ARIANE 6 PROGRAM STATUS

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ARIANE 6 PROGRAM
**BACKGROUND**

**DECEMBER 2014**
ESA Council at Ministerial level decided the development of Ariane 6

**DECEMBER 2016**
ESA Council at ministerial level agreed to continue Ariane 6 development

**JUNE 2018**
Full funding secured for development programme

**MID 2020**
Ariane 6 maiden flight

**2023**
Full Operational Capacity
GOVERNANCE

Launch System Architect
Procurement Entity

Launcher System
Design Authority

Launch Base
Design Authority
CONTRACTS SIGNED

GALILEO constellation institutional mission
☑ September 2017

EUTELSAT GEO Satellites commercial contract
☑ September 2018

DGA CS0-3 satellite institutional mission
☑ September 2018
ARIANE 62
(2 BOOSTERS)
GTO 4000 – 5000 kg
SSO 5800 – 7100 kg

ARIANE 64
(4 BOOSTERS)
GTO 11500 kg
SSO 14100 — 14900 kg

UNPRECEDENTLY
FLEXIBILITY,
MODULARITY AND
COMPETITIVENESS

Fairing
Height: 14 or 20 m
Ø 5.4 m

Dual launch system
Ø 4.5 m useful

Reignitable Vinci engine
Thrust: 18 t

2 or 4 P120 boosters
(common with Vega-C)
Lift-off thrust: 350 t

Vulcain 2.1 engine
Lift-off thrust: 137 t

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ANY MISSION, ANY ORBIT, ANY TIME
THINGS ARE GETTING CONCRETE
ARIANE 6
- ULPM Production Line -

Incoming Area

ULPM PRODUCTION LINE IN BREMEN
FIRST STAGE INTEGRATION BUILDING IN LES MUREAUX
THE NEW PRODUCTION LINE FOR THE ARIANE 6 IN LE HAILLAN
PROPULSION SYSTEMS: VINCI, VULCAIN 2.1 & P120C
SUCCESSFUL FIRST DEVELOPMENT TEST FOR THE VULCAIN 2.1 ENGINE

- Completion of the first development test campaign for the Vulcain 2.1 engine
- 12 successful tests of the M1 engine
- This brings the total operating time during testing to 6,315 seconds
SUCCESSFUL FINAL TEST CAMPAIGN FOR THE VINCI RE-IGNITABLE ENGINE

- Vinci completed its development/qualification tests in space vacuum conditions
- 4 successive re-ignitions in space vacuum conditions, for a total duration of 360 seconds
- Final tests completed successfully October 2018 (>14 hours operation)
SUCCESSFUL FIRST STATIC FIRING TEST OF P120C MOTOR

- Test completed at Europe's Spaceport in French Guiana July 2018
- 142 tonnes of solid propellant burnt in 135 seconds (1.05 t/s)
- Thrust of 4,615 kN reached in vacuum
VULCAIN 2.1

VINCI

P120C

From 1993 to 2018: 16 firing tests performed
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LAUNCH BASE
FUTURE LAUNCH PAD AT EUROPE’S SPACEPORT IN FRENCH GUIANA
MOBILE GANTRY

WATER TOWER

LIGHTNING MASTS

FLAME TRENCHES
ARIANE 6 LAUNCH PAD INFRASTRUCTURE IN MARCH 2018 VS AUGUST 2018
04
ARIANE 6
LAUNCH SYSTEM
Main objective: Validation of the Operational Products (i.e. operational plan, procedures, software, organisation, access, …) for nominal and degraded cases
Launch preparation operations workflow.
Launch campaign duration target ≈16 working days (including post-launch revalidation)
MULTI LAUNCH SERVICE A RIDESHARE SOLUTION ON ARIANE 6 AVAILABLE IN 2021
MULTI LAUNCH SERVICE (MLS)
RIDESHARE SOLUTIONS ON ARIANE 6

ATTACHMENT: RADIAL OR VERTICAL

SATELLITE MASS: FROM 1KG TO MORE THAN 400 KG

DETAILED MLS DESIGN UNDER MATURATION

INTERFACE REQUIREMENTS UNDER MATURATION

SERVICE STARTING BY MID-2021

POTENTIAL SERVICE CUSTOMIZATION
Ariane 6: Multi Launch Service (MLS)

- **Two Models of Ariane 6**
  - Ariane 62 and Ariane 64
  - (2 boosters vs 4 boosters)

- **Different MLS Configurations**
  - Future adapters of different structures allowing for variety

- **2 or 4 P120C Boosters**
  - Lift-off thrust: 350 t each

### Available in Mid 2021

<table>
<thead>
<tr>
<th>MLS</th>
<th>A62 SSO/SSO</th>
<th>A64 GTO/GEO</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORBIT 1</td>
<td>ORBIT 2</td>
<td>ORBIT 1</td>
</tr>
<tr>
<td>APOGEE (km)</td>
<td>800 km</td>
<td>650 km</td>
</tr>
<tr>
<td>PERIGEE (km)</td>
<td>800 km</td>
<td>650 km</td>
</tr>
<tr>
<td>INCLINATION (°)</td>
<td>98.6 °</td>
<td>97.98 °</td>
</tr>
<tr>
<td>MAIN PAYLOAD MASS (kg)</td>
<td>3 750 kg</td>
<td>4 700 kg</td>
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<tr>
<td>MLS PERFORMANCE AVAILABLE (kg)</td>
<td>1 400 kg</td>
<td>1 000+ kg</td>
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</tbody>
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MLS Configurations

A62 LEO: Cube & nano sats and mainly micro sats [<50kg] + a few mini sats [150-400+ kg]

A64 GTO: [400+ kg] small sats and standard sats [2t-3.5t]

A64 GEO: [200-400+ kg] smallsats (in-orbit servicing)
Typical Mission: Ariane 62 SSO/SSO Rideshare

Architecture composed by a stack of two carrying structures adapted to the Ariane 6 diameter

- A ring adapted to the Ariane 6 diameter
- A plate structure

Accommodation of main passenger and:

- Up to 1 minisat
- Up to 10 microsats
- Up to 24 cubesat deployers (12U or 16U equivalent size)
SUMMARY

☑ Factories making parts
☑ Engines tested
☑ Facilities under construction
☑ Contracts signed
☐ Maiden flight