



## Experience FOMAS Group

**Aerospace** is a high-technology industry that centers its manufacturing on high quality materials.

Mastering the knowledge of every type of steel and non-ferrous alloys and their extensive range of possibilities, is our main strength.

By relying on our materials experience and a state of the art supply chain, we are able to determine the best course of action from the initial co-design phase to the special tests of the final components. Able to process the most critical materials: High-performance steels, nickel, cobalt, aluminum and titanium; we also master the re-melting processes with our in house ESR plant and operate the most sophisticated open-die, semi-close die and rolling equipment.

All our forged and rolled components, are near net shape, in order to provide cost reduction & optimize process yield.

We have a proven range of references from worldwide Aerospace Customers and **with a wide track record as a trusted manufacturer of seamless forged components. We are among the few able to forge large diameter aluminum rings for launch vehicles.**

Our global presence (from USA to ASIA) allows a local to local service to the most demanding industries.

Our purpose is to enable sustainable energy, reliable power and limitless motion by moving the needle in mastering the science of metals with a responsible approach.

The Group's Mission is to play to win with **innovation, responsiveness** and a **passionate commitment to long-term partnerships.**

Our vision for the future is to be a multicultural, people-centric organization leading our core businesses by leveraging cutting-edge competencies in the science of metals and embracing the digital transformation.

Everything we do is underpinned by our core values of: **proactivity, integrity, meritocracy, accountability, reliability, transparency & trust.**





### Case study: “A step ahead through a new metallurgical solution”

When supporting a customer, one of the first questions we ask ourselves is, if the actual request is the best solution for the customer’s goals (high performance, cost reduction & environmental protection). With the **metallurgical expertise and know-how** gathered in our Company we are able to provide customers a customized solution that allows better performances and/or cost reduction through reduction of material use.

One of the latest projects, brought our teams to develop and replace a material code for metal components, part of a space vector.

The first chosen conventional alloy (quenched & tempered), should have gone through a galvanization surface treatment. Replacing this steel, with a special corrosion resistant high strength alloy, meant: a decrease in risks (due to the previous plan to apply hexavalent chromium, that will be banned in steel components) and some cost reduction. Modifying a material code

in the aerospace industry, implies going through the revalidation of all the supply & subcontracting chain. (From the raw material to the heat treatment qualification; the machining production cycles as well as the qualification of all test and final inspections). This activity, in deep partnership with the customer, took more than an year. At the end we qualified a new production cycle with a different alloy, studying and validating all process parameters in order to guarantee client’s requirements. Moreover the customer decided to rely on our Group to successfully assume the responsibility of all the supply and certification phases of the component. This activity was before fragmented on various suppliers and presented many risks due to lack of global management.

This case study is one of the many examples of our philosophy and of our turnkey approach.







## Product categories

- **ROCKETS STRUCTURAL PARTS**  
Structural rolled rings, payload adapters, separation and interstage rings
- **ROCKETS ENGINE**  
Turbine cases, nozzles, igniter components, rotor discs, shrouds, shaft
- **SPACE STATION MODULE**  
Bulkheads, adapters, structural and interface rings, tanks
- **DEFENSE EQUIPMENT**
- **AIRCRAFT ENGINE**  
Turbine cases, rotor discs, flange, bearings, shaft

## Materials

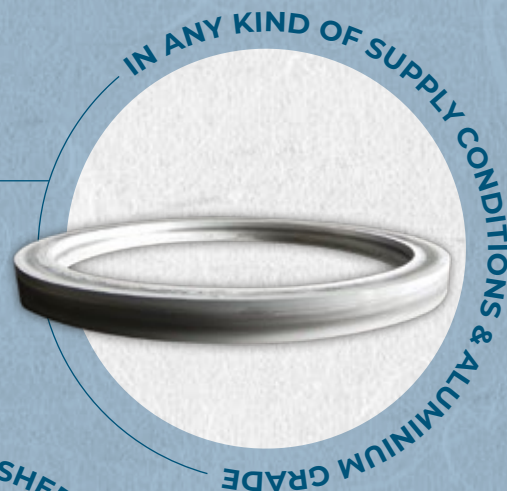
- Aluminium alloys
- Titanium alloys
- Nickel and Cobalt alloys
- Ferrous and high performaces steels

### Latest Rocket Program serve

- ARIANE 5
- ARIANE 6
- VEGA
- GSLV
- GSL V MARK II
- KSLV-II



Typical components supply  
for Space Launch Programs





## Typical Aluminium components supply for Space Station Modules

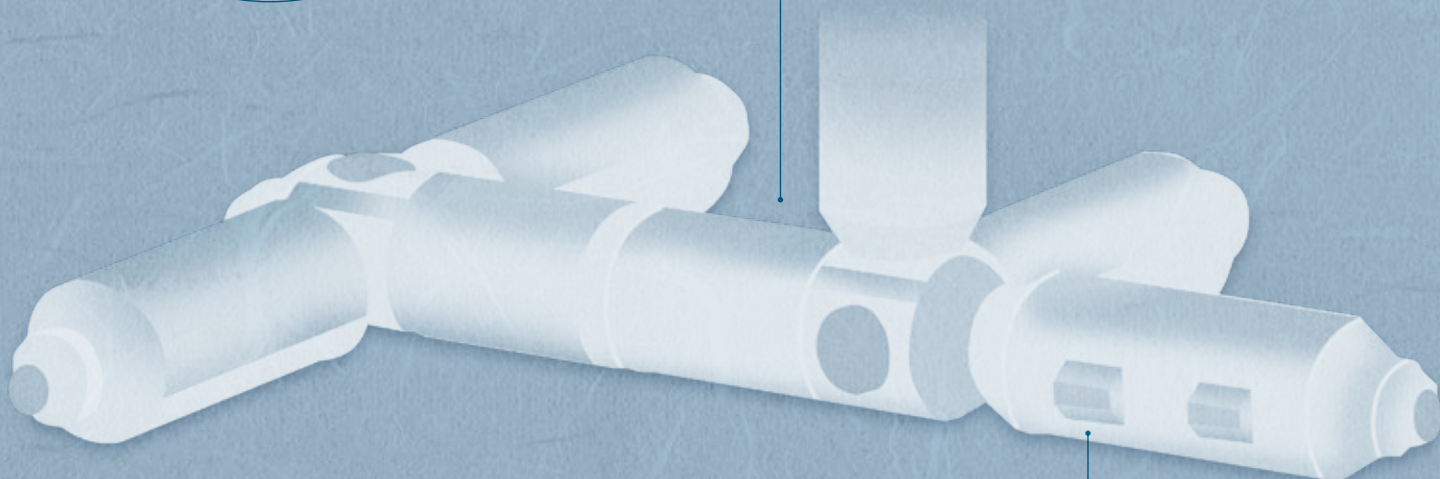
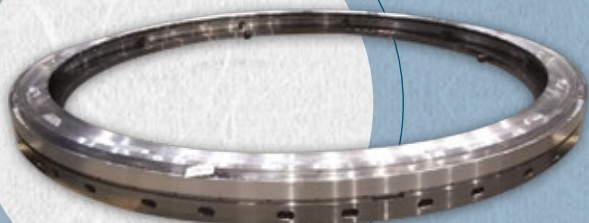
### FORGED PARTS:

- Bulkhead – Panels
- Conical forging
- Fractured Items

### ROLLED RINGS:

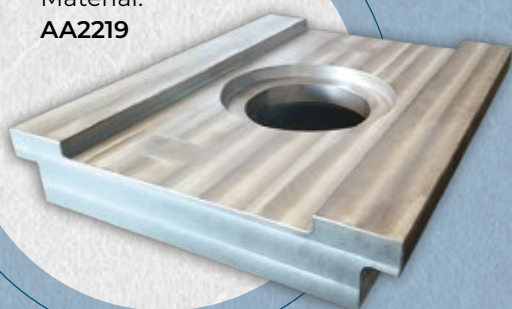
- Interface Rings
- Adapters
- Structural parts
- Fractured Items

FRACTURED ITEMS IN ALUMINIUM ALLOYS



PANELS AND BULKHEADS

Material:  
AA2219



ADAPTER RINGS



Material:  
AA2219



# Metal powders for Aerospace and Defense



## Boost your innovative projects with our customised metal powders

MIMETE, part of FOMAS Group, produces gas atomized (Argon and Nitrogen) metal powders in Iron, Nickel and Cobalt base alloys thanks to a tailor made VIGA plant.

Powders are available for additive (PBF, DED, and Binder Jetting), HIP (Hot Isostatic Pressing) and MIM (Metal Injection Molding) applications.

### PRODUCT QUALITY

- Spherical powders
- Optimal flowability
- Particle size distribution tailored according to customers' request

### TECHNOLOGY

- Vacuum Inert Gas Atomiser (VIGA) ensuring the highest purity and sphericity of the powder;
- SIEVING and BLENDING machines working under inert atmosphere
- Fully equipped in-house Laboratory (ISO/IEC 17025:2017 certified)

### AEROSPACE AND DEFENSE PRODUCT RANGE

- VENUS (Nickel base powders)  
Standard grades (available in stock): Venus 718, Venus X, Venus 625
- MARS (Iron base powders)  
Standard grades (available in stock): Mars 17-4PH
- NEPTUNE (Cobalt base powders)  
Standard grades (available in stock): Neptune 75
- Customised grades: powders designed according to customer requirements

### WHY MIMETE

- Alloy design, development and production in deep partnership with customers.
- Technical support on new applications and critical topics.
- Advanced laboratory testing on powders.
- Certified ISO 9001, EN 9100, ISO 45001 & ISO 14001.

Alloy	Al	C	Co	Cr	Cu	Fe	Mn	Mo	Ni	P	S	Si	Ti	W	Nb+Ta	Other	Reference Standard
VENUS 718	0,20÷0,80	≤0,08	≤1,0	17,0÷21,0	≤0,3	bal	≤0,35	2,80÷3,30	50,00±55,00	≤0,015	≤0,015	≤0,35	0,65±1,15		4,75±5,50	Zr 4,75±5,50	ASTM F3055
VENUS X		0,05÷0,15	0,5±2,5	20,5±23,0		17,0±20,0	≤1,0	8,0±10,0	bal	≤0,04	≤0,03	≤1,00		0,2±1,0			ASTM B435
VENUS 625	≤0,4	≤0,1	≤1,0	20,0±23,0		≤5,0	≤0,5	8,0±10,0	bal	≤0,015	≤0,015	≤5,0	≤0,4			Nb 3,15 ± 4,15	ASTM F3056
MARS 17-4PH		≤0,07		15,00±17,50	3,00±5,00	bal	≤1,00		3,00±5,00	≤0,040	≤0,030	≤1,00			0,15±0,45		ASTM A564
NEPTUNE 75	≤0,10	≤0,35	bal	27,00±30,00		≤0,75	≤1,00	5,00±7,00	≤0,5	≤0,020	≤0,010	≤1,00	≤0,10	≤0,20		N ≤0,25 B ≤0,010	ASTM F75

Other superalloys are available upon request (Nickel based, Cobalt based, etc).





ASFO ITALY  
 BAY-FORGE INDIA  
 MIMETE ITALY  
 FOMAS USA  
 LA FOULERIE FRANCE  
 HOT ROLL ITALY  
 FOMAS ITALY  
 FOMAS DALIAN CHINA

Head Office  
 via Martiri della Liberazione, 17  
 23875 Osnago (LC) - Italy  
 Phone +39 039 99811  
 Fax +39 039 587415  
[sales@fomasgroup.com](mailto:sales@fomasgroup.com)  
[www.fomasgroup.com](http://www.fomasgroup.com)



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