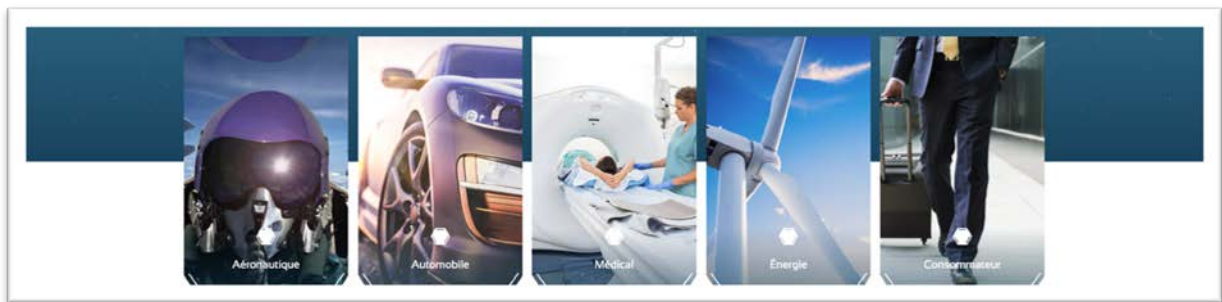




**DEDIENNE**<sup>®</sup>  
**MULTIPLASTURGY**<sup>®</sup>  
**GROUP**

*metal to plastic solutions*<sup>®</sup>



# PRESS KIT 2019

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## I. Presentation of Dediemme Multiplasturgy® Group.

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### 1. Its history, know-how and priorities for the future.

For more than 70 years, Dediemme Multiplasturgy® Group's DNA has incorporated a willingness, a spirit of entrepreneurship, success and innovation.

Since its creation, the Group specialized in the manufacture of plastic and composite technical parts, has evolved and developed thanks to the audacity and professionalism of its teams around its unique **concept Multiplasturgy®**:

- Dediemme Multiplasturgy® Group is today one of the leading European specialists in the design and manufacture of high-performance plastic and composite technical parts, replacing metal parts. The company meets the needs of equipment manufacturers, builders and designers

**The Group's industrial entities are specialized according to target markets:**

- DEDIENNE Multiplasturgy® for aeronautics, aerospace, defense and BtoC
- DEDIENNE Atlantique® for the automotive, aerospace and BtoC
- DEDIENNE Romania for the automotive and aerospace
- CGTEC for automotive and medical
- M2P for aeronautics, aerospace, defense, automotive and medical

**The Group's priorities for the future are:**

- Its international expansion. The goal of Dediemme Multiplasturgy® Group is to move from 45% of sales made to export to 70% by 2025.
- Its digital transformation, to become a major player in the industry 4.0.

**Find all the news of Dediemme Multiplasturgy® Group,  
visit our brand new website: [www.dediemme.com](http://www.dediemme.com)  
and our LinkedIn page:  
[www.linkedin.com/company/dediennemultiplasturgygroup/](http://www.linkedin.com/company/dediennemultiplasturgygroup/)**

**Dediemme Multiplasturgy® Group in figures:**

The Group has **620** employees  
Every year it carries out more than **615** projects  
With customers in more than **25** countries

## 2. The dates that matter.

Entrepreneurial and industrial dynamics are in our DNA. With more than 70 years of history, Dedienn Multiplasturgy® Group has always been able to renew itself to meet the ever-increasing demands of the international industrial market.



January 2008



Creation of the unique concept Multiplasturgy®

July 2005

Purchase and takeover of MECA-Teno SA to create Dediennne automotive.

October 2004

The Volot family, who first took control of Dediennne in 1986, sold the company through a MBO guided by Pierre-Jean Leduc and a team of executives assisted by a pool of financial investors. Creation of Dediennne Plasturgie SAS that will become a few years later Dediennne Multiplasturgy® group SAS.

June 2004



Creation of Dediennne Romania based in Fagaras in Transylvania

April 1991



Pierre-Jean Leduc joins Jean-Claude Volot

July 1973



Jean-Claude Volot, Roland Dediennne nephew, integrates Dediennne and creates some time after a subsidiary in Normandy precisely in Andelys (27): AMPA (Atelier Mecano-plastic of Andelys) specialised in machining, low pressure moulding, sheet metal and Thermoforming of plastics.

January 1947



Creation of the Dediennne workshop by Roland Dediennne in Clamart (92), specialised in precision mechanics on plastics.

### 3. The locations of Dedienné Multiplasturgy® Group.

Its head office is in France, in St-Aubin-sur-Gaillon - Eure (27).

The Group has 4 locations in France, 1 in Romania and 1 in the United States



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## II. Dedienne Multiplasturgy® Group expertise.

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### 1. The Multiplasturgy® concept.

The Group's technologies and services are combined in the unique Multiplasturgy® concept.

The Multiplasturgy® concept is the heart of Dedienne Group reactor, its development engine, based on a concept that promotes exchange of information and pooling of skills.

The MULTIPLASTURGY® concept is the shortest, most efficient, and most innovative way to offer global, differentiating and value-creating solutions. The services go from assistance to the choice of materials to co-design and the realization of subassemblies and assemblies.



All of its know-how positions Dedienne Multiplasturgy® Group as one of French's leading specialists in metal to plastic substitution.

### 2. Metal to plastic solutions®.

There are many benefits to replacing metal with plastic HPP - High Performance Polymers: reduction of weight, mass gain, 90% recyclability of parts.



**At iso design, here are some examples of material lightening thanks to the replacement of metal by plastics and high-performance composites:**

- Aluminium, density = 2,7 g/cm<sup>3</sup>
- HP plastic (High Performance) - density = 1,3 g/cm<sup>3</sup>
- So at iso design, we could gain up to 50% mass. In optimized design, we must instead go on a gain of 20% to 30% of mass.

The Group's expertise goes from a recognized knowledge of materials (plastics, high-performance polymers and composites), to the mastery of different implementation technologies to produce parts and sub-assemblies covering a wide range of applications:

- 3D additive manufacturing in series
- Smart Plastic Products or Plastronics
- Bio-composite
- High precision machining of plastics & composites
- Thermoplastic & Thermoset injection, Micro-injection, over molding and bi material
- Forming, thermoforming, RTM & SMC (Resin Transfer Molding & Sheet Molding Compound), stamping of thermoplastic composites out of autoclave
- Design & manufacture of molds & tools and parts
- Metallization of thermoplastic plastics and composites, electromagnetic and absorbent compatibility
- Surface treatment, decoration, assembly

**Our certifications:**

- ISO 9001
- ISO 13 485
- ISO 14 001
- EN/AS 9100
- AQAP 2110
- IATF 16949

**3. Strategic industrial partnerships to reinforce its excellence.**

Dedienne MULTIPLASTURGY® Group actively develops its ecosystem with partnerships - industrial, economic or digital - aiming to reinforce its excellence in many areas.



In this context:

- Dedienne Multiplasturgy® Group was chosen by DuPont™ to be the exclusive distributor in France of Vespel®, the high-end plastics, invented to go to the moon.
- Dedienne MULTIPLASTURGY® Group is at the origin of collaboration between manufacturers through the creation of associations or companies allowing the sharing of resources and knowledge. This is particularly the case with FiMaLin, an association bringing together all players in the value chain within the flax stream, and NADTEK®, Normandy Advanced Technologies, around the technologies of aeronautics and defense.

### III. « Innovation, our vital force. »

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Innovation is a differentiating factor for Dedienne Multiplasturgy® Group. Based on a unique customer project, the Group's expertise in material and composite engineering enables us to offer adapted, original and efficient production solutions in key sectors such as Smart Plastic Products, high-performance materials, additive manufacturing and bio composites.

1. Additive manufacturing thanks to the new Atelier Dedienne 3D, for production of small and medium series.

The Group is in the process of acquiring a complete workshop for the additive manufacturing - in 3D - of small and medium series. In April 2019, a new machine was commissioned, allowing the additive production in series based on polyamide 11, made from castor oil. This investment represented 350,000 Euros. Other machines will come to complete the workshop this year, for a total investment that will be greater than 1 million Euros.

#### **Additive manufacturing is THE new industrial revolution.**

This is the set of processes for making, layer by layer, or adding material, a physical object from a digital object. It allows to reinvent and specially to accelerate the industrial process, from design to manufacturing (production of functional parts, high quality, up to 10 times faster than in conventional mode).

**The benefits of 3D additive manufacturing are numerous:**

- time savings and faster time to market;
- a decrease in prototyping and production costs in small and medium-sized series;
- easier manufacture of complex shapes, directly assembled in print output;
- infinite customization of products;
- production of high quality, functional parts with extreme dimensional accuracy and optimal mechanical properties.

**For each additive manufacturing project, Dediennne Multiplasturgy® Group provides its customers with a multi-technology workshop.**

The Dediennne design office finds the optimal technical solution, accessible in price and reproducible in series, with an option in eco-equipment or high-performance equipment. A prototype of the project and a sampling are provided to prepare the production phase in the best conditions.

**And this month marks the arrival of a revolutionary new machine for the aeronautics sector, with the objective of mass production of PEKK ultra high-performance plastic (more information during Paris Air Show 2019).**

**2. Innovative high-performance materials.**

- Dediennne Multiplasturgy® Group was chosen by DuPont™ to be the **exclusive distributor in France of Vespel®**, the high-end plastics, invented to go to the moon.  
Some examples of Vespel® applications in the aeronautics industry: Bushing & Washers for Variable Compressor Vanes, Sealing (Valve seat & Seal ring), Self-locking Aerospace, Fasteners, Spline Couplings, Compressor Shrouds, etc.
- Dediennne Multiplasturgy® Group also offers **PAI Torlon®**, the most efficient thermoplastic, heat transformable. It is used in parts for aeronautics, noted for its resistance to wear and corrosion under high thermal conditions.
- **Thermoplastic composites are becoming increasingly important in many industrial sectors because they meet the technical and economic challenges of tomorrow.**  
Over the last ten years, Dediennne Multiplasturgy Group has expanded its concept of Multiplasturgy® by integrating thermoplastic composites into its expertise panel.  
The goal is to offer its customers monitored, controlled and high productivity processes.  
By constantly innovating on the transformation processes, the group is convinced that it is possible to integrate more and more functions into a thermoplastic part.

In this context, Dedienne Multiplasturgy® Group is involved in collaborative projects led by IRT Jules Verne and bringing together both aeronautical (Airbus, Safran, Daher) and automotive (Renault, PSA, Faurecia) players:

- the COMPOSTAMP project (closed in 2018) whose objective is to develop a line and study the potentialities of the hybrid process of stamping / overmolding for semi-structural parts
- the LIMECO project (in progress) whose objective is to integrate metal inserts in hybrid parts, evaluate the mechanical strength of the interface and simulate this behavior at the interface.

These projects are in line with Dedienne Multiplasturgy® Group's strategy as they focus on hybrid processes that combine quality of consolidation and finishing.

In advance of these two projects, Dedienne Multiplasturgy® Group had already conducted its investigation of this hybrid process by creating an internal project named TRAPPE, whose school mold is still used to test material combinations and refine the design rules for tools and hybrid parts.

**At the Paris Air Show, you can discover several series of TRAPPE.**

- Dedienne Multiplasturgy® Group can offer the production of 100% recyclable parts through thermoforming from bio composite, Flaxcomp® - "flax" for linen and "comp" for composite - composed of flax and resin based on corn starch (PLA) or castor oil (PA11). This specific know-how is of interest to the aeronautics and transport industry for everything concerning domestic interior.

### 3. Smart Plastic Product or plastronics : when intelligence integrates plastic.

In order to create Smart Plastic Products, Dedienne Multiplasturgy® Group integrates electronic functions into three-dimensional molded plastic forms.

This miniaturization of electronic systems brings several benefits:

- Weight reduction
- Built-in functions directly in the object
- The assembly is simplified

In terms of design, the benefits are also significant:

- Increase the performance of the object
- Possibility of crossing technical and aesthetic
- Customization

## IV. The fields of activity of Dedienné Multiplasturgy® Group.

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The unique Multiplasturgy® concept allows the Group to interfere in all areas of activity, from the aeronautics to the medical sector, to consumer products, among others.

### 1. Aeronautic.

Dedienné Multiplasturgy® Group carries out 30% of its activities in the aeronautic, aerospace and defense sector. His know-how goes from the design to the co-design of parts and subassemblies, to their achievements in prototype and then their production in small, medium and large series.

**The Group's main expertise is in the implementation of technical and high-performance polymers as well as composites, transformed through the mastery of several technologies:**

- Machining to transform high-performance plastics such as Vespel®.
- Injection and compression.
- Forming and thermoforming.
- Low pressure molding, surface treatment.
- Decoration, assembly by boiler, welding, gluing, riveting.

#### **The reference applications.**

- Mechanical applications: wear and friction parts (bearings, bushings, bushings, segments, bearing cages), sealing parts (seals, bellows, seats and valve bodies), hot and cold zone components, cryogenics.
- Fixing components: clips, screws, collars, sleeves, washers.
- Components for instrument clusters: front display, diffuser and light guide, buttons.
- Metallized components: Electrolytic metallization of components, plastics (high performance polymers).
- Composite applications: 5-axis composite machining Thermosetting and Thermoplastics.
- The connectors.
- Microwave components: development of EMC products, radomes and antennas, microwave loads, Alkard® products, P10™ foam.

### 2. Automotive.

Dedienné Multiplasturgy® Group's offer for OEMs covers co-design, integrated tooling, part and subassembly manufacturing.

**Dedienne Multiplasturgy® Group expertise:**

- Injected parts: single or dual material technics, transparent parts.
- Decorated parts: in painting, screen printing, hot stamping, pad printing.
- Assembly, hot soldering or US.
- Machined parts.

**The reference applications.**

- Dashboards and displays: complete set, displays with smoked and screen-printed screen, windows and light guides, visible parts raw, painted, chrome, light boxes mono or bi-material, car hoods.
- Electronic card cases: simple housings, paint-coated housings, electroplated housings, case with inserts.
- Carriage sealing: bi-material door seal, window frames.
- Circulation of fluids: fuel connections, filtration elements, ventilation and heating.

**3. Medical.****Dedienne Multiplasturgy® Group expertise:**

- Machining HPP (High Performance Polymers)
- Thermosetting, Thermoplastic and Thermoplastic Elastomer Injection
- Thermosetting compression
- Forming and thermoforming
- Low pressure molding
- Decoration
- Finishing and assembly

**The reference applications.**

- Analytical laboratory equipment: components, covers, seals, lid, cap, handle, respirator.
- Implantable material: condyles, ancillaries, surgical instruments.
- Disposable Veterinary Para IMV

**4. Dedienne Multiplasturgy® Group is also active in many other sectors.**

The expertise of Dedienne Multiplasturgy® Group is also recognized in many other sectors: energy, connectivity, electronics, transportation or consumer goods.